HUMAN SECURITY OF SMALLHOLDERS:
AN ANTHROPOLOGICAL STUDY OF VEGETABLE FARMERS IN KIRTIPUR, KATHMANDU

A Dissertation

Submitted to the Faculty of Humanities and Social Sciences of

Tribhuvan University in fulfillment of the requirements for the

Degree of

DOCTOR OF PHILOSOPHY

in

ANTHROPOLOGY

By

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DECLARATION

I hereby declare that the dissertation entitled "Human Security of Smallholders: An Anthropological Study of Vegetable Farmers in Kirtipur, Kathmandu" submitted to the Faculty of Humanities and Social Sciences, Tribhuvan University, is my original work. It has been composed and written solely by me under the supervision of my supervisors, and it has not been submitted, in whole or in part, for any other degree or qualification at this or any other institution.

I further declare that all sources of information and data used in this dissertation have been acknowledged appropriately, and all quotations, paraphrases, and citations are properly referenced in accordance with academic standards. I take full responsibility for any errors or omissions in this work.

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LETTER OF RECOMMENDATION

We hereby certify that this dissertation, entitled "Human Security of Smallholders: An Anthropological Study of Vegetable Farmers in Kirtipur, Kathmandu" was prepared by Damodar Tripathi under our supervisions. We hereby recommend this dissertation for its final examination by the Research Committee of the Faculty of Humanities and Social Sciences, Tribhuvan University, in fulfillment of the requirements for the Degree of DOCTOR of PHILOSOPHY in ANTHROPOLOGY.

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APPROVAL LETTER

The dissertation entitled **"HUMAN SECURITY OF SMALLHOLDERS: AN ANTHROPOLOGICAL STUDY OF VEGETABLE FARMERS IN KIRTIPUR, KATHMANDU"** was submitted by **MR. DAMODAR TRIPATHI** for final examination to the Research Committee of the Faculty of Humanities and Social Sciences, Tribhuvan University, in fulfillment of the requirements for the **Degree of Doctor of Philosophy in Anthropology.** I hereby certify that the Research Committee of this Faculty has found the dissertation satisfactory in scope and quality and has therefore accepted it for the degree.

Faculty of Humanities and Social Sciences
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Date: 02 April, 2026

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I undertook this study on the smallholder vegetable farmers because of my personal experiences as a member of farming family of the mid-hills of Nepal and my academic interest to understand their human security situation in the present context of emerging new mode of urban farming amid the rising transnationalpolitical, economic and ecological risks and uncertainties.Eventually this interest transformed into a full-fledged research work as I engaged in anthropological lectures and discussions with my teachers and colleagues of Anthropology in CDA, TU and in Tri-Chandra Multiple Campus, Kathmandu from the beginning of 2016. In such a occasion, I got an opportunity to share about my research problem and proposed to supervise mydoctoral research to Prof. Dr. Ram Bahadur Chhetri, a pioneer of Nepali anthropology, who accepted it and the journey proceeded.

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ABSTRACT

This study examines the human security situation of smallholders in Kirtipur Municipality inKathmandu. They produce fresh vegetables for household consumption and cash earning by selling in the local markets. Grounded in the political ecology of human security framework that combines 'risk society' perspectives, the study explores how the smallholdersnavigate multiple and intersecting insecurities in the context of a rapidly urbanizing capital city of Nepal characterized by the changing population dynamics, marketing of local crops, and shifting priorities of the urban governance.

It is a year long ethnographic fieldwork conducted in 2022 that employs qualitative methods including participant observation, in-depth interviews, focus group discussions, and life histories supplemented by enough secondary data. It examinesongoing transformation in the land use system and changes in the traditional framing practices which has eventually led to the emergence of new mode of vegetable farming dominated by the migrant farmers. It brings farmers' lived experiences, perceptions, and everyday practices at the center in relation to the pressing issues of insecure land tenure, volatile markets, rising production costs, environmental degradation, and limited state support.

The findings reveal that due to the rapid and unplanned urban transformation over the decades has contributed for the emergence of a new peri-urban marginal community in the Kathmandu Valley in Kirtipur. The community has been facing the insecure and uncertain threats ofall the major aspects of human security; economic, legal and political, ecological, and socio-cultural. It further shows that the farmers are not only aware about the threats and the consequences on their lives and livelihoods in that insecure condition but have been actively seeking for the strategies to respond risk and enhance security. Among the strategies they have adopted to ensure the secure situation are; technological, institutional, political and spiritual. The study also shows that despite the range of strategies adopted by the farmers their human security situation in Kirtipur is not safe and free from the risks and uncertainties. As a result, the migrant farmers perceive vegetable farming not as a stable or intergenerational livelihood but as a transitional or stoppage strategy, pursued to secure education, mobility, and alternative futures for household members, particularly the next generation.

The study concludes that the human security situation of the smallholders of Kirtipur is determined by the new mode of urban farming itself that is undertaken within the large

numbers of threats and uncertainties and the limited capacity of the modern state functioning within the global 'risk society'. By centering farmers' narratives and everyday practices, this ethnography of smallholders contributes to the anthropology of agriculture and the political ecology of human security, offering critical insights into how marginal urban farmers negotiate survival, uncertainty, and aspiration at the edge of Kathmandu's transforming agrarian future.

Keywords: *Human security, Kirtipur, smallholders, political ecology, vegetable farming*

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ABBREVIATIONS AND ACRONYMS

AD	Anno Domini
ADS	Agriculture Development Strategy
APP	Agriculture Perspective Plan
AU	Aarhus University
BPG	Bagmati Province Government
BS	*Bikram Sambat*
CAS	Constituent Assembly Secretariat
CBS	Central Bureau of Statistics
CDA	Central Department of Anthropology
DNA	Deoxyribose Nucleic Acid
F	Female
FAO	Food and Agriculture Organization
FGDs	Focus Group Discussions
FY	Fiscal Year
GDP	Gross Domestic Product
GoN	Government of Nepal
ha.	hector
HDI	Human Development Index
HH	Household
HNS	Himalayan News Service
I/NGOs	International/Non-governmental Organizations
IBN	Investment Board Nepal
ILO	International Labor Organization
IMF	International Monitory Fund
I-PHI	Individual Perceived Human Security
KFVMDC	Kalimati Fruits and Vegetable Market Development Committee
KG	Kilogram
KGK	*Krishi Gyan Kendra*
KII	Key Informant Interview
KM	Kirtipur Municipality
KMC	Kathmandu Metropolitan City
LUCK	Land Use Land Cover Change

M	Male
MoALD	Ministry of Agriculture and Livestock Development
MoF	Ministry of Finance
MT	Metric Ton
n. d.	not dated
NARC	Nepal Agriculture Research Council
NPC	National Planning Commission
NPHC	Nepal Population and Housing Census
NSO	National Statistics Office
RECPHEC	Resource Centre for Primary Health Care
SAAR	South Asian Association for Regional Cooperation
TU	Tribhuvan University
UN	United Nations
UNDP	United Nations Development Program
WB	World Bank
WEPT	World Food Program
WTO	World Trade Organization

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

The 21st century has already transitioned into a new era of urbanization, when the security of marginalized communities, including the urban poor, wage laborers, and smallholders, has become a central challenge for urban management. At the core of this transformation is a demographic pivot, with a rising urban population at a steady rate since the WWII. In 1950, only about 30% of the global population resided in cities; today, that figure has surged to approximately 4.4 billion people, more than half of humanity (World Bank, 2023),. With projections suggesting that 70% of humanity will be urban dwellers by 2050, this "urban century" represents a fundamental restructuring of human life. However, for the urban smallholder, this transition creates a precarious paradox. On the one hand, this has created a wide range of economic, social, and political opportunities, including wider access to capital, information, and technology. On the other hand, it is characterized by ecological volatility, market uncertainty, and the emerging new risks and human security threats. Therefore, the smallholders of cities and urban areas, being vital to the resilience of urban food systems, remain acutely vulnerable to the unconventional economic, environmental, and social risks and uncertainties of this new age.

The smallholders in the developing regions often engage in small-scale vegetable farming for both cash earning and subsistence. They occupy the "peri-urban" fringes and interstitial spaces of rapidly expanding cities. While rapid urban expansion has accelerated economic and social activities and benefited the farmers, it has simultaneously introduced complex layers of insecurity(Robinson, 2009; Zwierlein & Graf, 2010). For them, the promise of urban market access is often offset by the volatility of globalized food prices, land tenure insecurity, and the environmental degradation. Therefore, their security is no longer a localized concern in this age as the threats are extremely interconnected, where a climate event in one region or a market fluctuation in another can destabilize the fragile livelihoods of those feeding the city’s growing population(Orsini et al., 2013).

The global trend of 'massive urbanization' finds a distressing case in the capital city of Nepal, Kathmadnu Valley. The steady increase in urban population and economic activities has placed immense pressure on limited arable land and already increased the risks of food insecurity (Adhikari, 2008). As the country undergoes a rapid transition with the movement

of rural populations to urban centers like in the Valley, the traditional frameworks of security are being challenged. Addressing the human security of these smallholders is therefore not just an agricultural necessity, but a prerequisite for the social and economic stability of the Valley and of the entire country.

Though the concept of 'smallholder' is widely used but it is still contentious. Smallholders farming is also called as smallholdings which is interchangeably used as 'household farming', 'family farming', 'smallholding', and 'subsistence farming'in the discourses of agriculture development, policy and academia, as they refer to a specific mode of agricultural practices that remains dominant across much of the developing world even today. From a policy perspective, organizations such as the Food and Agriculture Organization (FAO) defines smallholders as farmers cultivating less than two hectares of land (FAO, 2018). However, this threshold requires contextual reinterpretation. While two hectares may be considered insufficient for mechanized agriculture, it represents a relatively large holding in a country like Nepal where the average landholding size is approximately 0.55 ha. (MoALD, 2023).

This discrepancy in the land size of the smallholder is even more pronounced in hilly and mountainous regions, where fragmented plots, sloping terrain, and ecological constraints significantly shape farming practices. While, contextualizing these characters of smallholding further in the urban areas of the mountain region like in Kathmandu, the farming of this type becomes even more complex. The smallholders in the Valley are mostly migrant families, not necessarily have their own land. They rent a small piece of land (generally a size of 0.25 ha.) for a period of 5 to 10 years from the local owners and undertake vegetable production such as tomato, green leaves, cauliflower, cabbage and others (Rai et al., 2019). Their farms are often family-run, relying on unpaid family labor, and diversified cropping pattern to support both subsistence and local market needs.

In addition, for social scientists, land size alone is neither a sufficient nor a definitive criterion for identifying smallholders. Particularly in rapidly urbanizing areas and ecologically sensitive landscapes such as Nepal, what defines smallholder farmers is the scale and intensity of cultivation, the reliance on household labor, limited capital investment, and the deeply embedded farming within household economies and local socio-ecological systems (Joshi, 2024; Knight, 2022). Shiva (2016) who is very critical to the global food system argues that smallholding or smallholder farming typically involves the active

participation of household members and serves dual purposes: ensuring subsistence and generating supplementary income alongside other livelihood sources.

There are various reasons that the smallholder farming is still a central food production system and smallholders are the key drivers of local food chain in the developing countries across Asia and Africa. Past studies have shown that smallholders manage around two third of the farmland in the regions like in Asia and sub-Saharan Africa,and contribute the highest percentage of the food required for the people (FAO, 2019).The household farming which could cover the area up to 10 ha. depending on the availability of agriculture land is an indispensable part of local economy, natural resource management, and social cohesion (Bhatti et al., 2021; Clay & Reardon, 2019). Their agricultural practices often support indigenous and traditional crop varieties, maintain family structure, helping to conserve biodiversity and sustain climate-resilient farming systems (Ellis-Petersen, 2023). This stands in stark contrast to the global industrial food model, which depends heavily on limited crops and animal breeds. The global food system relies on just 12 plant species and five animal species for approximately 75% of its food supply (wheat, rice, maize, and potato for food and cattle, pigs, chickens, sheep, and goats are for animal products) (FAO, 2023). ILO (2023) indicates that the food system that relies on limited plant and animal species enders highly vulnerable not just to environmental and economic shocks but also for social structure and human health. In this context, smallholders act as custodians of agro-biodiversity and contributors to more sustainable and adaptive food systems.

The socio-economic importance of smallholding is equally significant. According to an estimation, globally agriculture shares about 26.1% employment compare to industry 23.7 and service 50.2 (ILO, 2023). It shows that the share of agriculture in employment sector is still a significant and it is even more important for the smallholders of developing regions. The studies have shown, smallholding family farms are responsible for more than half of the world's food production. Another estimation shows that among the 2.5 billion people in developing countries depend on agriculture, and among them around 1.5 billion are smallholders (Bhatti et. al., 2021). However, in the face of a rapidly changing global context marked by climate change, volatile markets, urban expansion, and the industrialization of the global food systemsmallholders are increasingly marginalized and exposed to complex risks and uncertainties further deteriorating their human security situation (Orsini et al., 2013; Tripathi & Kaini, 2023).

A notable tendency in relation to smallholding is that poverty and insecurities of the smallholder go hand in hand. Furthermore, ILO (2023) mentions that globally, about 1 billion people which is about 28 percent of the world's employed population works in agriculture, which remains the sector with the highest incidence of working poverty. Agricultural workers frequently face low wages, food insecurity, and limited social protection. The increasing globalization of agriculture, the dominance of industrial farming models, and the commodification of food systems exert tremendous pressure on smallholders. These forces threaten their economic viability and social relevance leading to extreme level of human insecurity.

As they struggle to access markets, infrastructure, credit, and policy support, smallholders are often faced with the binary choice of either disappearing into subsistence or scaling up to compete with industrial farms which often compromises the sustainability of the farming itself and their autonomy. In the context of countries like Nepal, smallholders now contend with volatile market prices, exploitative middlemen system, and the rising costs of chemical inputs and hybrid seeds (Adhikari & Hobley, 2015; Shiva, 2016; Upreti & Shrestha, 2017). These dynamics are intensified by weak agricultural governance, which has prioritized export-oriented and input-intensive farming over local resilience and agro-ecological sustainability (MoF, 2024).

The most recent agricultural census conducted by Nepal's National Statistics Office (NSO) reveals a paradoxical trend in the country's agrarian structure which is important to understand the dynamics of smallholders of the country. While the number of households engaged in agriculture has increased (for e.g., from 3.36 million in FY 2011/12 to 4.13 million in FY 2021/22) the total area of agricultural land holdings has decreased significantly, from 2.52 million hectares to 2.22 million hectares over the same period (NSO, 2023). Likewise, 81.6 percent of agricultural land is still fully owned by the cultivators, the average parcel size shrinking from 0.21 hectares to 0.19 hectares in the same period (NSO, 2023), showing that smallholders are operating on ever-smaller and more dispersed plots, which adds to production inefficiencies and limits the scope for mechanization and scale-based benefits. This reflects not only growing demographic pressure on land but also increased fragmentation due to haphazard and unplanned urban infrastructures and human settlements in the agriculture fields. These urban transformations over the past few decades have significantly undermined the viability of land for urban farming and reduced the productivity of smallholder agriculture.

Amid this fragmentation and urban pressure in the country, a notable shift in cropping patterns is also visible. Over the decades, despite the decrease in cereal farming there is exponential expansion in vegetable farming mostly in the peri-urban communities and the districts with well connectivity to the potential markets (Shrestha & Karki, 2017). The census report further shows that although 1.216 million hectares of land was still used for paddy cultivation in 2021/22, there has been a 16 percent decline in the area under paddy over the past decade. Similar downward trends have been observed other cereal crops such as maize and wheat. In contrast, the report shows, vegetable farming has significantly expanded, growing from 84,400 hectares in 2011/12 to 107,700 hectares in 2021/22, about 28% increase in a decade. This rise in vegetable cultivation is closely linked to the rise of urban population due to rural to urban migration. As there is rise in urban population, vegetables are increasingly grown to meet the dietary demands of nearby urban markets by the migrant families in peri-urban communities (Orsini et al., 2013; Rai et al., 2021). However, urban vegetable farming in Nepalese context tends to be highly input-intensive and market-driven, relying heavily on imported seeds, fertilizers, pesticides, plastic for production and unregulated intermediaries. For the smallholding farmers (many of whom are migrants) this trend presents a serious challenge, as they must invest more in inputs without long-term access to land or stable returns.

These structural changes in urban agriculture present multiple risks, uncertainties and human security threats for smallholders. While they continue to play a central role in national food production, their ability to adapt and sustain livelihoods is increasingly precarious due to shrinking land access and intensifying land-use competition. This vulnerability is further exacerbated by the lack of adequate and timely support from government institutions. To introduce the fragility and shifting dynamics of the agriculture system in the region, I present three transformative events I encountered while conceptualizing this research project on human security of the smallholders in 2019, each serving as a lens to explore the shifting dynamics of Nepal’s agrarian landscape in this new epoch of Anthropocene which is also marked by the 'global risk society'. These events are; a striking aerial view of plastic-covered farmland in the Valley, the failure of the *Garima* paddy variety in Chitwan, and finally, farmers’ protests demanding fair vegetable prices in Kathmandu. In the course of this research process, these experiences reshaped my understanding of Nepal's contemporary agrarian realities, particularly in urban context. I interpret these events as critical moments that reveal how structural transformations like; urbanization, technological advancements,

and market integration, intersect with local situation to redefine the lived experiences of small-scale farmers or smallholders. These cases also illuminate the complex human security challenges of the smallholders of urban centers, offering a foundation for examining the interplay between global forces and the subjective realities of those who cultivate the land and grow food and vegetables to earn for the subsistence and livelihoods.

The first event is my view of the Valley's farmland. In early September 2019, while flying from Kathmandu to Bharatpur in Chitwan for a family visit during my research period, I was struck by a transformative view of the Valley's land cover. As the plane ascended, the sprawling urban landscape gave way to an unexpected sight: vast stretches of peri-urban farmland blanketed with plastic tunnels, popularly known as "greenhouses." Unlike the towering concrete buildings or expanding road networks, it was the pervasive spread of these plastic structures along the foothills that captured my attention. As a native of a farming family from a mid-hill valley in western Nepal, my childhood in the 1980s and 1990s was shaped by an organic imagery of farmland. The farmland that looks as an open fields where soil was exposed to sunlight, rain, and air, and where tactile and sensory engagement with the earth was integral to farming. The soil's texture, smell, and organic content were not just practical knowledge but a shared cultural heritage among farmers, guiding crop selection and land preparation (Shiva, 2016).

This aerial perspective disrupted that imagery and identity of the farmland. The plastic tunnels, designed to produce vegetables for Kathmandu's growing urban market, signaled a shift from traditional, soil-centric farming to a technologized, market-driven model. While I had encountered greenhouse farming as a development worker in Nepal's Tarai districts between 2004 and 2007, those earlier experiences were extensions of conventional practices, not a wholesale transformation. The scale of plastic coverage in the Valley suggested a deeper disjunction, a move toward an artificialized, non-organic agricultural paradigm (Escobar, 1999). This shift raises critical questions about the ecological and cultural implications of such practices, particularly in the context of human security, as farmers navigate new dependencies on technology and markets (Adhikari & Hobley, 2015).

The second event is the failure of *Garima* variety of paddy field in Gaidakot in Chitwan Valley. During the same September 2019 trip, further challenged my understanding of agricultural organicity.In that visit, I learned from relatives of mine about the failure to flower of a new paddy variety called*Garima*, which had been planted experimentally by local farmers. Unlike previous trials, the 2019 *Garima* paddy crop failed to flower, threatening

significant losses. Upon returning to Kathmandu, I investigated further through media reports, social media posts, and discussions with government officials. The scale of the failure extended beyond Chitwan to western and far-western Tarai districts, where farmers reported tall, green paddy plants that produced no grain (Deuba, 2019). By November 2019, a parliamentary investigation revealed that the seed dealer had supplied “fake” *Garima* seeds, confirmed through DNA testing (Bhatta, 2019).

This incident exposed a techno-political fault line in Nepal’s agricultural system. In the organic farming paradigm of my upbringing, a seed’s capacity to produce a crop was unquestionable; the notion of a 'fake seed'as an 'identity of nature' was unthinkable (Escobar, 1999). The *Garima* case illustrates not just the new identity of nature but also how modern agricultural technologies, coupled with corporate and market influences, introduce new risks and vulnerabilities for farmers (O’Connor, 2009). Shiva (2013) is highly critical for this transformation of nature with the application of advanced technologies. She argues, "everything comes from the seed, but we have forgotten that the seed isn’t a machine. We think we can engineer life… and there will be no wider impact. But this is a dangerous illusion." This case of failure of *Garima*paddy seed underscores the fragility of farmers’ livelihoods in a globalized, technology-driven agricultural regime, where state oversight farmers' struggles to address emerging risks (Beck & Lau, 2005).

The third event shaping this research emerged from news reports of July 2018 about farmers’ protests in Kathmandu, demanding fair prices for their vegetables. I came across this case during my survey of online literatures on the vegetable farming in Kathmandu Valley in early 2019. According to HNS (2018), a news agency based in Kathmandu reported that these protests, supported by farmers across Nepal, highlighted grievances against government policies that failed to ensure equitable market returns, discouraged vegetable imports from India, and provided inadequate subsidies or export opportunities. The news agency reports about the protest as follows:

> In the protest at the Kalimati Fruits and Vegetable Market (KFVM), hundreds of farmers voiced their frustrations, demanding fair prices for their produce and stronger state intervention. They called on the government to curb vegetable imports from India, introduce subsidies, and promote the export of Nepali vegetables across the border.Protest organizers, emphasized that much of the harvest is left to rot in the fields due to low market demand and unreasonably low farm-gate prices, often not even covering production costs.They also criticized the dominance of middlemen in

> the vegetable trade, urging the government to dismantle this system and allow farmers to determine their own selling prices. (HNS, 2018)

Through subsequent discussions with the protest leaders during my fieldwork, I gained deeper insights into the political economy of vegetable farming in the Valley which is primarily driven by the migrant families over the last few decades. The protests revealed a complex interplay of government policies, international trade dynamics, and farmers' struggles to secure livelihoods and income in an increasingly commercialized agricultural system (Lama, 2019).

This event has surfaced a deeper political concern of the smallholders, where the migrant farmers have even more complexities and to navigate a web of stakeholders including government agencies, market intermediaries, and foreign competitors to sustain their livelihoods. The farmers' protest exposes the current political situation of vegetable farming which is highly adverse for the smallholders. The protests and its termination without any concrete achievement also exposes the limitations of state policies in addressing the structural vulnerabilities faced by the smallholders, particularly in urban contexts where land and market pressures are acute (Polanyi, 2001).

A voice of the leader farmer documented by a journalist in his news report from the Chitwan Valley rightly captures the current political situation of the smallholders of Kathmandu and other emerging urban centers of the country. The leader farmer expresses his observation on the situation of the smallholders and indicates dysfunctional in some sense and exploitative role of the government authorities to address the demands and concerns of the farmers as follows:

> The current situation is deeply unfavorable for farmers. Although they work hard to produce crops, it is the wholesalers who set the prices. Meanwhile, the government acts as if it is unaware. As a result, farmers are consistently pushed into financial loss. This must change. The government should ensure fair pricing by setting minimum crop prices based on actual production costs. Farmers deserve to earn a profit. If farming becomes viable and dignified, they will not be forced to abandon agriculture or go abroad just to afford their children's education.(Bhetwal, 2023)

Collectively, these three events; the plastic transformation of the Valley's farmland, the *Garima* paddy failure, and farmers' protests for fair vegetable prices highlight the unconventional challenges shaping Nepal's contemporary agriculture in general and urban

farming in particular. Examining the challenges embedded, scholars like Gyawali and Khanal (2021) argue that for a landlocked country like Nepal, farming must adapt to new realities by blending tradition with innovation, such as expanding organic farming for domestic and export markets and address the persistent issues of land degradation, pest outbreaks, climatic stresses, market price gaps, and the loss of farmland to urban growthto maintain the viable and competitive agriculture sector of the country (Gyawali & Khanal, 2021).

However, the challenges are added and become even more critical when it comes to agriculture in the urban context of the country. In cities like Kathmandu, urban agriculture is increasingly practiced by smallholders, often migrant families operating under insecure tenancy, high land rents and other high-cost agro-inputs, and unstable markets. Unlike traditional rural farming, urban agriculture exists within compressed, contested, and transitional spaces where the pressures of urbanization, commodification of land, liberal market, and weak state support converge (Orsini et al., 2013). Historically, the Valley's agrarian landscape was integral to the cultural identity and ritual calendar of Newar communities, but rapid urban expansion and liberal land policies have not only displaced these systems but also disrupted the social and ecological embeddedness of agriculture (Müller-Böker, 1986; Nepali, 1965). In this altered political and ecological situation, migrant smallholders from hill districts have stepped in, relying on small rented plots and family labor to sustain vegetable production.

Situating the ongoing agrarian transformation in the urban context within the framework of political ecology of human security this study examines dominant narratives of urban agriculture and the systemic risks and insecurities shaping the livelihoods of the smallholders. It further analyzes the interplay between structural transformations in agricultural governance (e.g., urbanization, technologization, and global trade) and local realities (e.g., farmers' lived experiences and cultural shifts) within the context of the 'global risk society' which is characterized by the limitations of modern states in addressing the interconnected and transnational challenges of the twenty-first century (Beck, 2009).

1.2 Statement of the Problem

Anthropologists have approached agriculture as a deeply embedded human practice shaped by culture, social organization, technology, and ecology. Early contributions to agricultural anthropology by Warner (1941) emphasized the adaptive strategies of farming communities within their specific socio-ecological settings, introducing a functionalist lens to

understand agriculture as part of a holistic cultural system. Building on these foundational insights, Netting (1974, 1993) further presented smallholder and household-based agriculture as a rational and sustainable alternative to industrial farming. For Netting, the household not the individual farmer or the state is the critical unit of analysis. He demonstrated that smallholders, far from being static or subsistence-bound, are in fact ecologically astute, innovative, and resilient actors, continuously adapting to shifting political-economic and environmental conditions. He also emphasized to situate smallholder agriculture within broader socio-political structures such as land tenure systems, migration, state policy, and market integration.

Similarly, Rhoades (1984, 1999) had attempted to integrate local knowledge and global dynamics while accounting for the power relations and institutional contexts in which farmers operate.Cleveland (1998) further advanced Netting's ideas and proposed a specific role for anthropologists to bridge the divide between the natural and social sciences, offering an integrative perspective that combines ecological, economic, and socio-cultural analysis while studying the field of agriculture. In the recent time, Sarker (2017) has proposed to focus on managing agro-biodiversity, conservation practices, and farmer decision-making in light of cultural memory, ecological stress, and political uncertainty by the agriculture anthropology.

Therefore, the focus of contemporary agricultural anthropology has moved beyond viewing farming as a static cultural practice as conceived by Warner (1941), the pioneer of the field of study. Instead, it is now understood as a dynamic field of inquiry where culture, ecology, and power intersect. Within this framework, farmers' lived experiences, perceptions, and decisions play a crucial role in shaping the nature, frequency, and intensity of these interactions between people and ecology in the given context. In the Nepalese context, the examination of Nepal's agriculture transition from this contemporary approach is not much on mainstream. Instead, they are highly concentrated on the structural issues particularly the dynamics of power in relation to land.

In the context of Nepal, land and the question of agrarian change has remained one of the dominant theme of social science research in Nepal since more than half century ago and various social scientists including anthropologists have approached the field of agriculture anthropology from different perspectives Among them some of the notable works are done by Blaikie and Brookfield (1991); Caplan (2000); GC and Hall (2020); Regmi (1976); Sedona et al. (1979); Shrestha (1990); Sunam & McCarthy (2015); Upretiet al.(2017); and

Uprety (2021). Here I examine some of the latest and closely related anthropological literatures to understand the gap and lay the theoretical foundation of my research on the smallholders of Kathmandu Valley.

Among them, a foundational study and a first generation scholar in the agrarian study of Nepal, Regmi (1976) focuses on the ownership of land by the various social groups and sections of the Nepalese society. He has documented how institutional landholding systems, such as Brita, Guthi, Raikar, etc. historically disempowered cultivators and reinforced elite control over land. For this study, his work remains crucial in understanding how present-day tenure insecurity among Kathmandu's smallholders is rooted in deeply entrenched, hierarchical land regimes that have persisted through modern reforms.Shrestha (1990), as a scholar of second generation,is even more critical on the issue of land ownership than Regmi and adds the dimension of migration in relation to land. He has highlighted how state-led settlement policies and the historical commodification of land had driven hill migrants into the Tarai and urban peripheries, often without formal land rights. His analysis of landlessness and "near-landlessness" sheds light on the historical dispossession processes that continue to marginalize smallholders and constrain their ability to claim secure livelihoods and identities.

In addition to the ownership and land tenancy primarily in the economic terms, scholars have also explored other political dimensions of land and land ownership. Among them, Caplan (2000) has taken a instrumental approach on land. He has explored the role of land while focusing on the process of social change in east Nepal where he saw land has become a medium of nation building project for the state authorities. He examines how land has become a key instrument in realizing this project by the Kathmandu centered 'Gorkha state', often at the cost of indigenous communities like the Limbus, who were marginalized and dispossessed of their ancestral territories. Though Dahal (2016) has regularly warned for its methodological limitations, Caplan's study conducted in late 1970soffers important historical and theoretical insights into the structural transformation of agrarian property regimes in the region and its political implications.He has examined how rising social and political interdependence between indigenous Limbu communities and Brahmins-Chhetries (high-caste hill migrants) led to the erosion of Kipat land tenure, a customary and collective landholding system that was once central to Limbu identity and autonomy (Caplan, 2000).

This case on Limbu by Caplan (2000) from the east Nepal shows that as land became reframed from a cultural and communal asset into an economic and politico-juridical commodity, it has became increasingly alienable. This shift has not only restructured land

relations but also compelled many former landholders and cultivators to abandon subsistence agriculture, marking a significant turn toward the long-term ‘deagrarianization’ of smallholders in the region. In contrast to Caplan's instrumental approach on land, Uprety approached it as a margin, the 'periphery of the periphery' where not just the national politics but the global economic and social forces also intersect and it ultimately dis-embedded Nepal's rural agriculture from its ecological and cultural foundations (Uprety, 2021). He argues that these processes has delinked many rural communities from their ancestral land, pushing the peasantry toward non-farm livelihoods and widening their socio-economic differences.

While these analysis of instrumental role of land and the agrarian transition are compelling, my research addresses a critical yet underexplored contradiction within this shift: despite mounting pressures from both local and global forces, migrant smallholders continue to pursue vegetable farming in the Valley, often under adverse ecological, economic, and political conditions. Rather than exiting labor-intensive subsistence agriculture, these farmers are re-engaging with its urban margins, cultivating vegetables for commercial purposes on rented peri-urban plots characterized by insecure tenure, high input costs, and minimal or no institutional support from government agencies. It is this paradox of dis-embedded from the farming in the hills and re-engaging in the profession in the different context of land tenancy and cropping pattern and taking high risk of crop failure and financial loss in the urban centers that motivated the core questions and direction of this study.

The exploration of the historical processes of exclusion and marginalization of cultivators and autonomous farmers in the studies by Caplan (2000) done in 1970s and Uprety (2021) resonate strongly with present-day transformations in the Valley. As a consequence of the exclusion and marginalization of farmers from the hill districts, they migrated and ended up in the capital city or other urban centers of the country leading the process of dis-embedded Nepal's rural agriculture. But the process has not ended at this point. A significant portion of such migrants have chosen vegetable farming in the Valley and re-engaging in the new mode of farming, i.e. commercially oriented vegetable production often in the rented piece of land.

Scholars are concerned aboutthe unconventional risks and uncertainties amid the pressures of neoliberal urban expansion with which the migrant farmers are grappling. Like the Limbus, these farmers experience the commodification of land, but from the opposite point: they are tenant cultivators renting land from politically and economically empowered

landlords, often under short-term, precarious arrangements. The farmland they cultivate is not viewed as a space of cultural continuity or agrarian autonomy that Uprety (2021)examined but as real estate in transition, subject to market speculation, urbanization, and legal ambiguity (Gyanwali & Khanal, 2021). In both cases, land and the farming profession itself ceases to be a secure foundation for livelihood, becoming instead a site of contest, risk, and insecurity.

Having careful examination of the previous studies on Kathmandu Valley, it reveals that over the past three decades, the Valley has experienced sweeping changes across various socio-political and environmental dimensions, including rapid urbanization, significant social transformations, rising migration rates, and fundamental shifts in farming systems due to techno-political mediation in its overall aspects (Acharya, 2016; Adhikari & Hobley, 2015). These changes have restructured not only the physical and social landscape but have also placed unprecedented pressures on traditional agricultural practices, welfare institutions, and solidarity of the farming communities that we could observe in Hills and in the Kathmandu Valley itself in the past (Nepali, 1965). The state authorities are not unknown about these transformation and the pressures exerted on the farmers. But they could hardly play any role to address the socio-ecological challenges of this new epoch (Gyawali & Khanal, 2021; Roka, 2017). The consequences of this oversight are substantial, manifesting in the decline in local food production, cultural degradation, loss of employment opportunities, rise in food imports, and a general erosion of the Valley's ecological sustainability. Collectively, these effects pose a serious threat to the security of those living in one of the oldest and most culturally significant regions of the Himalayan foothills in the South Asia.

Addressing these unconventional threats faced by urban smallholders has to be a major concern not only for the political leadership and planners but it is also a concern of the social scientists. In this context, Upreti (2023) advances a compelling conceptual framework for understanding such unconventional security threats in Nepal. He emphasizes the urgency of addressing non-military, structural, and environmental vulnerabilities as key public policy concerns. He defines these threats broadly to include food insecurity, water scarcity, health risks, climate change, economic vulnerability, and environmental degradation, poverty, and governance failure. If these factors are neglected in governance they can contribute to amplify deep-rooted insecurities across Nepal's socio-political landscape. His insights are particularly relevant to the present study, as the human security of smallholders in Kathmandu is shaped not by conflict or violence, but by a constellation of these non-military

threatsranging from unregulated land tenancy and volatile vegetable markets to weak agricultural governance and increasing climatic unpredictability.

In relation to this study, Upreti (2023) broadens the theoretical and policy scope of the concept of human security by reinforcing the view that smallholders' struggles cannot be understood solely through an agronomic or economic lens, but must be situated within the larger paradigm of unconventional security threats in a fragile and rapidly urbanizing polity of 21st century. However, despite its conceptual value, his work does not fully engage with the lived experiences of smallholders who are directly navigating these insecurities. Specifically, he does not explore how smallholders perceive and cope with these threats, nor why they continue to pursue farming despite such adverse conditions. This gap underlines the significance of my research, which seeks to foreground emic perspectives and examine the complex motivations and adaptive strategies of smallholder farmers within the urban context of the Valley.

In the same line of thinking, I want to underscore the fact that the security threats of smallholders in Kathmandu manifest in multiple ways; through insecure land tenure, climate variability, ecological degradation, market dependence, social marginalization, and exclusion from urban policy frameworks. Yet, they continue to farm and still have a hope of securing a better future of their family members, both economically and socially. This paradoxof pursuing future-oriented security through a practice that is presently insecure lies at the heart of the problem that I want to understand. Thus, the problem of urban farming by the migrant farmers of this research has twofold: first, that urban agriculture (commercial vegetable farming) practiced by smallholders in the Valley exists in a structurally insecure and environmentally unsustainable context, and second, that the lived experiences, adaptive strategies, and aspirations of these farmers remain underexplored in both theory and policy. By combining the sophisticated framework of the political ecology of human security and the integrative approach of agriculture anthropology in the specific context of 'global risk society', this study aims to fill this critical gap, offering new insights into how smallholders struggle for dignity, livelihood, and resilience in Nepal's changing agrarian landscape in urban context.

Furthermore, my theoretical assumption is that that the risks and insecurities of smallholders are not accidental, but rather historically and politically produced condition; a consequence of state neglect, class-based land regimes, and the neoliberal restructuring of agriculture governance and market policies (Beck, 2009; Erikson, 2010; Uprety, 2021). Yet, I show that the decisions and survival strategies of smallholders, including their persistence in

farming against the odds remain poorly understood in the existing literature. By foregrounding their motivations, coping strategies, and political-economic context, this ethnographic inquiry seeks to fill the analytical gap left by structural analyses that describe disembeddedness and deagrarianisation of agriculture but do not adequately explain persistence of smallholders in a new edge of society. In doing so, it expands the human security framework to include not only challenges and threats but also rationales for resilience and adaptation in Nepal's fragmented system of urban agriculture.

Beside anthropologists, there are large numbers of agronomists and social scientists of various disciplines have also approached Nepal's agriculture and urban farming such as Gurung et al., 2016; Gyawali & Khanal, 2021; Rai et al., 2019. They have explored various challenges and opportunities embedded in Nepal's agriculture in general and vegetable farming in urban and peri-urban communities in specific. While their focus is often driven to present the faming (particularly the commercial vegetable production) as a boon for the smallholders and is a panacea to solve the problem of unemployment, urban food insecurity, and livelihood challenges of the marginal communities in the urban centers of Nepal and beyond. However, they rarely address the constraints and challenges these farmers encounter which undermine their economic, political, environmental, and other socio-cultural dimensions of human security, ultimately force them away from their current profession sooner or later. This study also seeks to fill this gap of the human security challenges of the smallholders by examining their lived experiences, decisions and perceptions while undertaking commercial vegetable production in Kirtipur Municipality in Kathmandu.

1.3 Research Questions

Based on the examination of the problem of this study in the previous section above, I had developed the following questions which guided this study:

1. What are the major political and ecological factors shaping smallholder vegetable farming in Kirtipur, Kathmandu?"
2. What human security threats do these smallholders face and how do they respond the rising risks and uncertainties in their profession of vegetable farming?
3. How is the smallholders level of trust on the authorities or agriculture governance of the country? And, what implications does it have on their human security situation.

1.4 Objective of the Study

The overarching objective of this research is to understand the human security situation of smallholders engaged in vegetable production in Kirtipur intheKathmandu Valley. By focusing on the farmers experiences and perceptions of (in)security, this study aims to explore various risks and uncertainties as human security threats of the smallholders and strategies they employ to minimize the threats and enhance the sense of security in the context of changing urban context of the Valley over the last few decades.

Specifically, the research seeks:

- To explain the political and ecological factors that gave rise to smallholder commercial vegetable farming in Kirtipur,
- To investigate the human security threats that smallholders are facing with and their mitigating strategies to enhance the sense of security, and
- To examine the condition of institutional trust held by the smallholders and evaluate its influences on their human security situation.

In the contemporary era characterized as the hyper-globalization and marked by social and political interconnectedness and complexness of the economic and ecological risks and uncertainties my key theoretical assumption while fulfilling these objectives is that the expected traditional protective capacity of the modern Nepali state has already been minimized by the 'global risk society'. Accompanying to it, smallholders' trust on the government institutions have eroded due to institutional unresponsiveness or widening disparities. It has further undermined the social cohesion, weakening collective action, and intensifying feelings of insecurity among them.

1.5 Rationale of the Study

Human security of the marginal communities like smallholders cultivate vegetables in a small rented plots for commercial purpose doing a small-scale commercial farming in the urban context has become a serious concern in Nepal in the recent decades, including in places like Kirtipur. They do not cover only a significant portion of the urban population in this new century but have also emerged as the key players of urban food system. However, rapid urban expansion, land commodification, market liberalization, and shifting state policies have transformed agrarian life in the Kathmandu Valley. Smallholder farmers now operate within an increasingly competitive and uncertain environment, where traditional

agrarian stability has given way to urban and market-driven volatility. These changes have generated multiple layers of insecurity affecting livelihoods, income stability, and social continuity.

Smallholders in Nepal are typically characterized by small and fragmented landholdings, reliance on household labor, limited capital investment, and partial dependence on agriculture for both subsistence and income. Although they remain central to local food systems, they operate within conditions of structural vulnerability. The average landholding size in Nepal is small, and in peri-urban areas cultivation is often confined to residual or fragmented plots. This structural limitation constrains productivity and bargaining power in an increasingly commercialized agricultural system.

The vegetable market system in the Kathmandu Valley further intensifies this vulnerability. Price determination operates through open-market mechanisms without clear regulatory authority. While *bichaulias* (middlemen) facilitate collection, transport, and market access, smallholders have little influence over price formation and bear the brunt of market fluctuations. Sudden imports, seasonal overproduction, changing consumer demand, and price volatility expose farmers to risks that are beyond their control. In contrast to many developed and neighboring countries, protective mechanisms such as price support, insurance, or production-based subsidies remain weak or absent. As a result, market risk is effectively transferred downward to smallholders.

These conditions reflect broader dynamics of what can be understood as a risk-oriented agrarian transformation, where economic uncertainties are individualized and farmers are left to absorb systemic shocks. The state's limited engagement in ensuring price stability and livelihood protection further deepens economic and livelihood insecurity. Agriculture, however, is not merely an economic activity for smallholders; it is closely tied to cultural identity, local economies, gender roles, ecological balance, and social reproduction. The erosion of agrarian stability therefore has implications beyond income loss. It affects dignity, belonging, and long-term survival of the smallholders.

Given these transformations, examining the situation of smallholders through the lens of human security becomes necessary. A human security approach allows the study to move beyond production statistics and market analysis to focus on lived experiences of socio-economic, livelihood, and environmental insecurity. It foregrounds the everyday vulnerabilities of farmers within a rapidly urbanizing and market-driven environment. By

situating smallholders within the broader processes of urbanization, market liberalization, and governance gaps, this study seeks to understand how structural changes translate into concrete insecurities in the lives of vegetable farmers in the Kathmandu Valley.

1.6 Delimitation of the Study

The study is focused on the specific aspect of urban farming in the Valley. Its central concern is the human security situation of the smallholders which is complicated by the technological, social, economic and environmental transformations over the last three decades since 1990s. It approaches both the everyday social and political dimensions of the farmers as well as the structural conditions that situate farmers of Valley and particularly of Kirtipur Municipality in the defensive position while fighting against the wide range of human security threats. So the findings of this study are highly sensitive to generalize to the different scales of farming and different political and historical contexts elsewhere outside the Valley. However, the adoption of the special theoretical approach and concepts in the study of smallholding vegetable farming can be adoptable to other contexts of the Himalayan regions.

Similarly, I have adopted a special form of ethnographic approach focusing to comprehend the farmers' perspectives in their own condition which is more 'immersive' and being embedded in my own limitations that includes my specific academic trainings and disciplinary belongings, my professional, social and political limitations which may not be equally applicable by other anthropologists or social scientists.

As I mentioned before, I conducted this research fulfilling my other social and professional responsibilities as well. It was during off days and in the weekends when I did my fieldwork. This approach of doing fieldwork could be a lesson for other researchers with similar context to carry their research work even if fulfilling their other social and political/professional obligations (Rai, 2022). This situation is not that common for the foreign researchers while it is extremely difficult to avoid in the context of developing societies when we have limited or no support for the research project.

1.7 Organization of the Study

This dissertation is organized into eight chapters, each building progressively toward a comprehensive understanding of the human security situation of smallholder vegetable farmers in Kirtipur, in Kathmandu Valley. The first chapter introduces the research problem and contextualizes the concept of smallholders and human security within global and

Nepalese policy and academic debates. It sets the stage for the study by outlining the problem statement, research questions and objectives, theoretical and conceptual frameworks, and the significance of the study for both scholarship and policy.Second chapter is literature review.This chapter critically engages with the key theoretical approaches and concepts including political ecology, global risk society, human security, agricultural anthropology, urban agriculture, and smallholder farming. The third chapter of this dissertation is research methodology. Here, the methodological design and philosophical foundations of the study are presented. The chapter explains the rationale for choosing Kirtipur as a study site, details the ethnographic tools used, and reflects on the researcher's positionality and interactions in the field.

Chapter four provides a historical and ecological overview of the Valley and Kirtipur Municipality. It traces the Valley's transformation from a cultural-agrarian center to a rapidly urbanizing space and shows how this transition has reshaped the social and spatial dynamics of smallholder farming. In chapter five, I present empirical details to meet the first objective outlined earlier in this chapter. This chapter focuses on two interlinked themes; urban expansion and the emergence of smallholder vegetable farming. It also explores who the smallholders are, their migration trajectories, and why they farm in the changing urban landscape. In chapter six, I outline the multiple layers of human security threats; economic, social, legal, and ecologicalthat smallholders face. It also highlight the coping mechanisms and everyday strategies that farmers adopt within the limits of their individual capacities, revealing both resilience and vulnerability in this chapter. Chapter seven explores why smallholders continue to farm despite widespread insecurity which fulfills the final objective of this dissertation. It also investigates their views on governance, their aspirations for the future, and how they perceive farming as a transitional or temporary strategy. And, in the final chapter, I synthesize the major findings and connects them back to the broader theoretical frameworks. Here I critically examine how urbanization, policy failure, and socio-ecological change intersect to produce the situation of insecurity and smallholders' response to the situation.

CHAPTER 2
LITERATURE REVIEW

This chapter reviews the key theoretical and empirical literature that informs this study on human security of smallholding urban vegetable farmers in Kirtipur; in the Kathmandu. The purpose of this chapter is twofold: first, to provide an overview of the major concepts and frameworks; such as smallholder farming, urban agriculture, political ecology, risk society and human security that underpin the research; and second, to examine how scholars from diverse disciplines have approached these issues, thereby identifying the critical gaps this study seeks to address.

This review begins with a discussion of the concept of human security. It then turns to political ecology, a powerful framework for understanding the socio-ecological dimensions of land use, environmental change, and power relations that affect urban farming communities. The chapter also draws upon anthropological approaches to agriculture, particularly those that emphasize local knowledge, ecological rationality, and household-level decision-making within broader political-economic structures. The review further explores the contested definitions and roles of smallholders in both rural and urban contexts, situating them as critical but often overlooked actors in food systems and livelihood strategies. By engaging with an interdisciplinary body of literature, spanning anthropology, human security studies, agrarian political economy, and environmental governance this chapter lays the foundation for the research questions, analytical framework, and methodological choices of the study.

2.1 Human Security: Concept and Context

The concept of human security marks a paradigmatic shift in how security is understood and operationalized. Moving beyond traditional state-centric and militarized definitions, human security focuses on the well-being, dignity, and agency of individuals and communities. As introduced by the UNDP (1994), it encompasses the principles of freedom from fear, want, and indignity, making it an especially relevant framework for examining the vulnerabilities of marginal communities such as smallholders in urban context. Unlike territorial or military security, human security focuses on the well-being, dignity, and safety of individuals and communities, addressing interconnected and transnational threats such as poverty, health crises, environmental degradation, and violent conflict. These challenges, often deeply rooted in global dynamics, transcend national boundaries, making human

security a critical framework for addressing contemporary risks and vulnerabilities. Introduced in 1994 by the United Nations Development Program (UNDP), the human security approach complements the broader goals of human development. It is anchored in three core principles: 'freedom from fear', meaning protecting individuals from violence and physical harm, including war, terrorism, and crime;'freedom from want', meaning ensuring the fulfillment of basic needs such as food, shelter, healthcare, and economic security, and, 'freedom from indignity'; safeguarding dignity by addressing systemic inequalities, discrimination, and social exclusion (UNDP, 2022b).

To operationalize this human security approach in the field of research and development, the Human Development Report (1994) delineated human security into seven core dimensions. The seven dimensions are: (i) 'economic security'; protecting livelihoods and ensuring basic income through employment and access to resources, (ii) 'food security'; guaranteeing access to adequate and nutritious food for all individuals, (iii)'health security'; addressing threats to public health, including epidemics and inadequate access to healthcare, (iv) 'environmental security'; safeguarding ecosystems and protecting individuals from environmental degradation and natural disasters, (v)'personal security'; protecting individuals from physical violence and abuse, (vi) 'community security'; preserving cultural identities and promoting social cohesion and finally, (vii) 'political security'; ensuring fundamental human rights and freedom from oppressive governance. By integrating these dimensions, the human security approach offers a comprehensive framework for analyzing and addressing vulnerabilities that impede human development and threaten individual dignity.

A major strength of the concept of human security is that it broadens the scope of security analysis by shifting focus from territorial concerns to the vulnerabilities faced by people in their daily lives. It highlights the significance of both protection and empowerment, recognizing that communities must actively participate in identifying threats and shaping responses. As Gómez and Gasper (2013) observe, the approach extends beyond physical security to encompass economic, food, health, environmental, personal, community, and political security, making it highly adaptable to diverse contexts.Central to the human security approach is the belief that people have the right to live in freedom and dignity, free from poverty and despair, with the opportunity to fully develop their potential. In addition, they find inadequacies in this concept as well and extend this discussion of people centric security approach to the subjective perspective of human security. They emphasize the importance of felt insecurities by examining how individuals perceive and experience threats.

They argue that subjective perceptions are essential for effectively addressing human security challenges (Gomez& Gasper, 2023).

This perspective connects human security with human development, but it also emphasizes a crucial distinction: while human development seeks to expand choices and freedoms, human security focuses on assuring priority freedoms and safeguarding opportunities so that people can exercise these choices safely and confidently (UNDP, 1994).The 2012 UN General Assembly resolution further refined the concept, emphasizing people-centered, comprehensive, context-specific, and prevention-oriented responses (UNDP, 2022b). It underscores the importance of understanding specific threats experienced by particular groups, as well as engaging these communities in participatory analysis and decision-making processes.

Since its inception, the concept of human security has been the subject of extensive examination and expansion by scholars across various disciplines. While development work has generated useful frameworks for its application, scholarly opinions on the concept remain divided. Some view human security as a valuable policy tool for addressing complex global challenges, while others criticize it for being too broad and difficult to operationalize in research. Tadjbakhsh and Chenoy (2007) define human security as the protection of individuals from risks to their physical and psychological well-being, dignity, and safety. This definition resonates the fundamental shift in the reference point of security from the state to the individual. In this sense, human security addresses threats like hunger, disease, repression, violence, and even economic deprivation. They consider these concerns as far more immediate and personal than those of national defense. Paris (2001), for instance, argues that the framework lacks precision, making it challenging to apply effectively in policymaking and academic inquiry. However, shifting reference of security from restricted territorial confinement to the people and their rights and dignity, it humanizes the security strategies and make state authorities more responsive to people and their lives.

Building on these foundations, the Human Security Report (UNDP, 2022a) introduces a crucial focus on the subjective dimensions of human security. In the context of the Anthropocene which is defined as a period of human-induced planetary change, the report recognizes interconnected threats of the new century; like digital inequality, pandemics, climate change, and social injustices. The report identifies two critical elements for addressing these interconnected threats; solidarity and agency. By solidarity, it means the necessity for global collective action to address shared vulnerabilities and responsibilities.

While agency is treating individuals as active agents capable of shaping their futures, rather than passive victims of systemic challenges.The Human Security Report (UNDP, 2022b) underscore the pivotal role of trust in fostering solidarity and enabling effective human security strategies. Trust is both a foundation for collective action and a measure of the effectiveness of governance systems in mitigating insecurities. It outlines two major strategies of trust; trust in governance and trust in social system. Lack of responsiveness or effectiveness in addressing human security threats leads to diminished public trust, weakening social cohesion and making collective action more challenging. Likewise, lack of trust in social system is manifested by social and economic inequalities, often exacerbated by globalization and systemic injustices, erode trust between institutions and communities.

Anthropological approach on the concept of human security is far more critical. For instance, Salmon (2010) questions the assumption that individuals inherently seek calm and stability. His research in Bolivia highlights how people often embrace risk and danger as a means of securing a better future. Bringing people and their agency at the center, he reframes traditional understandings of human security, challenging the notion that safety and certainty are always prioritized over uncertainty and risk and opens a new avenue for the anthropological exploration on this notion (Salmon, 2010).

Laying the foundational premises for the anthropology of human security, prominent anthropologist Eriksen (2010) presents a compelling perspective that integrates traditional anthropological concerns with contemporary global challenges. He argues that anthropology can play a crucial role in understanding how people experience, respond to, and navigate security threats in an increasingly interconnected world. This renewed perspective of the political ecology of human security aims to combine the classic concerns of anthropology with cohesion, agency, and power, with an appreciation of the transnational dimension in contemporary lives.

Building on this idea, Eriksen (2010) highlights the challenges inherent in securing human lives amid rapid global transformations. He asserts:

> Creating secure lives in a complex, turbulent world entails hard work. Security-building activities are confronted with risks, some of them transnational; with insecurities associated with war, environmental problems, crimes, etc., and also with individualization and ideological tendencies favoring individual freedom at the expense of sacrificing security.

This statement underscores the paradoxical tension between individual freedom and collective security, a dilemma that has become more pronounced in an era of global crises, neoliberal economic policies, and political instability.Further elaborating on the potential of the human security approach, Eriksen (2010) argues that it can reorient social theory and provide anthropologists with innovative ways to engage with the shifting social dynamics of our globalized world. He suggests that by moving beyond state-centric and policy-driven security discourses, anthropology can offer a people-centered perspective that foregrounds lived experiences, vulnerabilities, and adaptive strategies. As he explains, human security has the potential to 'humanize' strategic studies, ground development research in lived experiences, and offer a lens through which to understand how societies function from the perspective of their inhabitants.

Therefore, this study adopts the human security framework, especially in an anthropological tradition expecting as an appropriate tool for understanding the everyday struggles of smallholding vegetable farmers in Kiritpur, Kathmandu Valley. By moving beyond conventional, state-centric notions of security, the approach captures how ecological stress, policy neglect, and economic precarity intersect in the lives of marginal communities. As I mentioned before, I have assumed that human security, in this context, is not only about identifying external threats but also about recognizing the agency, resilience, situated knowledge and their subjective perspectives about the security itself of those often left out of policy debates.

2.2 Political Ecology: Emergence and Progress

The theoretical framework of political ecology within anthropology finds its genesis in the perennial inquiry into 'human-nature' relations from various theoretical approaches such as; ecological anthropology, cultural ecology, and human ecology. The emergence of political ecology as a distinct field of inquiry in the 1970s was driven by a concerted effort to unpack the power dynamics inherent within human-environment relations. This marked a decisive departure from the equilibrium-focused discourse of 'old ecological anthropology' towards the dynamic frameworks of the 'new ecological anthropology.' This paradigm shift in the first generation of political ecology was characterized by an acknowledgement of the non-linear equilibrium dynamics inherent in ecological systems (Scoones, 1999). While further explaining the framework, this section outlines key theoretical contributions to political ecology, including the works of Wolf (1982), Escobar (1999), Rocheleau et al. (1996), and

Swyngedouw & Human (2003) and contextualizes them within Nepal's urban agricultural transformations and the human security concerns of smallholder vegetable farmers.

Two key intellectual movements played pivotal roles in shaping the trajectory of the first generation of political ecology. Firstly, the proliferation of peasant studies and critiques of colonialism brought to the forefront questions of social differentiation, exploitation, and the impact of international markets on rural communities in the Global South(Blaser & Escobar, 2016). Secondly, the ascendancy of Marxist thought within social sciences and development studies provided a robust analytical framework for understanding issues of control, access to resources, marginalization, surplus appropriation, and power relations (Poulson et al., 2003). These impulses laid the groundwork for a more nuanced understanding of the intricate interplay among nature, culture, and power within the realm of political ecology.

At its core, political ecology sought to interrogate the social relations of production and issues surrounding access and control over resources, applying tools from political economy to understand various forms of environmental disturbance and degradation. This approach aimed to accommodate both general principles and detailed local studies of environmental problems ranging from water pollution in Delhi, landslides in Nepal to deforestation in Para in Brazil (Blaikie & Brookfield,1991; Carvalho et al., 2019; Zimmer, 2014). Additionally, it aimed to develop models for environmental rehabilitation, conservation, and sustainable alternatives. Since its inception, political ecology has been both analytical and normative, with a keen focus on practical applications. This unity was further solidified with the establishment of policy-oriented journals like 'Land Degradation and Rehabilitation' in 1989 by founding figures in the field such as Blaikie and Brookfield (1991) and other pioneer scholars.

From its early days, political ecology prioritized marginalized social groups and issues of social justice. Recent publications such as 'Liberation Ecologies' and 'The Environmentalism of the Poor' underscore this commitment. By emphasizing political-economic relations and systems, political ecologists paved the way for incorporating social relations that may not be immediately proximal to ecological symptoms. This departure from conventional human and cultural ecology, which tended to localize causes and solutions to environmental crises, allowed for a more comprehensive understanding of the complex interplay between nature, culture, and power dynamics. One landmark study by Cockburn (1989) exemplified this approach by tracing the causal dynamics of rapid deforestation in

eastern Amazonia to macro-level political-economic forces, including rents and subsidies generated by the Brazilian government. This study highlighted how various social forces, such as ranchers, peasants, workers, and transnational companies, were influenced by broader political-economic structures, ultimately leading to environmental degradation (Cockburn, 1989).

Political ecology emerged in response to various intellectual and societal forces, including changing applications of evolutionary thinking, the rise of new sciences such as ecosystem studies and cybernetics, the growing visibility of third-world peasantries, and the consequences of the Cold War and nuclear age (Biersack, 2006). Additionally, the growth of Marxism within social sciences provided theoretical frameworks for analyzing control and access to resources, marginalization, surplus appropriation, and power relations. The shift from an equilibrium to a non-equilibrium stance in scientific paradigms, alongside the resurgence of interest in Marxism, prompted scholars to explore potential convergences between political economy and cultural ecology. This shift also led to a reevaluation of mal-adaptation and disequilibrium in contrast to earlier focuses on adaptation and self-regulation. Overall, political ecology represents a dynamic and interdisciplinary field that continues to evolve, driven by a commitment to understanding and addressing the complex interactions between society and the environment.

The second generation of political ecologists criticized the assumptions of the first generation of political ecologists which is marked by its engagement with the epistemological debates fostered by constructionism and anti-essentialism (Blaser & Escobar, 2016) . They raised the issues like; knowledge and reality, thought and the real while engaging on essentialist/constructivist debate (Biersack, 2006). Based on the diverse post-structural, feminist, and post-modern philosophical traditions while examining the epistemologies of nature, scholars of this generation insisted to discursively analyze the modern forms of knowledge without denying that there is a real nature out of the discourse or human perception (Escobar, 1999).

The third generation of political ecology has added newness in questioning even if its roots are in the second generation. This new approach is just emerging since last one decade and it draws from the academic debates on post-representational epistemologies and flat and relational ontology in geography, anthropology, cultural studies and science and technology studies (Blaser & Escobar, 2016) . While giving a preliminary introduction of this new

generation of political ecology, they argue that political ecologists of this generation challenge the taken for granted ontological character of the reality(Blaser & Escobar, 2016).

In recent decades, political ecology has expanded to incorporate post-structuralist, feminist, and critical studies perspectives, adding further complexity to its analysis (Escobar, 1996; Rocheleau et al., 1996; Forsyth, 2003; Goldman et al., 2011). These approaches have opened up questions about how knowledge, discourse, and institutions shape environmental governance and agricultural practice. The work of Swyngedouw and Heynen (2003) and Baviskar (2011), for example, brings political ecology into urban spaces, exploring how poor and working-class groups engage with state infrastructure, commodified land, and informal markets in rapidly transforming cities. This urban turn in political ecology is particularly relevant for my research as it helps uncover how smallholders are rendered invisible or disposable within dominant narratives of modernization, and how they resist or adapt to the forces that structure their insecurity. Moreover, political ecology supports a normative stance that focuses not just to understand power relations in agrarian environments, but to advocate for more equitable and sustainable futures. In this sense, my study aligns with political ecology's emphasis on rights, dignity, and ecological justice for marginalized farming communities of emerging urban area of 21st century.

Biersack (2006) has discussed all these thoughts emerging on political ecology and provided a fresh outlook on the frameowrk of political ecology in the context of emering new ecological crisis of late 20th century. She has outlined five key theoretical orientations of the contemporary generation of political ecology. First is the integration of symbolic and material factors. Modern political ecology emphasizes the interplay between symbolic (cultural, ideological) and material (economic, ecological) aspects, rejecting earlier tendencies to reduce one to the other. This orientation recognizes that reality is discursively produced through meaning-making practices, a perspective influenced by postmodernism and post-structuralism. Second is critique of the nature/culture dualism. The tradition of separating nature and culture is replaced by a focus on their reciprocal relationship by the new generation political ecology. Political ecologists now emphasize concepts like 'second nature' or 'humanized nature,' highlighting how human activities shape and are shaped by the natural world, producing an 'after nature'. Third orientation of today's political ecology is local-global articulation. This orientation examines how local and global dynamics intersect. While earlier frameworks like world-systems theory focused on global structures or local ecologies in isolation, contemporary approaches explore the complex interplay between global forces and

local practices, highlighting how these articulations impact environmental and social systems. Another, the forth orientation is the recognition of agency and practice. Moving beyond the structural determinism of earlier approaches, modern political ecology incorporates practice theory, which acknowledges the constraints of structures but also emphasizes human agency, indeterminacy, and the role of events. It considers how actors navigate, resist, and reshape systems of power in specific contexts. Finally, the fifth orientation inter-sectionality and broadening focus on identities, race and ethnicity. Influenced by feminism and post-Marxist thought, it critiques the class-centrism of earlier frameworks and investigates how power relations shape human–nature interactions across multiple dimensions of identity (Biersack, 2006).

Therefore, Political ecology offers a powerful lens to understand the intersection of ecological change, socio-political power, and livelihood strategies, particularly in agrarian contexts. Emerging from critiques of apolitical ecological models, political ecology interrogates how access to and control over resources are shaped by power asymmetries and historical processes of marginalization (Wolf, 1982). In relation to agriculture, this perspective is especially useful for understanding how smallholders are impacted by policies of land commodification, environmental degradation, and market liberalization. While applying these contemporary frameworks of political ecology, I assume to examine various aspects of the changing dynamics of the agricultural system of the Valley in relation to the human security situation of the migrant farmers.

2.3 Global Risk Society: Introduction and its Application in Nepalese Context

In studying the political ecology of human security of the vegetable farmers in the Kathmandu Valley, the previous discussion demonstrates that the framework of political ecology effectively explains the multiple and dynamic relationships between nature, culture, and power. It also sheds light on how farmers can actively engage with their ecological and political contexts. However, it falls short in addressing why farmers' security concerns are becoming increasingly critical in today’s globalized context and why state agencies are growing ever more ineffective in mitigating these issues and ensuring farmers' security. To address these gaps, I propose adopting the theory of the global risk society, as advanced by the German social scientist Ulrick Beck in his seminal work on social theory of 'Risk Society' (2009).

Globalization has been a transformative force in shaping the modern world, deeply impacting economic, political, and social structures. While it has facilitated unprecedented levels of global integration and technological advancement, it has also introduced significant risks and challenges to the security of majority of marginal communities all over the world. Globalization, as understood by post-modern scholars, is seen as a transformative force that has reshaped global humanity. As global economic integration advances, primarily driven by technological improvements and policy changes that encourage free trade, it has fostered interconnectedness on an unprecedented scale (Fukuda-Parr et al., 2003). Scholars like Beriša and Dželetović (2018) argue that this worldwide progress has led to both the advancement of human society and the amplification of risks. However, this integration has not been evenly beneficial across the globe. Poor countries and marginal communities, in particular, have seen their roles diminished in this new global order, where power imbalances and resource inequalities exacerbate their vulnerabilities (Beck & Grand, 2010).

One of the key arguments against globalization is its contribution to deepening inequalities. Critics argue that it has led to a loss of economic autonomy for developing countries, as national governments relinquish control over their economies to international institutions like the World Trade Organization (WTO). The classical and neo-classical economic theory posits that globalization, through free trade, can increase national incomes. However, the distribution of these gains has been uneven, with the benefits accruing primarily to wealthy nations and multinational corporations, leaving the poor and marginalized even more vulnerable (Shiva, 2016).

Marxist thinkers, such as O'Connor (2009), view globalization as a phase of advanced capitalism, where economic expansion has entered an ecological phase. This phase is marked by the commoditization of natural resources and life-support systems, leading to environmental degradation and socio-political crises. Escobar (1999) connects these challenges to technological advancements that alter the identity of nature itself. Privatization of public institutions and commodification of natural resources, as argued by Shiva (2013), have disastrous consequences, especially for the poor. The privatization of essential services and public goods, such as water and food systems, further deepens economic and cultural insecurity for marginalized populations. Shiva (2013) calls this situation a 'double theft' that robs people of both their economic security and cultural identity, driving many toward extremist movements as a reaction to their displacement and disenfranchisement.

Beck and Lau (2005) provide another valuable framework for understanding this new situation that have arisen in the wake of globalization while defining the concept of the 'world risk society' also. They argue that globalization has led to a weakening of state sovereignty and authority, as nations are increasingly compelled to act according to the whims of highly mobile capital and trans-national actors. This loss of economic autonomy has compromised the state's ability to ensure the security of its citizens, especially in terms of welfare, health, and environmental protection. Therefore, they have argued that global society has entered into a new phase of 'global risk society'.

In this phase, threats are no longer confined to national borders. Globalization has resulted in new forms of insecurity, as risks such as climate change, pandemics, and financial crises transcend national boundaries and impact global populations. The state, which traditionally held the responsibility of ensuring the well-being of its citizens, now finds itself ill-equipped to manage these 'transnational risks'. Beck (2009) argues that globalization forces states into a power struggle with non-territorial economic actors, leading to a 'political economics of uncertainty and risk'. The state is increasingly unable to protect its citizens from economic insecurity, as seen in the retreat of welfare provisions and the rise of privatized life-support systems.

Therefore, the challenges to human security in the 21st century are multifaceted, ranging from environmental crises to socio-political unrest. The phenomena of globalization, a major character of this century, has led to the de-nationalization of markets and the erosion of state welfare systems. This retreat of the state has resulted in greater individual responsibility for economic and social security, leading to increased vulnerability for those without the means to self-provide. Privatized healthcare, education, and insurance systems exacerbate these inequalities, leaving the poor and marginalized populations at greater risk.

Moreover, the environmental consequences of globalization cannot be overlooked. The ecological crisis is a direct outcome of advanced capitalism's insatiable drive for profit at the expense of natural resources (O'Conner, 2009). Global environmental changes, including climate change, resource depletion, and biodiversity loss, disproportionately affect poorer nations, further widening the gap between the rich and the poor. It is important to note that globalization has introduced opportunities. It has facilitated technological progress and economic growth but, it has also deepened inequalities and introduced new forms of insecurity. Hence, the future of human security in a globalized world depends on the ability of governments, international institutions, and civil society to recognize and address these

risks. Without a concerted effort to mitigate the negative impacts of globalization, the inequalities and insecurities it produces will continue to pose significant challenges to human security in the 21st century.

The consequence of this failure rising risks and insecurities faced by urban farmers are, in part, due to the state's failure to prevent such crises. Policies that have encouraged encroachment on riverbanks, indiscriminate road construction, and haphazard infrastructure development have exacerbated the environmental risks in the Valley. These disasters are not merely natural phenomena but are deeply linked to state negligence and the broader failure of governance, reflecting the pressing need to reconsider how human security is managed in an increasingly risky and uncertain urban landscape.

In the farm-ecology of the Valley, the state's failure is evident in the haphazard urbanization and the growing insecurities faced by urban smallholders. This condition reflects the dynamics of the global risk society, where urbanization, migration, and broader political-economic processes have given rise to a new urban ecology; one marked by resource overexploitation and environmental degradation. In this context, state institutions have struggled to respond effectively, failing to ensure the security and well-being of marginalized farming communities. This situation mirrors what O'Connor (2009) refers to as the 'ecological phase of capitalism,' where nature is commodified and reproduced in various forms, leading to what Escobar calls the 'crisis of nature's identity', a characteristic of the new age of 'Anthropocene- the age of humans disrupting planetary processes' (UNDP, 2022b).

A stark example of this failure is the severe flooding in Kathmandu in September 2024, which occurred while I was preparing the final draft of this dissertation. The record-breaking rainfall on September 27th caused catastrophic flooding that killed 249 people in the central region of the country, with more than sixty people's deaths in the Valley alone (Ghimire, 2024). The flooding had drowned the entire settlements along the rivers, highlighting the insecure situation of the marginal urban communities to environmental disasters and climate crisis. A similar disaster had occurred in Melamchi in Sindhupalchowk district, north from Kathmandu on Jun 2021. In this changing environmental and climatic conditions and rising risks of the marginal communities of the Valley, I have expected that the theory of risk society allows a deeper understanding of intersection of the larger scales of power structures and urban transformations implicating to increase the insecurities for smallholders.

As in the cases of climate crisis of the Valley and elsewhere, the agricultural governance of the country, for example, has systematically failed to address the emerging risks of the farmers of the Valley.These farmers, who are central to Kathmandu's food system, experience insecurity due to inadequate government policies that prioritize urban expansion and commercialization and commodification of land at the expense of sustainable farming practices (Upreti et al., 2017). The expansion of the city into agricultural land, increasing the frequency of migrant farmers coupled with unpredictable market conditions, puts additional pressure on the smallholders either to confront market demands or risk displacement and loss of livelihoods. Approaching from the Beck's perspective, this transformation of urban agriculture into an arena fraught with risks and uncertainties are the key characteristics of the 'risk society' in which the risks are produced by modernization itself threaten the very systems on which societies rely.

By utilizing the theory of risk society in the specific political ecological context of the Valley, I am able to provide a more comprehensive analysis of the human security situation faced by the smallholders of the Valley. This integrated approach acknowledges that the risks and uncertainties embedded in the agricultural system are not solely natural or economic but are inherently shaped by social and political forces of various scales. What I have assumed is that the political ecology allows me to explore the human security situation of the vegetable farmers who are active and dynamic players within the system and constantly applying their agencies to enhance the situation of security. While, the theory of risk society can help to examine the state's inabilities to minimize their rising risks and insecurities. Together, these frameworks offer a robust analytical foundation for understanding how farmers manage, experience, and mitigate the risks associated with urban agriculture and their intersection with the overall agriculture governance of the Valley.

2.4 Approaches to Agriculture: Cultural Ecology to Political Economy

Anthropologists have long studied agriculture as a cultural and economic practice deeply embedded in social and ecological contexts. Beginning with functionalist studies in the mid-20th century and extending to the integrative approaches proposed by scholars like Robert Netting, David Cleveland and Robert Rhoades, agricultural anthropology offers insights into how farmers adapt, resist, and transform their environments in a holistic manner (Sarker, 2017). This section traces these theoretical developments, emphasizing how household-level decision-making, labor organization, land tenure, and ecological knowledge are central to understanding farming systems. It also discusses how Cleveland’s (1998) call

for interdisciplinary, participatory, and locally grounded agricultural research remains vital in today's context of global risk and climate change.

Agricultural anthropology has long been focused on understanding farming practices as part of human culture and tradition. The pioneering work of Robert Redfield and W. Lloyd Warner, who published 'Cultural Anthropology and Modern Agriculture' in 1940, marked the beginning of applied anthropology in agriculture (Cleveland & Murray, 1997; Cleveland, 2000). They adopted a functionalist perspective, emphasizing how farming communities adapt to their specific social and natural environments. Their work laid the groundwork for future anthropologists, notably Robert Netting, who further developed the field by producing ethnographies that examined household composition, landholding sizes, and labor use in farming communities (Cleveland, 1997). However, early agricultural anthropologists primarily focused on the functional dynamics of farming practices, often neglecting the broader interactions and complexities between farmers, agricultural professionals, and political actors.

The 1970s marked a turning point for agricultural anthropology, as the discipline began to gain recognition and engage more actively with agricultural scientists and policymakers. Rhoades (1984) played a pivotal role in this new turn, advocating for a comprehensive understanding of agriculture that considers the human element in conjunction with technological, economic, and socio-cultural factors. Rhodes (1984) and Cleveland (2000) and other have articulated the need for agricultural anthropology to view agriculture as a complex human creation, integrating various components of local and global food systems. Their emphasis of the field underscored the necessity of a holistic approach that includes agro biodiversity preservation, participatory analysis, and the intricate relationships between state policies and farming practices (Sarker, 2017).

Rhoades' contributions redefined the scope of agricultural anthropology and highlighted its relevance in addressing contemporary challenges within the agricultural sector. He recognized that anthropology could serve as more than a cultural broker between farmers and technology; it could critically analyze the interrelationships and dynamics within local farming systems (Rhodes, 1984; 1999). This perspective aligns closely with the concept of risk society, where the uncertainties associated with global agricultural markets and environmental changes significantly impact the livelihoods of farmers.

Similarly, scholars like Tripp (1985) emphasized the importance of anthropologists eliciting farmers' opinions and conducting informal observations to understand the complexities of on-farm experimentation better. This practical approach remains relevant as contemporary agriculture confronts various challenges, including climate change, market fluctuations, and the erosion of local food systems. Andreatta et al. (2004) exemplified this approach by advocating for local agro-food systems, promoting the development of farmers' markets, and placing anthropology students at the farm level to experience firsthand the impacts of increasing globalization.

Now a fundamental question in agriculture anthropology is to approach the field of study when the agriculture system is evolving under the pressure of various global ecological and political processes. Cleveland (1998; 2000) has done serious thinking on this issue and urges to the anthropologists to evolve accordingly to study the field of agriculture as one of the important field of anthropological inquiry. In his essay 'Balancing on a Planet', he traces the intellectual legacy of agricultural anthropology from the early 1920s and proposes a renewed framework for engaging with agricultural science in the context of 21st century. He outlines three possible approaches. The three approaches are; the internalist perspective**,** the postmodernist rejection**,** anda constructive, integrative engagement which offer a critical reflection on how anthropology can and should respond to contemporary agrarian challenges. These approaches are not just abstract philosophical positions; they directly inform how researchers interact with farmers, scientists, institutions, and knowledge systems in real-world agricultural contexts.

The internalist perspective**,**as Cleveland (1998) opines that agricultural science as a self-contained and objective domain. Rooted in positivist traditions, it privileges technical knowledge, empirical measurement, and standardized solutions to agricultural problems; often emphasizing yield, input-output efficiency, and technological innovation. At the opposite pole lies the postmodernist rejection**,** which is highly critical of the authority and universalizing claims of modern science. This perspective frames agricultural science as a hegemonic discourse, shaped by colonial histories, capitalist interests, and technocratic worldviews that marginalizes indigenous knowledge systems and alternative ways of knowing.

The postmodernist approach is important in deconstructing power and inequality within agrarian development. But, Cleveland warns against the tendency of postmodernism to descend into total relativism. By rejecting scientific inquiry wholesale, this stance risks

disengaging from meaningful dialogues around food production, climate adaptation, and sustainable agriculture which risks to compromise the empirical knowledge and cross-disciplinary collaboration. Therefore, Cleveland (1998) instead advocates for a third, a critical integrative approach which I have undertake on this study of the human security situation of the smallholders of Kirtipur.

This integrative approach encourages agricultural anthropologists to engage with agricultural science not as detached critics or cultural brokers, but as participants bringing with them the epistemological flexibility, empathy, and contextual understanding that are hallmarks of anthropological inquiry (Cleveland, 1998). Agricultural anthropology, from this perspective, must draw on insights from the humanities, social sciences, and natural sciences, facilitating genuine dialogue between local knowledge systems and scientific research. It seeks to understand how local practices intersect with global systems, and how farmers navigate the tensions between tradition and innovation, sustainability and market logic, survival and policy neglect.

Cleveland and Murray (1997) are also critical about the role of anthropology in relation to agriculture and farming. They emphasize anthropology must play a role inamplifying farmers' voicesin negotiations over what sustainable agriculture means and how it is implemented. This is not just a scholarly task but an ethical imperative. In my study, smallholder farmers in Kirtipur emerge not only as vulnerable actors navigating systemic threats but also as knowledge holders and agents whose perspectives on farming, risk, and survival deserve recognition in both policy and academic discourses. Their situated knowledge, shaped by migration, marginality, and everyday practice, provides crucial insights into what a truly context-sensitive and just agricultural development might look like.

Therefore, this integrative approach is especially relevant to understand the experiences of urban smallholders in the Valley**,** who are excluded by the governance and experiencing insecurities. Their experiences reveal the layered insecurities and adaptive strategies side by side shaped by policy exclusion, environmental degradation, and socio-economic precarity. Engaging with their practices through ethnographic methods allows for a richer understanding of how farmers integrate indigenous knowledge with new technologies, manage uncertainty, and articulate aspirations for a secure future. It also enables the researcher to critically evaluate the claims of modern agricultural science, such as those embedded in the controlled farming (such as rooftop farming, hybridization of seed and others) while remaining committed to practical solutions and policy engagement.

Furthermore, by aligning with Cleveland's integrative approach to agricultural anthropology which emphasizes collaboration with farmers and the co-production of knowledge and by engaging theoretical insights from political ecology and the theory of risk society, this study positions itself within a transformative and applied anthropological framework. As an anthropologist, I do not stand as an external critic of farming practices but rather as a bridge between divergent knowledge systems: scientific, institutional, and experiential. This positioning allows me to highlight how the lived experiences of smallholder farmers in the Valley offer critical insights into the broader global forces reshaping agrarian landscapes. In this way, agricultural anthropology becomes not only a lens to understand cultural and ecological dimensions of farming but also a platform to document and analyze the multi-scalar risks, such as economic precarity, land insecurity, institutional neglect, and environmental degradation that farmers confront daily. Integrating the principles of the risk society further allows agricultural anthropology to trace how global market integration, neoliberal policies, and climate instability create layered insecurities at the local level. Thus, this ethnographic engagement contributes to the evolving field of agricultural anthropology by showing how theory can be grounded in the everyday struggles and adaptive strategies of smallholders who persist in cultivating life and livelihood amidst profound socio-ecological transformation.

2.5 Concept of Smallholder and its Relevance in Urban Agriculture

The term 'smallholder' is widely used in agrarian studies. It is typically defined in development literature as farmers who manage small plots of land; usually less than 2 hectares (approximately 5 acres) often as part of a family-run agricultural system (FAO, 2012; Knight, 2022). The upper limit for smallholder classification in some global definitions extends up to 10 hectares, while the majority of smallholders in developing countries operate at the lower end of this spectrum, with limited access to resources, technology, or formal markets. Smallholders include both landowners and tenant farmers and often rely heavily on family labor, with production geared toward a mix of subsistence and local market engagement (Knight, 2022)**.**He further elaborates the concept as more than an occupational category, smallholder farming represents away of life that includesa mode of economic survival, cultural reproduction, and ecological stewardship.

While the concept of smallholder is often applied in rural contexts, its relevance has grown in urban and peri-urban settings, especially amid rising rural-to-urban migration and rapid land-use changes. In cities like Kathmandu, smallholders are increasingly found in

urban fringes, where they rent land under informal (or formal) agreements to practice commercial vegetable farming. This form of urban agriculture**,** although operating in a complex legal and economic environment, shares many core features of smallholding such as small plot sizes, household labor reliance, market vulnerability**,** andlack of institutional support.

However, urban smallholders also face unique constraints. Unlike their rural counterparts, urban smallholders rarely enjoy secure land tenure or access to public agricultural programs. Their farming is shaped by rising land rents, competition with real estate development, and ecological pressures (Rai et al., 2019; Adhikari & Hobley, 2015). As urban agriculture becomes increasingly informal and precarious, smallholders remain marginalized both in research and policy, often excluded from national frameworks that privilege either large-scale industrial farming or urban development.

Scholars have shown that urban and peri-urban agriculture has increasingly gained importance as a strategy for improving food security and supporting livelihoods, particularly among low-income and marginalized populations in rapidly urbanizing regions. Orsini et al. (2013) present urban agriculture as a multidimensional opportunity to address food insecurity, malnutrition, unemployment, and environmental degradation, especially in the Global South. They emphasize that urban farming contributes significantly to social inclusion, gender empowerment, and environmental sustainability, with high productivity in small plots of land; traits that define many smallholders in the Valley. Similarly, Rai et al. (2021) empirically demonstrate that vegetable farming is a key source of cash income and employment for farmers on Kathmandu's urban fringe. Their findings reveal a positive correlation between vegetable farming and livelihood sustainability, particularly in the context of rising urban demand.

A critical issue of insecure situation for the smallholders lies in their exclusion from equitable market relations and value chain dynamics. Sharma (2019) reviews the vegetable value chain in Nepal and finds that producers receive disproportionately low returns due to the dominance of market syndicates and unregulated intermediaries. This reflects a structural imbalance in agricultural governance that prioritizes traders over producers. Chowdhury's (2009) study from Bangladesh reinforces this view by highlighting how landlessness and weak purchasing power among rural farmers result in food insecurity even in food-producing regions. For the smallholders in the Valley who operate on rented land and rely on volatile

vegetable markets, these studies underscore the need to rethink pricing, input regulation, and farmer inclusion in market decision-making processes.

Studies have also indicated various issues on personal, environmental and other socio-economic security threats of the smallholders. Budhathoki et al. (2019) extend this critique by focusing on unsafe pesticide handling practices among smallholder farmers in Bhaktapur, one of the three districts in the Valley. The lack of training and dependence on informal agro-vet dealers not only creates public health risks but also reflects a broader neglect of institutional support and regulatory oversight.

The commodification and fragmentation of agricultural land is a major structural threat to smallholders in the Valley which is connected with the multiple types and levels of human security threats. Upreti et al. (2017) trace the post-1990 expansion of the real estate sector and the decline of farmland due to migration, remittance-driven speculation, and weak land policy. Their findings reveal how political protection for land buyers and the absence of zoning laws have enabled the displacement of cultivators and the conversion of fertile farmland into urban infrastructure. This phenomenon, also observed by your study, directly affects migrant vegetable farmers who rent land on short-term leases and face constant risk of eviction.Such land transformations undermine not only food security but also cultural and ecological relationships to land, as seen in the erosion of Newar farming traditions in the Valley over the last three decades and more.

Chi (2012), in her study of Vietnamese farmers in transitional contexts, argues that insecurity is not just material, it is epistemic, emotional, and relational, rooted in the dissonance between expert advice and farmers' lived realities. She reveals how farmers struggle to adapt in contexts where guidance is fragmented and outcomes are uncertain. Likewise, Upreti (2023) extends this argument by framing unconventional security threats, such as food insecurity, landlessness, environmental degradation, and poverty as urgent public policy concerns. He emphasizes that domestic coping capacity and governance commitment are key determinants of national resilience.

Applying this human security approach to my context, smallholders in Kathmandu are not just economically insecure; they are on the frontlines of non-traditional, multi-scalar human security threats caused by ecological change, policy failures, and urban inequality. Therefore, my theoretical argument is that the human security situation of smallholders is not accidental but produced through structural limitations and power situation in the given

context (Foucault, 1982). Political ecologists like; Escobar (1999); Swyngedouw and Heynen (2003); and Wolf (1982) have argued, since very long time, that land, labor, and ecological resources are contested terrains shaped by power, a key determinant of human security situation. The terrains has turned into an even more intense battlefield with the large numbers of stakeholders and interest groups are entangled in the context of urban farming and for the smallholders of the urban communities.

2.6 Approaches to Himalayan Agriculture

The Kathmandu Valley, one of the most fertile regions in the Himalayas, has historically thrived on agriculture and trade as its primary economic pillars (Nepali, 1965; Dollfus et al., 2009). This review synthesizes selected literature on agricultural practices in Kathmandu and other Himalayan communities to elucidate diverse approaches shaping agrarian systems. By examining these perspectives, the review aims to deepen understanding of the human security framework employed in this study, which investigates the challenges and strategies of smallholder vegetable farmers in the contemporary urban context of metropolitan Kathmandu.

Nepali's (1965) seminal work, 'The Newar*s*', offers a foundational ethnographic analysis of the Valley's Newar society, emphasizing agriculture as a central economic activity that shapes social organization and cultural identity, particularly among the Jyapu caste, who proudly identify as farmers. Prof. Nepali, one of South Asia's earliest native anthropologists, has examined how traditional institutions like guthi, alongside rituals and festivals such as 'Machhendra Nath' and the rain-making *la-pya-ke-gu*, integrate agriculture with communal solidarity, sustaining Newar vibrancy under the dominant Parbatiya rulers dominated by Chhetri and Brahmin castes. The guthi system, balancing collective and individual land ownership, and elaborate ceremonies reflect a cohesive socio-agrarian order, yet Nepali notes emerging tensions post-1950 with the Rana oligarchy's end, as modern consumer goods challenge traditional agrarian values.

This historical perspective illuminates the resilience of Newar agriculture, contrasting sharply with the precarity of Kirtipur's contemporary smallholder farmers, who face land fragmentation, a shift to migrant-driven vegetable farming, youth disengagement from cultivation, and the disruptive influence of market and state forces (MoALD, 2023; Lama, 2019). While Nepali's insights into guthi and rituals align with political ecology's focus on socio-natural orders (Biersack, 2006), his 1960s framework does not anticipate 21st-century

challenges of urbanization, neoliberal policies, and ecological contradictionsthat exacerbate human security threats for smallholders (Pusceddu, 2024; Upreti & Shrestha, 2017). Thus, while 'The Newar*s*' provides critical historical context for understanding Kirtipur's agrarian past, its limitations highlight the need for contemporary analyses to address the transformed socio-economic landscape.

Ownership of agriculture land in the mountain and throughout the Himalayan region has always remained as an important concern of the social scientists. Questions like; who owns and cultivates land, how they cultivate it, and how the state controls it have important historical, social and political significance in mountain farming. Regmi's 'Landownership in Nepal' (1979) provides a critical analysis of post-Rana landownership systems in mid-20th century Nepal, highlighting how persistent feudal structures and inadequate land reforms hindered socio-economic progress for cultivators.

Regmi (1997) details the complex interplay of tenure systems existed throughout the modern period in Neal. He outlines the different types of landownership systems such as; Raikar (state-owned land with tenant cultivation), Birta (privileged grants to elites), Guthi (institutional endowments for religious purposes), Jagir (land assigned as salaries to officials), Rakam (labor-based obligations), and Kipat (communal indigenous tenure) the different type which ultimately entrenched landlord dominance and limited cultivators' access to ownership. Despite post-1951 reforms, including the 1964 Land Reform Act aimed at abolishing Birta and Jagir and redistributing land, Regmi argues that these policies failed to transfer meaningful ownership to tillers due to weak enforcement, continued elite control, and high tenancy rates (Regmi, 1997). The Rakam system's labor obligations and Guthi land mismanagement further exacerbated peasant exploitation, while Birta grants to Rana elites in the Tarai region perpetuated inequitable land distribution (Regmi, 1997).

Regmi's critique underscores how these governance failures constrained agricultural productivity and economic development, resonating with the precarity faced by Kirtipur's smallholder vegetable farmers today, who contend with land tenure insecurities and market pressures (MoALD, 2023; Lama, 2019). From a political ecology perspective, Regmi's analysis reveals historical power imbalances in land relations (Biersack, 2006), yet it overlooks modern challenges like urbanization, emerging new phenomena of smallholding farming, feminization of agriculture, youth disengagement and others.

A contribution by Dollfus et al. (2009) is aremarkable description on Himalayan agriculture from historical perspective. They have come across with the changes in land ownership, land use pattern and the state intervention in the traditional land ownership pattern as a massive modernization process in the region while doing comparative study of the crop varieties planted in the two different centers of the pre-ancient Himalayan civilization; Ladakh in the western Himalaya in the Indus Valley and the Kathmandu Valley in the middle of its Southern range. While examining the changing pattern of the agrarian systems since the beginning of 20th century, they have noted that the pattern include; 'disappearance of slash-and-burn cultivation; abandon of rustic plants and adoption of foreign crops or of improved varieties, development of irrigation, and a global change over to intensive farming'. They further mention that these trends developed with administrative reforms that have contributed to its growing momentum, such as forest legislation, which fixed the limits of arable land; the creation of the Panchayat system in 1962, which created closed territorial administrative units; the cadastral survey, which divided common land and individualized it; various government subsidies and guidelines which favored one crop to the detriment of another (Dollfus et al., 2009).

Another perspective on modernization and state-building advanced in relation to land and Himalayan agriculture is by Caplan (2000). He had studied the land ownership and the changes in the social relation in 1970s in the Eastern Nepal. His study provides a detailed ethnographic account of the Limbus, an indigenous tribal community in eastern Nepal, and their interactions with Hindu settlers over the past two centuries. By examining the intersection of land, culture, and politics, Caplan contributes to a broader understanding of the socio-economic and political dynamics that have shaped agrarian relations in the Himalayas. Caplan's focus on Sanskritization, the process by which indigenous groups adopt Hindu customs, beliefs, and social structures, offers a critical framework for understanding cultural shifts in the Himalayas and the role of state in relation to land taxation and land ownership in this process. This perspective is particularly valuable in analyzing how land dispossession is not just an economic process but also a profoundly cultural and political one.

Another approach on the land is to understand the complex economic system of the Himalayan region. Dahal's (1981) study of the 'Athpahariya Rai' in Dhankuta provides an important conceptual bridge for understanding agrarian life in Nepal beyond narrow market-based economic explanations. Working in the same broader eastern hill region and within Kipat landholding systems earlier examined by Caplan, Dahal approaches land and

agriculture through the lens of economic dualism, distinguishing between non-cash (embedded) and cash (market-oriented) spheres of the economy. His analysis challenges the assumption that peasant producers are primarily profit-maximizing actors. Instead, he demonstrates that farming, land, and agricultural products among the Athpahariyas are deeply embedded in social relations, moral obligations, ritual life, and cultural values. For Dahal (1981) agriculture is not oriented toward the market in anticipation of prices or profit. Production is primarily aimed at fulfilling household subsistence and social needs, with only surplus entering the market. The market itself is understood not as an abstract mechanism of price signals but as a concrete social space of exchange, characterized by traders, booths, and interpersonal relations. Gift-giving during festivals, marriages, and death rituals further illustrates how agricultural produce circulates within a moral economy rather than being fully commodified. This mixed economy where subsistence, reciprocity, and limited cash exchange coexist reveals that economic rationality is culturally situated, not universal.

This insight is particularly relevant to my study, as it provides a historical and theoretical contrast to the contemporary situation of migrant vegetable farmers in the Kathmandu Valley. While Dahal documents an agrarian world where land and farming retain strong social and moral meanings, my study presents the erosion of the situation under the conditions of urbanization, land commodification, neoliberal agricultural policies, and market dependency. Unlike the Athpahariyas, Kathmandu Valley's migrant farmers are compelled to produce explicitly for the market, often on leased land, with high input costs, unstable prices, and weak institutional protection. Farming here is no longer embedded primarily in social relations but is increasingly shaped by risk, uncertainty, and cash-flow imperatives. But it is important to consider Dahal's exploration to understand the transition from a morally embedded peasant economy to a risk-laden, market-dependent urban agriculture represents not just an economic shift, but a profound restructuring of social relations, values, and human security. In this sense, this study extends Dahal's insights into the (post)liberal and urban context, showing how farmers' agency now operates within far narrower structural constraints, where land, labor, and livelihoods are increasingly exposed to market volatility and institutional neglect.

In contrast to the concept of individual land ownership and agriculture market, Fürer-Haimendorf's (1988) study on Tibetan-origin communities living along Nepal's northern border during the mid-20th century presents a compelling analysis of the interdependence between trade, subsistence farming, and livestock-based pastoralism. His research highlights

how trans-Himalayan trade remained a crucial pillar of the high-altitude economy, as the extreme climatic conditions and limited arable land made self-sufficient farming nearly impossible. The exchange of Tibetan salt for Nepalese grains was a defining characteristic of this trade system, shaping not only land use patterns but also influencing settlement structures and livestock management practices (Fürer-Haimendorf, 1988).

Throughout the history, the Sherpa and other Bhotia communities maintained seasonal trade routes, strategically importing grains from Nepal's lower hills while exporting Tibetan salt to sustain their economic livelihoods. This trade economy played a pivotal role in stabilizing food security for Himalayan populations, mitigating the challenges posed by limited agricultural productivity. However, the political shifts in Tibet during the 1950s significantly disrupted these traditional trade networks which is the central concern of Bauer (2004). As the Chinese occupation of Tibet led to the closure of key trading routes, communities that had long relied on cross-border trade suddenly faced severe economic dislocation. This forced many high-altitude farmers and herders to diversify their livelihoods, increasingly depending on local agricultural production, livestock rearing, wage labor, and the emerging mountaineering and tourism industries (Fürer-Haimendorf, 1988).

Fürer-Haimendorf's work underscores the importance of understanding Himalayan farming through a broader socio-economic and historical lens. His study demonstrates that agriculture in the region has never existed in isolation but has always been deeply embedded in trade, pastoralism, and larger geopolitical and economic shifts. His works remain highly relevant for scholars examining agrarian transformations, subsistence strategies, and the complex impacts of globalization on mountain communities.

Expanding on Fürer-Haimendorf's analysis of trade, agriculture, and pastoralism in the Himalayan region, Bauer (2004) provides a comparative and historically grounded ethnographic account of Dolpo, a high-altitude pastoral community in Nepal. Through a regional and political-economic perspective, Bauer examines how state formation, shifting national borders, and geopolitical transformations have reshaped the production systems of Himalayan pastoralists (Bauer, 2004). His research highlights the critical role of national policies and international relations in altering traditional agricultural and herding practices, making his study an important extension of Fürer-Haimendorf's earlier work.

Bauer's research focuses on the impact of nation-state building on Dolpo's pastoral economy, emphasizing how the region's agrarian and herding practices have been influenced

by broader political shifts in Nepal, Tibet-China, and India since 1959. He argues that as these modern nation-states solidified their borders, they intensified governance over their peripheral populations, including the pastoralist and agro-pastoralist communities of Dolpo. These changes had immediate consequences for local production systems, disrupting longstanding trade routes, altering land use patterns, and restricting cross-border mobility, which was essential for pastoral livelihoods (Bauer, 2004).

One of Bauer's key contributions is his emphasis on integrating regional, historical, and political perspectives to understand how livelihood patterns in high Himalayan communities have evolved over time. Unlike studies that focus solely on ecological or economic factors, Bauer highlights the role of state policies, border closures, and shifting trade networks in shaping local economies. His work, therefore, provides a critical framework for understanding the intersection of agriculture, pastoralism, and governance in the Himalayas.

Taking a case from the indigenous farmers of western Tarai, Chhetri (2005) discusses about the changes in the production/land owning system in relation to nation building and state building processes in Western Nepal. Hepresents a broad overview of the situation of 'Kamaya Tharu'in Western Nepal. The Kamaya practice is taken as a specific pattern of 'bonded labor' in which the labor is relegated to the status of enslaved person over time by the landlords or elite. In July of 2000, Nepal government announced to free 'Kamaya Tharus' from their traditional status and ensure their economic and social security as the advocacy on their social, economic and cultural rights touched the climax. Historically, Tharu is an agriculturalist community and produce large amount of crops to supply for the hill states in the early modern period. But, Chhetri (2005) notes that over the year Tharus were gradually alienated from their land by Paharipeople(hill people) and other non-Tharuelites (particularly by hill communities) and majority of theTharus turned into landless until the last decades of 20th century. This is a unique case that throws lights on the tragedy of the agricultural communities in the process of modern state formation and migration in the region.

In relation to the mountain agriculture and its various economic, social and cultural dynamics in its changing context have been approached by researchers from various backgrounds with different institutional affiliations over the last three decades. Until the final years of the 20th century, agriculture had remained as a single major economic activity and source of income and employment for the majority of the families in the Himalayan region (Partap, 2002). But the situation has transformed over the last two decades and more. Latest

studies on land ownership and agriculture bring various other perspectives such as; cultural significance of land, indigenous knowledge and practices in agriculture and water institutions, climate change, peasantry, changing economy and shifting to other economic opportunities by traditional farmers, migration, commodification of land and various others.

A conventional model of approaching agriculture in anthropology is cultural approach. Dhakal (2000) brings cultural perspective while discussing about shifting cultivation, also known as Sweden agriculture and remained very much common until the second half of 20th century in many parts of Asia including in the Himalayan communities. Dhakal(2000)brings this mode of agriculture in discussion while focusing on its ecological and economic aspects of the shifting cultivation. Based on his field study in the eastern Nepal, he shows that this specific traditional form of agriculture is not merely agro-economic activity but is an integral part of the socio-cultural processes of the particular community and it's rational and meanings are inseparably interwoven with the cultural and social practices of the agriculturalists (Dhakal, 2000).

While understanding about culture and nature relation in mountain context, it is also important to know how local pastoralist communities perceive and interpret this relation.Poudel (2016; 2024) approaches on Himalayan agricultural practices, challenging the materialist, reductionist approaches of normative science by advocating for the inclusion of cultural and ethical dimensions in understanding the Nhāson Valley's farming communities. Emphasizing an indigenous relational ontology, he highlights how farmers' practices, such as fencing, social regulations, and rituals to honor divine beings, integrate science, culture, and spirituality, recognizing the landscape as shared by humans, animals, and deities. These practices reject the separation of nature and culture, viewing crop threats from animals, humans, and spiritual entities as necessitating plural worldviews that combine rationalist and non-rationalist frameworks.

By bridging local and scientific knowledge, Poudel (2024) provides a robust framework for environmental studies underscoring the resilience of socio-ecological systems shaped by farmers' technical, social, and cultural strategies. This perspective is highly relevant to study Kirtipur's smallholder vegetable farmers, who navigate modern precarity through adaptive strategies rooted in historical practices. However, the study's focus on Nhāson Valley limits its direct applicability to Kirtipur's urbanizing context, where market-driven and governance challenges dominate. Nevertheless, Poudel's (2024) call to rethink techno-managerial paradigms and emphasizing the need to integrate indigenous knowledge

into modern agricultural policies informs the problems that I have raised on the failure of the agriculture governance and need for the transformative approaches to tackle the human security threats of the new global context.

There are anthropologists and other social scientists whohave approached Himalayan agriculture from various perspectives like indigenous knowledge, governance, climate change and others. In this line, in relation to irrigation, researchers have focused on the various aspects of farmer managed irrigation system, indigenous knowledge and practices on irrigation, and other policy concerns. Uprety (2008) argues that Farmer Managed Irrigation Systems (FMISs) have been sustainable for a relatively long period of time because the water appropriator has a perception that; they have been fairly represented in the governance structure/decision making process, that they have been asked to make equitable distribution to repair and maintenance the systems on which their livelihoods depend and that they have enjoyed the fair distribution of irrigation benefits. Uprety (2008) has also argued that it is very important to understand the indigenous knowledge on the existing irrigation systems - particularly on the formation and maintenance of local irrigation organization- by the agencies who are working with the farmers. Pradhan et al. (2015) have an opinion that 'voice of the farmers who hold the greatest stake on FMISs is still peripheral and cosmetic at best'. To turn farmers' participation in reality, they indicate towards the greater role of the development agencies and NGOs and facilitate them to undertake the decision and play a leading role in every stage of project cycle.

Study on mountain agriculture in the context of burgeoning climate change debate is other area of focus for the researchers and policy makers. There are researches on the both side of the climate change debates; the vulnerabilities of the change and farmer's adaptation strategies against the rising climate related threats and risks. In a case of the vulnerability of mountain agriculture to climate change, in the context of Uttarakhand India, Issac and Isaac (2017) show that climate change is causing noticeable changes in cropping patterns, crop productivity and land use change. While, in the context of adaptation, mountain farmers which constitute the largest proportion of small-scale farmers, have been innovating and adopting various short term and long term, on farm and off farm strategies while responding various socio-political and environmental changes since centuries back. Some of the long term and on farm innovative strategies adopted by the mountain farmers are agro-ecology and agro-forestry, land improvement, water management, livelihood diversification, and others (Synnott, 2012). Farmers had innovated these strategies over the centuries. Likewise, rural to

urban migration, migration of the rural youths; to get employment overseas and integration in the international trade and tourism are some of the important large scales off-farm strategies adopted by the mountain farmers (Grist, 2015; Thapa, 1999).

It is also important to mention here that mountain farmers in Nepal are adopting several strategies for coping with climate change effects. Some of them are long-term based have the centuries' long history and others have recently been invented and adopted (Thapa, 1999). Among them improved and long term community based strategies are; migration of the rural youths -especially men to get employment in urban centers or overseas- is one of the widely used coping strategies of the rural households in the last few decades (Grist, 2015). Beside these, mountain farmers are also integrated in some of the large-scale processes such as international trade and tourism (Synnott, 2012). However, the vulnerability of the hill communities is so much high that the process to find better alternatives has not been halted.

Adhikari et al. (2018) have observed that farmers have adopted livelihood diversification, changes in cropping patterns and farming practices, use of multipurpose plant species, and income-generation activities as the major adaption strategies of climate change in the middle mountain at the household level. They have also observed adapted in community as well as in regional level where multiple agencies including state, NGOs and donor agencies are collaborating. However, they clearly lack linkages between the strategies at household and at the community and regional levels (Adhikari et al., 2018). A similar study conducted in Tarai plain of Nepal shows that rural farmers have adopted measures like use of high-yielding varieties of crops, enhanced irrigation system, switching to hybrid seed, and increased access to pesticides (Dhakal et al., 2016).

In relation to the transformation of traditional subsistence farming to modernization, scholars have made account of the various aspects of farmer's attention towards high value crops; including fruits and vegetable farming. Partap (2002), and Kunwar and Maharjan (2019) show that cash crops farming (fruit and vegetable) suitable to specific agro-climatic conditions, has a comparative advantage that can be exploited by mountain farmers. In a case from the Eastern Mountain in Nepal, they show that seed, manure, plant protection and human labor significantly determine the gross return of the vegetable production. Their result shows that the commercial vegetable production of potato with the application of new technology (under the poly house) is a profitable farming business. They have identified two key problems that the commercial vegetable growers in the mountain are facing.; one is

related to the production of quality product due to disease and another is the marketing of the product particularly lack of the transportation facility (Kunwar & Maharjan, 2019).

Other perspectives like migration, involvement in non-farm activities and other innovations are also very much common in the contemporary studies on Himalayan agriculture. In a case from eastern Nepal, Ghimire (2019) argues that livelihoods of majority of an autochthonous group increasingly becoming unstable and the definite occupation in land have failed to support the family food requirements and other daily needs. It has forced them to find alternative means of livelihoods beyond the agriculture. The research further explains that the emergence of liberal economy, migration and population growth have dispensed the agrarian structure, land and labor relation, cultivation and production pattern which has ultimately transform the interrelation between the farm based cultural groups and land (Ghimire, 2019).

A similar study in a Newar community in the Valley highlights the transformation of the traditional agriculturalists by making income from selling their traditional farmland as a commodity and adopting new jobs available in the open market system. In this case, Acharya (2016) shows that the transformation in the traditional agriculture is taking place towards the non-agriculture or no-agriculture economy. It highlights various internal and external factors for this sort of transformation. The internal factors are; lack of farm worker, problem of irrigation, decrease in yield, and external factors are infrastructure development, urbanization, and other opportunities of regular income (Achary, 2016).

In a similar line, a study of Trans Himalayan region of Himanchal Pradesh, India Sharma and Chauhan (2013) focus on the changes in the cropping pattern and its various aspects including; adoption process of new technology, sources of information about new technology. While examining the factors that have led to the introduction of new crops, they consider improved road connectivity, better means of transportation, decline in the demand of traditional crops, availability of favorable micro climatic niches, availability of new crop inputs like hybrid seeds, chemicals and fertilizes, emerging new markets, etc. are significantly responsible. They identified government agencies on agriculture and relatives and friends as the important sources of information about new crops/technology.

Study of peasantry is a celebrated and widely used theme while approaching the agriculture of the Himalayan region, as it is only a major substance strategy of the majority of the Himalayan population throughout the history. The studies have presented that the

contemporary peasant society of the region has gone rapid transformations due to the modernization process characterized by the infrastructure development and penetration of global capitalism-a function of the adoption of neoliberal economic development regulated by the globalizing agencies like IMF, WB and others since 1980s. In this context, Uprety (2021) has presented a comprehensive theoretical debates and ethnographic descriptions from the Eastern Hills of Nepal on the transition of the peasantry. He has argued that the conventional subsistence farming in the region has integrated into the expanding commodity markets (of land, labor and crops) organized around the globalized advanced capitalism. He has shown that there is a tremendous transformation in various economic institutions, social relations and cultural values following the penetration of capitalism in every section of the society which was not unfolded in the time of Dahal's (1981) study.

His focus in this comprehensive examination is more on the peasantry as an special socio-economic system in relation to the peripheral-capitalism of Nepal. In this way, it has placed importance on the structural aspects of Neal's agrarian changes and less concerned towards the human security situation of the smallholders (peasants or former peasants) in the changing context when there is no more conventional self-reliant peasantry exists but smallholding farming is still important. Another gap observed in his analysis is the state's inability and inefficiency to minimize the process of deagrarianisation of the Himalayan region and its consequences of marginalization of the peasants and smallholding farmers from land and agriculture are mostly overlooked. Instead, Uprety (2021) have ignored the critical examination to understand the reasons why state lacked the willingness and policies failed to tackle the challenges embedded in the land and agriculture production of the Himalayan region of Eastern Nepal. Instead he has placed a new optimism over the 'methodological nationalism' (Beck & Lau, 2005) and a new dream of farmers' 'golden age' is re-imagined in the present context of globalized and technologically advanced global capitalist system.

Finally, Bhatta et al. (2019) plead to review the existing mountain policies and development approaches in the context of altered traditional nature-society interaction in terms of the social differentiation and disintegration of mountain communities.They have emphasized the role played by economic liberalization, profit oriented market development, and infrastructure development in the mountain region especially in Hindu Kush Himalaya (HKH) and weakening in initiatives such as community forestry, collective water management, domestication of rapidly disappearing herbal species, and balancing of

economic and ecological concerns as the serious challenges for the security of the mountain communities and sustainability of the mountain resources.

The selected literatures presented above highlight various aspects of agriculture economy in the region and related production systems in relation to the different social, political, and ecological dimensions in the Himalayan context from High Himalayas to Himalayan foot hills of mountain and Tarai. This review also underscores that fact that the studies on Himalayan agriculture are concentrated around the themes and issues like; land ownership, farming and pastoralism, transition from traditional to modern farming, historical and political dimensions of land, social institutions and mediation of land, shifting cultivation, going out from the agricultural work to other areas of employment, and consequences and various adaptive measures adapted by the mountain farmers in the context of heating climate change debate. The scholars with different social and natural sciences backgrounds have explored these issues primarily from the perspectives like; cultural ecology, political ecology, historical ecology, agriculture economy, and other perspectives of development and environmental concerns.

Two issues are very important before concluding this section. First, in different literatures on agriculture and mountain agriculture, it has turned out that though the scholars who produced the cases in relation to mountain agriculture covers wide range of status; university professors, development planners, policy makers and independent researchers their theoretical choice has various limitations. And, their choices of theoretical framework and methodological approaches are mostly revolving around the three major theoretical view points as Rhoades (1999) has examined; Neo-Malthusian classical economics; cultural/historical ecology; and, dependency theory (or Marxism). Why do they choose specific framework? It is important to note here that the choice is often shaped by the dynamics of modern disciplinary knowledge and power relations, especially within the broader contexts of post-structural and postmodern social and political thought (Escobar, 1996; Foucault, 1982; Rhoades, 1999). The second issue is, in light of changing global dynamics, many approaches have failed to incorporate more contemporary and relevant perspectives. This examination reflects an awareness of the rapidly shifting global context and the emerging epoch of the Anthropocene should be on the priority of the research and study. While this cannot be achieved only with the adoption of the modernist approaches and deterministic frameworks. It demands to have the awareness of ethical responsibilities towards the insecure population and a more nuanced understanding of the interconnected

challenges faced by humanity and the environment at this very age of human domination and interconnections over the planetary processes.

2.7 Agrarian Governance in Nepal: An Overview

Having discussed the conceptual and theoretical debates in the previous section, this section provides an overview of the salient feature of the agrarian policies and programs related to the issues of this study. Over the years, the government has designed and implemented several policies and strategic approaches in the agriculture sector. In 1995, the government adopted the Agriculture Perspective Plan (APP)**,**a 20-year vision modeled on a Green Revolution-type approach. This plan focused on significant investments in key inputs such as irrigation, fertilizers, and rural roads, targeting high-potential areas (Kaini, 2020). Following the completion of the APP, the Agriculture Development Strategy (ADS)and the National Agriculture Policy 2061 (NAP, 2004)were introduced, both of which remain the guiding policy frameworks to date. While these policies are widely acknowledged to be sound in design, scholars argue they have faced significant challenges in implementation (Kaini, 2020). Notably, the foundation of these policies and institutional arrangements rests on the principles of economic freedomandtrade liberalization, shaped by the promulgation of the Privatization Act (1994)and numerous bilateral and multilateral treaties and agreements with other governments, as well as trade and financial agencies (Kaini, 2020).

Since 2015, with promulgation of new Constitution of Nepal (2015) the government structure has reorganized based on the federalism. Before federalism, the agricultural services in Nepal were centrally managed through district agriculture offices. These offices were well-equipped with the technology, skills, and knowledge required for modern farming practices and were the primary centers of agricultural governance at the local level. However, with the shift to a federal system, the governance structure has become more decentralized, with the power delegation to the Provincial Governments which are not well prepared to comprehend the situation and execute policies properly in the changing ecological, social and political context (Roka, 2017).

In Bagmati Province, my research area falls under its jurisdiction, there is a coordinating body of the agriculture programs and projects in the Valley in Lalitpur called Krishi Gyan Kendra (KGK), the literal meaning of KGK is the Agriculture Knowledge Center instituted to coordinate the agriculture projects at the local levels. The KGK in Lalitpur, as a government authority, plays a crucial role in coordinating agricultural activities

across the three districts of the valley: Kathmandu, Lalitpur, and Bhaktapur. The provincial government is responsible for making major decisions regarding agricultural policies and programs, preparing annual plans, and allocating budgets for various projects across the province. The KGK acts as a mediating body between the provincial and local governments, ensuring that provincial-level projects are implemented effectively at the local level. There are also projects and program to support individual farmers and agriculture firms from this sub-provincial authority.

Local municipalities have their own agriculture sections, which are responsible for executing these annual programs in coordination with local farmers. The government provides support to farmers through group-based subsidies and inputs, such as seeds, tools, and training. However, the process of selecting farmers and distributing resources is often hindered by bureaucratic inefficiencies, mismanagement, and a lack of transparency. This has resulted in limited access to government support for poor and small-scale farmers, who are often left out of these programs.

Agriculture governance in Nepal has undergone significant transformations, particularly in the context of market liberalization and federalism of the state. Liberalization of the agricultural market is a key aspect of the country's governance strategy, where the state promotes private sector investment and aims for a market free from political control. However, this approach has faced challenges due to Nepal's complex socio-political and ecological landscape, including historical land ownership patterns, the land tenure system, diverse geography, and extreme climatic variations. These factors have made it difficult to implement any specific model of agricultural governance uniformly across the country, leading to widespread critique from political parties, scholars, and farmers.

2.8 Theoretical Framework

Based on the reviews in the previous sections, I have integrated multiple theoretical perspectives to approach the human security situation of the marginal community in the urban context of Kathmandu Valley in Kirtipur Municipality. They are 'political ecology of human security', 'global risk society' and 'agrarian governance'. From the perspective of political ecology of human security, I examine the complex interactions between the variables of urban transformations that includes both geographic or ecological and political of different scales; local and global. The specific variables to examine in this context are land use and land ownership, favoring urban development over farmland protection, policy biases

toward elites/large-scale actors, and decentralized federalism's uneven implementation (post-2015), exacerbated risks like land conversion and price volatility, and perpetuate social inequalities influenced by class, ethnicity, and migration status. This integration highlights how global risks are localized and politicized, with state and market forces commodifying peri-urban landscapes, displacing traditional farming systems, and amplifying ecological degradation (e.g., no restriction of the overuse of chemical fertilizers and pesticides which is damaging soil and human health).

The integration of world risk society (Beck, 2009) as an overarching lens, within which political ecology is embedded, scrutinizes power dynamics in environmental and agricultural governance of Kirtipur. The framework is further complemented by the UNDP's human security approach (2022b) emphasizing trust, and enriched by agricultural anthropology to foreground the lived experiences and cultural dimensions of the smallholder farming. Beck's theory posits that reflexive modernity generates manufactured risks which are global or transnational in scope and often imperceptible threats like climate variability, pandemics, financial crises, and rapid urbanization. These post-modern risks are so pervasive and wider in scope that they transcend borders and erode the nation-state's protective role, leading to a political economics of uncertainty where states contend with non-territorial economic actors, resulting in welfare retreat, privatization of essential systems, and heightened citizen vulnerabilities.Nestled within this global risk society, political ecology (e.g., Robbins, 2012; Bryant & Bailey, 1997) provides a critical sub-framework to unpack how unequal power relations, political processes, and institutional structures shape access to resources, land tenure, and environmental outcomes in peri-urban agriculture.

Complementing these, I have adopted subjective element of human security from the UNDP (2022) that introduces the concept of trust in governance (institutional responsiveness to risks) as a pivotal mediatorand social system(countering globalization-driven inequalities). The basic idea of this framework is that the erosion of trust of the people on the governance institution weakens cohesion and resilience. Finally, I have included the recent approach of agricultural anthropology that adds an ethnographic depth, illuminating the cultural, social, and adaptive practices of smallholders, such as indigenous knowledge in crop diversification, kinship networks for risk-sharing, and resistance strategies against modernization's uncertaintiespositioning farmers not as passive victims but as embodied agents navigating hybrid traditional-modern livelihoods in "farming on the edge."This multifaceted framework is necessary; embedding political ecology within the global risk society adding a power-

sensitive, place-based analysis to Beck's macro-scale risks, while incorporating trust addresses relational governance gaps, and agricultural anthropology which humanizes the inquiry with grounded, farmer-centered insights.

With this comprehensive framework of political ecology of human security, I have expected to effectively capture the paradox of the insecurities in farming and its persistence where economic necessity, urban market proximity, and cultural attachments sustain vegetable farming despite risks and uncertainties. As the methodological approach, I follow an integrative approach of inquiry which encourages anthropologist to engage with agricultural science not as detached critics or cultural brokers, but as participants bringing with them the epistemological flexibility, empathy, and contextual understanding in the analysis.

In addition, by adopting these approaches, I also assume that along the objective reality of the observed field of study, the smallholders' experiences are fundamental to reveal the layered insecurities and adaptive strategies shaped by policy exclusion, urban expansion and environmental degradation, and socio-economic precarity embedded in the vegetable farming of Kirtipur. I also expect that this ethnographic engagement to explore smallholders' experiences and perceptions allows for a richer understanding of how they integrate their experiences on indigenous knowledge with new technologies, take decision to manage uncertainty, and articulate aspirations for a secure future. At the same time, I also expect to understand (to some extent) the hegemonic role of the modern scientific and political discourses and marginalization of the smallholders which further aggravates their sense of insecurity, another concern of the new generation political ecology of this time.

2.9 Conceptual Framework

Conceptually, this study examines both structural and subjective dimensions of human security of smallholders of Kirtipur in Kathmandu Valley. At the heart of the framework lies the concept of human (in)security of vegetable farming smallholders in urban context. This concept of human security is assumed as the function of threats, responding strategies and agriculture governance, and farmers' risk taking capacity or behavior in a given context. Beside the objectively measured concepts and variables this framework also focuses on the farmers' experiences and subjective perception and risk taking behaviors to enhance the feelings of safety and stability in their livelihoods and free from indignity. This

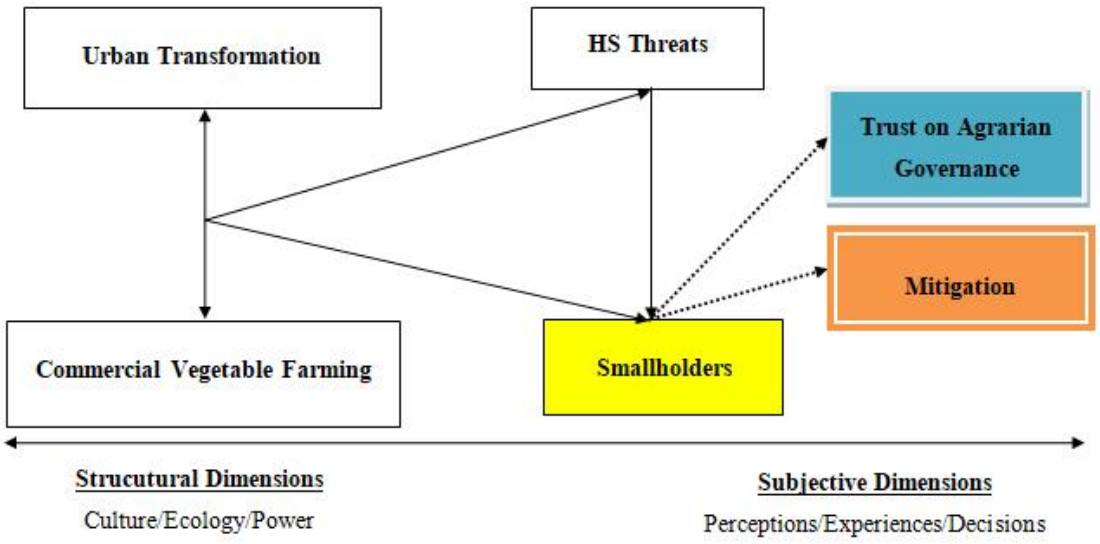
framework also hints that the sense of security is not a static but a dynamic and changing due to variety of ecological and political influences.

The framework assumes that the relationship between global scale threats and local political ecological context (structural) creates a dual dynamic of pressures and opportunities that shape smallholders' experiences (subjective). At the same time, the support system available in social and political contexts produces a new situation where their strategies are defined by both subjective security levels and the extent of trust in government institutions.

As shown in Figure (2.1) below, the extent of the human security threats and the response strategies is also directly influenced by the role of government agencies and programs,which provide support through policies, subsidies, and interventions. Smallholders' trust in these agencies plays a pivotal role in shaping their motivation to undertake farming and consequently to the sense of (in)security which I have visualized in the give framework of this study. A lack of effective governance or perceived inefficacy of government programs may exacerbate feelings of insecurity, whereas robust and reliable support can foster a sense of stability and security.

Figure 2.1

Conceptual Framework of Human Security of Smallholders



Source: By the Researcher (2023)

I have utilized this framework of political ecology considering various aspects of new situation of smallholding vegetable farming, a latest phenomena of urban agriculture in

Kirtipur. I have assumed that the human security situation is becoming critical as the security threats are rising and and getting complex, while state agencies are ineffective to minimize the threats and ensure the sense of security of the smallholders. Adopting this broader definition of the concept of human security, it identifies various human security threats of the vegetable farmers and the structural causes of the threats and it examines their trust with the government policies and programs based on their subjective perception and experience. While interpreting the findings and the framework combines 'risk society' and 'political ecology'. The concept of 'risk society'complements this by focusing on the human security threats produced by urban transformation particularly in a globalized and rapidly urbanizing context of Kirtipur.

In anthropology, there is a decade long tradition to approach the political influence on local culture and ecology including various other types of nature based production system including agriculture. While dealing with the power dynamics and its implications at the local context; particularly between state and farmers, I have conceptualized it as human security situation and have proposed to examine the human security threats of smallholdersand their strategies to ensure the sense of security individually and collectively based on their experiences and perceptions. Based on the previous debates and examination of theoretical premises and empirical cases from previous studies, I have assumed that the smallholder of Kirtipur are under the multiple threats and are constantly seeking new strategies and measure to ensure their human security. While, my theoretical argument of this situation of the smallholders is that the modern/post-modern Nepali state or agrarian governance in general is inefficient and ill-equipped to comprehend the situation and ensure the security of the smallholders.

2.10 Research Gap

This review of existing literatures; both theoretical and empirical, reveals that there is clear gap in the study of the changing context of the urban farming and the emerging insecure situation of the farmers who mostly conduct their farming practices in a small rented parcel of land. It is certain that the study of agriculture and farmers has long been a subject of interest across multiple disciplines beyond agronomy, attracting scholars from economics, sociology, anthropology, political science, and environmental studies. Additionally, agriculture has remained a top priority for government policies and interventions, given its central role in food security, economic stability, livelihoods and rural development. However, despite this extensive academic and policy focus, certain critical gaps remain unaddressed it

is because the rapid urban transformation and demographic changes that is transforming each and every aspects of humanity including the distribution of population and urban food system.

The review also shows that their overwhelming focus on social structure and agrarian hierarchywhile largelyignoring the role of the state's ability in shaping agricultural outcomes including farmers' security and their creative roles while shaping the agrarian history. Much of the existing scholarship, influenced by classical Marxist perspectives, examines land ownership, class struggles, and economic relations between landlords and cultivators**.**These studies have traditionally emphasized agrarian power dynamics, land tenure systems, and cultural meanings attached to land**,** framing agriculture as a site of social conflict and prestige in the local context**.**While these perspectives offer valuable insights into the historical and social dimensions of farming, they fail to account forthe state’s role in shaping policies, regulating agricultural markets, and addressing the emerging uncertainties in the changing social formation due to migration, urbanization and liberalization.Moreover, much of the literature remains anchored in historical agrarian structures and does not adequately engage with the rapidly changing global contextcharacterized as the Anthropocene marked by profound human-induced planetary transformations where the roles of traditional state institutions are already been undermined by the 'global risk society'.

The modern agricultural landscape is shaped by globalization, market liberalization, and shifting environmental conditions, all of which have transformed the vulnerabilities of farmers in unprecedented ways. The reviewed studies have mostly failed to acknowledge this rise of global risks, including climate change, unpredictable market forces, and the failure of institutions to address both conventional and emerging agricultural challenges. This institutional failure has left many farmers particularly smallholding urban farmers without adequate policy support, increasing their exposure to economic instability, ecological degradation, and political exclusion.

In the context of urban farming, existing literatures tend to focus on issues such as environmental pollution, crop pricing, food security, and farmers' economic profitability. While these are important concerns, they do not fully capture the deep structural insecurities that farmers face. Rising production costs, market competition, land fragmentation, and the decline of state intervention in agriculture have placed additional burdens on farmers, many of whom now struggle to maintain both their livelihoods and their social positioning. Urban farmers, in particular, face a growing sense of isolation and indignity, as their traditional

modes of farming are increasingly displaced by urban expansion and the liberalization of food markets which is almost marginalized and untouched by the previous studies.

These challenges reflect a broader crisis in agricultural governance, where farmers are not only struggling to maintain economic viability but also to secure their dignity, autonomy, and long-term sustainability. Despite these realities, most studies fail to center the voices of farmers themselves, nor do they sufficiently analyze how they perceive and navigate their own security risks within an increasingly unstable urban agrarian system. They have also overlooked the role of state institutions in managing these risks or failing to do so even though institutional failure is one of the most pressing concerns in contemporary agricultural governance. More importantly, they have not answered why the state institutions are not prepared to tackle the risks and uncertainties.

Therefore, this study seeks to fill this critical gap of the security of the smallholders in the urban context by placing their structural and subjective situation at the center of analysis. It focuses on their experiences, perceptions, and strategies for dealing with the rising various risks and non-conventional security threats. By adopting a human security perspective within the context of global risk society, this research shifts attention away from abstract structural analyses of urban agriculture to exploring the risks, uncertainties, threatsand adaptive responses of smallholders in real-world contexts. It specifically investigates how urban farmers in Kirtipur Municipality in Kathmandu experience security and insecurity, how they respond to economic, environmental, and policy-related challenges, and how institutional failures and governance structures shape their sense of (in)security.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter outlines the background and methodological foundations of this research project. It begins by addressing the rationale of the selection of Kirtipur as a research site in the Kathmandu Valley (Map 3.1) and followed by the philosophical underpinnings that guide the study, drawing upon critical perspectives that interrogate the nature, purpose, and production of knowledge. Scholars such as Foucault (2010), Braidotti (2012), Shiva (2013), Escobar (1999) and other critical thinkers of the late 20th century have questioned the ways in which knowledge is constructed, asking why it is produced, who produces it, and for whom it serves. These inquiries challenge any researcher to critically reflect on their positionality and the power dynamics embedded in their work.

In line with the critical perspectives of the scholars, I present my personal account and motivations for undertaking this project on smallholders of Kirtipur in Kathmandu Valley. This positionality shapes not only the philosophical foundation of my study but also the methodological choices I have made. Following this foundation, the chapter details the research methods employed, including data collection techniques, tools, and procedures. It also discusses the processes of data analysis, the measures taken to ensure the validity and reliability of the findings, ethical considerations, the scope and limitations of the study.

3.1 Selecting Research Site and Research Respondents: Rationale and Process

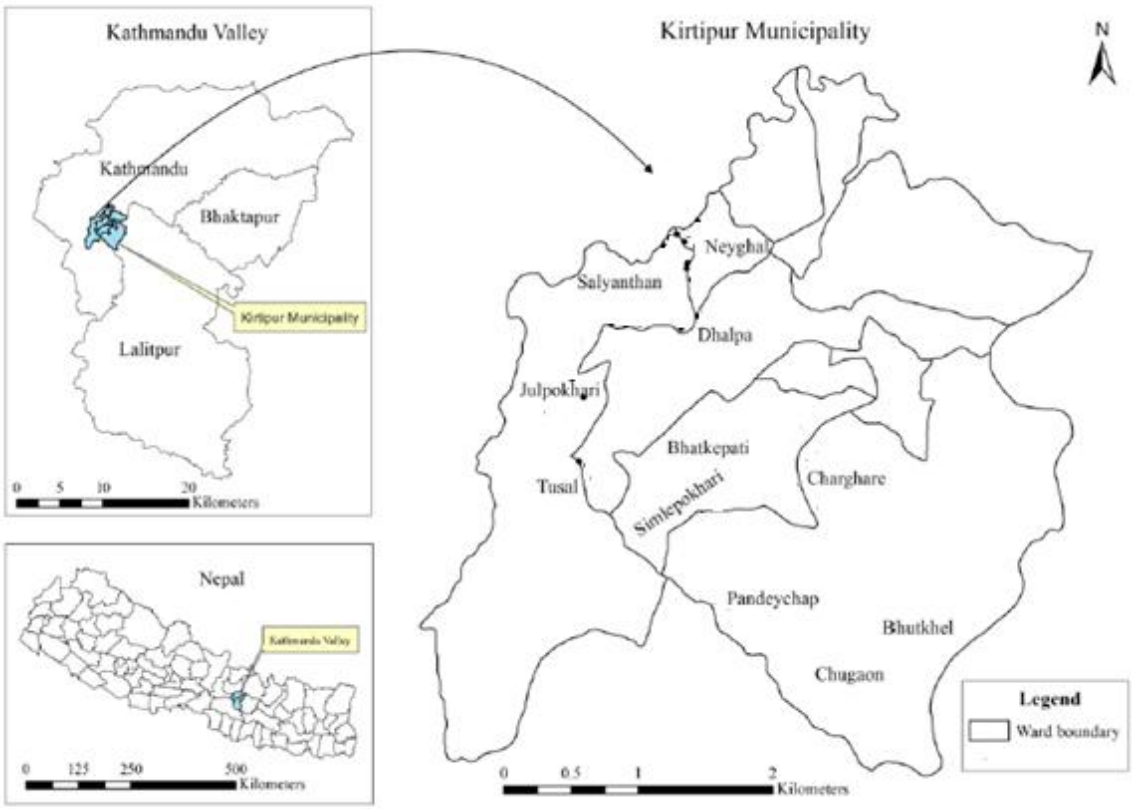
By the end of 2018, I was ready to undertake my research, but selecting an appropriate empirical site posed a challenge, which is common to all anthropology graduate students who want to conduct research in their free choice(Konopinski, 2014). As a member of a farming family from the mid-hills of Nepal, I had a strong interest in understanding the risks and threats of the farmers, particularly those affected by political and environmental crises of the previous decades. However, my commitments to undertake graduate and undergraduate courses as a part-time faculty in a couple of campuses in Kathmandu, I had limited option to select the research site for my field work. I was committed to undertaking the research; however, I had to adjust my research strategy due to various practical constraints of fulfilling professional and social responsibilities being a researcher of my own native society. These challenges are not unique to my case but are commonly experienced by graduate students and social science faculty in Nepal, where research is often conducted

under conditions of limited or absent institutional funding and largely through personal resources (Rai, 2022).

In this situation, I had two practical options for conducting the research. On was in Pokhara, my hometown, where living costs could be minimized, or the Kathmandu Valley, where I could carry my professional responsibilities. Ultimately, I chose to carry out the research in the Kathmandu Valley, as it allowed me to manage my fieldwork alongside my professional responsibilities as a practical reason. Moreover, the reason I settled my research in the Valley was because it hosted the highest concentration of commercial vegetable farmers, and the dynamics and challenges of vegetable farming were considerably more complex than those observed in Pokhara, making it a more analytically rich research site.

Map3.1

Kirtipur Municipality: The Research Site



Source: By the Researcher (2020)

Beside my personal situation, there were other specific objective reasons which helped me to decide Kirtipur as my research site in the Valley. From reviewing the secondary sources such as Ishtiaque et al. (2017), Shrestha (2019) and others including government

reports, news stories, and academic papers, I noticed three key features of the urban phenomena of the last three decades in Kathmandu Valley; the infrastructural development, population growth (due to in-migration), and land cover and land use change (accompanied by the vegetable farming as a new agricultural phenomenon). There was no such local municipality or any part of the Valley which did not have gone through such urban phenomena over the decades. However, the close reading of the sources revealed that there was a close relation between the emerging urban phenomena of the overall the Valley and of Kirtipur municipality.

Kirtipur's peri-urban location and urban expansion mirrored the broader trends occurring throughout the Valley, particularly in terms of population growth, extension of urban infrastructures, and vegetable farming by the migrant families as key urban phenomena (appendixes 1, p. 207). While much of the urbanization in the Valley had historically centered on Kathmandu's downtown area within the Ring road, Kirtipur had undergone parallel urban transformations, making it a representative site for studying the broader urban trends of the Valley. I have outlined the detailed description of the transformation and urban trends of Kirtipur in the next chapter (Chapter 4) of this dissertation while discussing about the place and people of Kathmandu Valley and of Kirtipur Municipality from historical perspective. I was also living in Kirtipur and working as a faculty of a graduate level community college already before starting fieldwork in the Valley. So, the selection of Kirtipur for the research site made me logistically convenient as well to carry the research works. Because of these methodological and pragmatic reasons, I decided to conduct in-depth study of the human security of smallholders in Kirtipur Municipality in Kathmandu.

Although the selection of Kirtipur as a research site appeared straightforward, identifying respondents and gaining entry into the research community proved far more challenging for conducting the fieldwork. Based on my experience, selecting Kirtipur and accessing the research community became complicated despite my position as a 'native researcher' who shared the same nationality and broader socio-cultural context as my research participants.

Unlike village or rural settings, farming in this urban context is highly fragmented, characterized by dissociated plots, enclosed fields, and clearly demarcated boundaries. There is no intense everyday interaction or close social connection among neighboring farmers, particularly from the perspective of an outsider. In order to identify potential respondents, I approached local municipalities within the Valley and the KGK to access records of farmers

at the ward and municipal levels. These offices typically provided extensive lists of farmer groups and contact persons, along with information on annual programs and budget allocations for these groups.Understanding these institutional practices became significant for my research, as they reflect an emerging political phenomenon in agriculture and vegetable farming. However, these farmer groups were largely formed through formal or semi-formal processes and were primarily oriented toward accessing economic incentives from government and donor agencies, rather than reflecting organically formed farming communities.They do not bear such cultural uniqueness and 'belongings' which could observe in rural settings in hill-districts and also an indispensable part of the conventional Newari farming in the Valley itself in the past (Nepali, 1965).

In such cases of newly formed (semi)formal groups in the Valley, the members were not just physically scattered but had no such close socio-cultural interaction and interdependences. I had also observed some of the groups included the families of the non-migrant families in Kirtipur and other parts of the Valley. The observations revealed that there was no such institutional local arrangements that could enhance the sense of belongingness among the fellow farmers. Essentially they did have very little thing to share in relation to farming because their historical background, individual situations, and the socio-economic context were highly divergent.

Likewise, the farming families which were organized as a group and registered by the municipality had difference in the area of farmland, in choice of the vegetables, in the management of the plots (constructing green house etc.) and gender of the family members representing in the group from each family. These variations were the central reasons that even the groups including the families of the native groups did not have strong cultural associations and uniqueness. There were also variations in the way they consume and methods of selling vegetables from one farmer to others. This was a challenge to treat all the farmer groups in the available official record as an equal unit for data collection and analysis. Due to this reason, I changed the strategy to focus on approaching the individual and active individual farmers instead of the group itself. While, selecting the farmers of the research area, attention was give to represent the maximum numbers of farmer groups and other geographic and social differences of the research site.

Another important aspect of exploring urban farming in this study involved web-based research. A substantial body of media discourse, case study reports, and social media content was already available in the internet, particularly concerning vegetable farming in the

Valley which provided valuable supplementary insights into public narratives and ongoing debates around the issue. As I did the Google search about the 'vegetable farming in Kathmandu Valley', the search revealed that many resources and materials are already available on the internet. In Google Scholar, a search engine for the academic papers and research articles, it showed more than 6,000 results in the time range of 1990 to 2018. In the Google search it was more than 50,000 results of various information including research papers, news reports, videos and others. In these results, I could see that there were already a huge amount of information about individual farmers, leader farmers and various other issues like price fluctuation, farmers' protests, extension of vegetable markets, land encroachment, real-state booming, and many others about the vegetable farming and land use in the Valley. While I explored some of the sources, particularly news reports, I could also find the name of the leader farmers and contact details of the agencies which could potentially be my research participants. In this sense, I found that the use of details from the web sources was not just important but also necessary to incorporate the secondary sources to minimize the time and resources of my field research in the Valley. The specific strategies and process I followed to identify the respondents of my study are discussed below.

3.1.1 Fieldwork Strategies and Research Exploration

Based on two primary strategies; referral sampling and internet-based searches, I explored the research area and the diverse dynamics of vegetable farming in the Kathmandu Valley. These strategies enabled me to identify leader farmers (or key farmers) across different municipalities, relevant agencies involved in vegetable farming, and individual respondents for my research. Both approaches were equally important in locating individual farmers, leader farmers, community-based organizations, and information centers, as well as in developing an understanding of the multiple dimensions of urban vegetable farming in the Valley.

3.1.2 Rethinking Farmer Groups as Units of Analysis

During the early phase of the fieldwork, it became evident that treating farmer groups as the primary unit of analysis would not be analytically useful. Many of these groups were formally or semi-formally constituted and did not necessarily reflect everyday farming practices, social relations, or collective decision-making processes. Consequently, I prioritized leader farmers and key farmers, following them through a referral-based approach from one informant to another. At the same time, I remained attentive to the broader presence

of farmer groups within the municipality, with the aim of covering as many groups as possible in the selected research sites.

3.1.3 Engagement with Farmer Groups and Data Collection

I visited the smallholders of 24 different groups out of 48 active in Kirtipur Municipality (Appendix 2, p. 208) and used various tools and techniques to generate field data of this study. In many cases, I conducted in-depth interviews and informal discussions with the selected leader farmers, while I facilitated focus group discussions (FGDs) in 3 farmer groups (Appendix 5, p.214). In addition, I informally and indirectly documented information of other farmer groups based on their roles in market establishment, their networking within municipal structures, and their involvement in nationwide farmers' protests.

3.1.4 Adoption of Leader Farmers as Key Informants

These field realities placed me in a difficult position when attempting to conceptualize farmer groups as the fundamental unit of analysis. As a result, I adopted a more focused strategy that centered on leader farmers and other key farmers as my primary research informants in order to address my core research questions. While doing so, I maintained a record of the frequency and distribution of farmer groups and deliberately attempted to include farmers from the maximum possible number of groups within the research site.

3.1.5 Referral Method and Access to Informants

To identify specific farmers and leader farmers as research informants, I primarily relied on the referral method. The initial contact was facilitated through a friend from western Nepal who has been engaged in the agricultural business in Bhaktapur for over two decades. From this initial referral, I followed a chain of references (also known as snowball method of sample collection), moving from one farmer (often a leader farmer) to another. This approach proved effective in gaining access to key actors within the vegetable farming sector and in building trust within the research community.

3.2 Philosophical Foundations of the Research

This study investigates the human security of smallholders engaged in vegetable farming in Kirtipur in the Valley. The study's philosophical foundations are explained in three interconnected dimensions; ontology, epistemology and axiology.

In this study, I have adopted a constructivist ontology, where reality is understood as socially constructed and context-dependent. In my context, while researching the human security situation of the smallholders of in Kirtipur, the realities of insecurity and resilience among the farmers are not fixed or universal. Instead, they are shaped by historical, political, economic, and ecological transformations over the past three decades in the Valley. Farmers' lived experiences and adaptive strategies emerge from their interactions with state policies, global market forces, environmental changes, and cultural norms. By focusing on the narratives and perceptions of farmers, I acknowledge the multiplicity of realities that coexist within the urban agricultural landscape. These realities are dynamic, evolving as farmers respond to shifting socio-political and ecological conditions.

The epistemological stand of my study is interpretive approach emphasizing the co-construction of knowledge between the researcher and participants. Through participant observation, in-depth interviews, and the documentation of farmers' stories, the study seeks to uncover the subjective meanings and interpretations that farmers attach to their experiences of insecurity and resilience. Knowledge is thus situated, emerging through the interactions between the researcher and the participants. The aim to prioritize farmers' voices and perspectives in this study is to provide a nuanced understanding of how they navigate risks and insecurities.

My axiological concerns are guided by the commitment to intellectual responsibility of the new-era of 21st century where we understand the interdependence and importance of every section of humanity. As a researcher with a personal background in farming, I bring a deep understanding of and empathy for the challenges faced by smallholdersof Kirtipur in the Valley. This positionality has influenced the framing of the research questions and the interpretations of findings. Reflexivity has been integral to the research process, ensuring that my biases and values are critically examined.

3.3 Approaching the Research Area and Encounter with the Informants

Following the tradition of urban ethnography, Irelied on intensive fieldwork in a interactive mode with the wide range of informants in Kathmandu, particularly focused smallholders and other related stakeholders in Kirtipur. During the fieldwork period of this study, I resided in Kirtipur. It enabled me to engage deeply with the community, participating in daily activities in the local context, attending local meetings, and observing the interactions between farmers, government officials, and other stakeholders. Beside the deliberate and

formal (semi-formal) discussions and interviews, living in the local context allowed me to have had informal chats and discussions with the smallholders about vegetable farming in Kirtipur. This ethnographic immersion and engagement was critical to understand the subtle and often hidden dimensions of urban farming, such as the informal networks of knowledge exchange among farmers, their interactions with municipal authorities, and the ways in which they negotiate toaccess land and financial resources for the vegetable farming.

Specifically, data collection methods included observation, in-depth interviews/life histories, focus group discussions, participant observation and informal discussions.In the beginning, I visited different vegetable farms, did various rounds of site walk and observation. I walked around the neighborhoods of Kirtipur in Panga, Charghare, Pandychhap, Vhajungle, Dhalpa, Machhagaun, Tyangla and other areas. Following the exploration of the farmers' networks and dynamics of farmer groups I also met with leader farmers, heads of the groups and other key informants (Appendix 2, p. 208). I repeated my visit for couple of times with some of the key informants, and did other informal talks and in-depth interviews with smallholders, agri-business owners, members of the farmers' cooperatives, local government officials, and various other community leaders. While talking with the local informants who speak Newari language in their family and neighborhoods, I did not have any difficulties at all. Because all of them were fluent Nepali speakers even though it was their second language.

While, my first in-depth interview was with a key informant, a leader farmer and a foreign returnee from a hill-district of Western Nepal. He was been cultivating vegetables already for 6 years. That interview was invaluable in mapping the social dynamics of vegetable farming and understanding the broader challenges smallholderswere facing in Kirtipur in Kathmandu Valley. Following that first key informant interview with the leader farmer, I was able to access the network of the smallholders in Kirtipur and approach to other smallholders individually which helped me to understand the empirical situation of the research site and reflect farmers experiences and perceptions on choosing vegetable farming and their expectations and strategies to continue the farming.

Additionally, I also engaged in government offices and NGOs in Kirtipur Municipality, its agriculture division. I did have consultation with local NGOs working with the smallholders, based on recommendations from the municipality's division chief. Furthermore, I engaged with local Newarcommunities and farming families as well, conducting participant observation to gain a deeper understanding of the vegetable farming and the human security situation of the farmers. My local Newar friends, with whom I had

established connections through academic activities in Kathmandu since 2018, helped facilitate these interactions, making my fieldwork in Kirtipur more immersive and comprehensive.

I had planned the fieldwork for this study from the late 2019 but there was a sudden interruption due to COVID-19 and it led to an unexpected pause. Therefore, I suspended my field activities throughout 2020 to late 2021 due to government-mandated lockdowns and travel restrictions for two times in between. Then I resumed it as the restrictions were dissolved in the end of 2021. Even though I tried to carry the fieldwork in between 2019 and 2021, It could not take shape. Every preparation ended with short term communication with the few key informants. Then the full-fledged year round fieldwork was continued and data collection was done in the year 2022 to answer my major research questions outlined in the beginning of this thesis.

Another aspect of this ethnography is that my research strategy deliberately incorporated the use of *fursad* (free or available time) to conduct fieldwork alongside my professional responsibilities (Rai, 2022). This resulted in a form of patchwork ethnography, where field engagement was carried out intermittently yet consistently over the year 2022. Rather than compromising the quality or rigor of the ethnography, this strategy enabled prolonged engagement, repeated interactions, and deeper contextual understanding of the human security situation of the smallholders in Kirtipur, thereby strengthening the depth and analytical richness of the study (Rai, 2022).

3.4 Tools and Techniques of Primary Data Collection

To guide the fieldwork and to ensure the collection of required data, I had developed a broad outline of the checklist prior to conduct the fieldwork (Appendix 5, p. 214). The checklist was a general guideline, however each of the event (interview, discussion, and observation) was unique in itself in terms of having contact with the informants, building rapport with them, breaking the discussion on the issues that I had intended. At the very juncture of breaking the talk I found that research, particularly ethnographic research like this, is more a work of art, a situational, and a relational dependent on large numbers of unavoidable factors and circumstances. It never happened as I planned in advance, instead it needed continuous adjustment based on the changing situation of the everyday realities.

Before starting second round of fieldwork, the lockdown gave me a pause and chance to go back to my field diaries and records and have deep reading. At that moment, I also

examined secondary sources, including government reports and academic research papers. This process significantly enhanced my understanding of the challenges faced by the smallholders of Kirtipur. My review revealed that there were no major variations in both subjective experience and objective situation of human security of the vegetable farmers across the different sites in Kirtipur.

Table 3.1

Tools and Techniques Applied forPrimary Data Collection

Name of Tools	Techniques	Frequency/ No of Event	Location/ Community
Participant observation	Visited farmers' field, participated in farmers meetings and gatherings, Joined Conference at NARC	10	Kirtipur, Balkhu and Kalimati Veg. Markets
Informal discussion	Members of the farmer groups, farmers' cooperative members, and individuals farmers	16	Kirtipur,
In-depth interviews	Conducted open ended immersive interviews on specific topics to the leader farmers, officials, community leaders	12	Kirtipur/ Kathmandu Valley
Focus group discussion (FGD)	Conducted FGD with farmers, cooperative, NGO officials, Gvt. officials by inviting the informants and engaged discussions on the given issues.	4	Kirtipur
Life histories	Interviewed 5 farmers migrated from different hill districts (both male and female farmers) about the personal history.	5	Kirtipur

Source: Researcher (2022)

Following the termination of the second round of lockdown focusing in Kirtipur municipality in 2022, I applied various research tools to generate data regarding the human security threats of vegetable farmers in relation to the urban transformation and complex political situation of the Valley. In this period I conducted multiple round of discussions with some of the selected leader farmers while conducted informal discussions, interviews, and

FGDs with various other farmers and farmer groups mostly in Pandychhap, Bhutkhel, Panga, Salyanthan and Champadevi communities in Kirtipur. See Table (3.1) above for details of the tools and techniques I applied to study the smallholders human security situation. Below, I provide a specific narrative account of the tools and their applications in my research.

3.4.1 P**articipant Observations**

Participant observation was one of my primary data collection methods. I participated in farmers' fields, in vegetable markets (local hat bazaar in Kirtipur and in the main vegetable markets in the Valley in Kalimati or Balkhu). Beside this, I also joined a national conference of the agronomists and policy makers organized by National Agriculture Research Center (NARC), Lalitpur in 2021. These events provided an immersive understanding of the farming practices from smallholders as well as from scientists and policymakers perspectives. I also joined farmers meetings and workshops in Kirtipur as a participant of the events.

I conducted 10 events of participant observations including both obtrusive and unobtrusive. In the formal meetings and workshops, I used to introduce myself as a researcher. While, in the case of observing the market, farmers field and site walk my observations were not known for the participants. Some of the key concerns of my observations were to know about the distribution and management of farm plots, maintenance of farming infrastructure, and strategies for selling vegetables. I also observed various new technologies and approaches in vegetable production adopted by farmers and also got various ideas from agronomists from the government offices and research centers. These engagements in various ways also helped to gain insights about the practical and institutional dimensions of farming in Kirtipur specific and in Kathmandu Valley in general.

3.4.2 Informal Discussions

Informal discussionswere another key method, allowing me to engage with smallholders and other stakeholders in an unstructured manner. I did 16 such discussions with members of the farmer groups, farmers' cooperative members, and smallholders. Through these conversations, I gathered information on the primary crops produced the research sites, political concerns of the farming community, and the networks that farmers rely on for support and collaboration. These discussions were invaluable in uncovering perspectives that might not have surfaced in more formal settings.

Similarly, a technique of my observation was walking along the newly established vegetable farms over Kirtipur. I did have informal talks and chats with the smallholders at the

tea shops or in the markets. These site walks were an integral part of my data collection. Walking through the vegetable farms allowed me to observe the physical environment, interact informally with local farmers, and generate additional information about the farming landscape and its challenges. These walks provided an opportunity to ground my observations in the daily realities of the farmers, ensuring a more nuanced understanding of their lives.

3.4.3 In-depth Interviews

To gain deeper insights into specific issues like; the reasons of the smallholders migration into the Kathmandu Valley and in Kirtipur, their livelihood strategies, formation of farmers' associations, farmers' protest and their views and strategies for the days to come, and others, I conducted 7 in-depth interviews with selected farmers in Kirtipur and also conducted additional 2 such interviews with the farmers of other districts of the Valley in Bhaktapur and in Lalitpur to understand the comparative situation of the farmers of Kirtipur. I also conducted additional 3 such interviews with government and NGO officials, and vegetable sellers, which focused on policies and programs related to vegetable farming, fertilizer imports, and price balancing in the market. These in-depth-interviews gave two different perspectives of grassroots and institutional and perspectives to understanding the risks and human security threats associated with the smallholders and also their perspective on agriculture governance and farmers trust and expectations from the authorities.

3.4.4 Focus Group Discussions

I organized and facilitated 6 events of focus group discussions (FGDs) with women farmer groups and agriculture cooperative members in Kirtipur. During these FGDs (also can be called PRAs) participants shared their experiences regarding farmland preparation, management of farm inputs, methods of selling vegetables, and the division of roles and responsibilities within their households. These discussions revealed the collective strategies employed by women farmers and highlighted the support mechanismsor lack thereofavailable to them at both group and household levels and their relation with the government and other agencies working in agriculture sector in the Municipality.

Additionally, I employed FGDs to engage directly with farmers to explore some of the pressing issues in vegetable farming of the research site. These exercises included participatory mapping of the concentration of the vegetable farmers, drawing timeline of migration and identify the marketing channels of the vegetables produced by the farmers in

Kirtipur. These FGDs/PRAs helped validate findings and provided a participatory element to the study.

3.4.5 Life Histories

To capture the temporal dimensions of the issues, I collected life historiesof five informants of Kirtipur. Among them three were senior farmers (2 M and 1 F) and two were community leaders (local Newar men) of Kirtipur. These narratives traced migration trends and the evolution of farming patterns. They offered valuable insights into how individual lives intersect with broader socio-economic transformations, contributing to a richer understanding of the challenges faced by farmers.

By employing these tools and techniques, I was able to gather comprehensive primary data that reflected the multiple aspects of smallholder farming in Kirtipur including the urban transformations. Among these tools, each one of has played a critical role in uncovering the complex interplay of political, social, and economic factors influencing farming in the region. Specifically, the tools of participant observation and informal discussions helped to understand the contemporary situation of farming and the emerging challenges and their strategies to minimize the risks associated with the farming which helped to fulfill my second objective. The in-depth interviews and life histories, combined with the data from secondary sources helped me to fulfill my first objective of examining the socio-economic and ecological transformation of the study area and the situation of the smallholders before and after migrating into the Valley. The data I generated from the tools of group discussions and discussions with stakeholders helped to fulfill the third objective though data from other sources are also equally utilized to fill the gaps while discussing the major findings.

3.5 Secondary Data Collection

To complement the primary data generated from the fieldwork, I have also collected and included large amount of secondary data generated from various published sources. On the one hand, these data provided a broader context of the study area, on the other they complemented the primary data collected from the field work. The major sources of secondary data were government reports on agriculture and vegetable farming published by the Ministry of Agriculture,National Statistics Office (NSO), Krishi Gyan Kendra (KGK), Lalitpur, Agriculture Section Office, Kirtipur Municipality and various published academic papers and news reports published from other institutions and individual authors.

The materials gathered from these secondary sources have been instrumental in generating a comprehensive understanding of the social, economic, environmental, and political dynamics surrounding commercial vegetable farming in the Valley and in Kirtipur. These insights have been particularly valuable in shaping the background, literature review, and the broader political ecology analysis presented in Chapters Five of this dissertation. Additionally, secondary data have been integrated throughout other chapters, especially to analyze the urban transformation and understand the agriculture governance of the study area, an inquiry that aligns with the first research objective and is elaborated in Chapter 5 and 7 of this dissertation.

3.6 Field Notes, Transcriptions, Data Processing, and Data Analysis

I developed field notes in Nepali language to record the primary data during my fieldwork as all the conversations and informal discussions and interviews were held in Nepali language. In most cases, I kept notes in front of the research participants. While note taking was only possible if the setting of the discussions is in the house of the informants or in office where I could sit with him or her. I could not do it during the informal discussions while being walking in field or talking in tea shop or being in other family or social events. In such cases, I memorized the details of the discussions and prepared the field note following the discussion while I was back in my living place or being in the cafes in Kirtipur Nayabazzar following the completion of the fieldwork of that day.

I transcribed all my field note into English while feeding into computer after I return to my table doing fieldwork in the day. I developed all the field notes in English. Some time I developed the notes directly in my computer, if I have to prepare by remembering the field observation or discussion. In other time, I also developed it in my notebook and later fed into the computer. Besides the notes, I had taken large numbers of photos, videos, and other printed records which I analyzed during the data processing period and incorporated the main ideas in a compilation of the field report. It was the first phase of data processing and analysis.

In the second phase of data processing, I developed codes and sub-codes of my field data complied in the report and put them in the Microsoft excel software. Using the Microsoft excel I sorted all the codes and identified major themes of the field data. Based on the pattern observed in the codes and sub-codes, finally, I developed the major chapters (Chapters 5, 6 and 7) as the findings of my research using Microsoft Word Processing application in my personal computer.

3.7 Data Types, Validity, and Reliability

As I have mentioned earlier, this is a qualitative research though I have incorporated substantive amount of quantitative details from secondary sources to provide enough description of various dimensions of urban transformation of the Valley to fulfill my research objectives. I have employed various strategies to enhance the trustworthiness of the data I generated from the fieldwork which is the major determinant of the validity and reliability in the context of qualitative research. As I was aware about the overall political context of the research the data generation is a process of dialogue between researcher and the research participants. While doing fieldwork, I applied the method in such a way that the methods such as discussions, interviews, and FGDs were part of the triangulation in themselves. It is because I have adopted such a strategy to raise the issue or a question to the research participants more than one time to multiple research participants. In that case there was regular crosscheck and validation of the information generated during the fieldwork.

Another strategy I adopted was combining micro and macro perspectives between the two agents of the research process and create a more comprehensive understanding of the phenomena of the commercial vegetable farming of the valley. I also felt the discussion with the research participants a part of the engaging with peers and validation of the respondents. At the same time, while I put my views and details of my knowledge to the participants as they reflect of my fieldwork from macro perspective in relation to the specific concern of the participants. This level of openness and frequent cross checking have played an important role to ensure the validity and authenticity of my data. I did not have any sort of discomfort and miss-understanding with my research participants throughout my research period. It is also the part of the network and relation I developed with the research participants at every possible opportunity of data generation. Some of the details related to specific dates, quantity of crops or inputs, amount expended or earned etc. included in my field notes were verified and checked during transcribing the field notes in Microsoft Word document.

In a nutshell, I have utilized all my skills and knowledge to adopt a proper channel to reach to the research participants so that they did not considered me a 'researcher from unknown land'. Rather, I presented myself as a member of their community, living in the similar daily situation and encountered the similar challenges and obstacles in the profession. I assumed that the way I advanced my network with them and the way I presented myself being open to every practical aspect of my research have assured the trustworthiness with the participants and enhanced the validity and reliability of the data I generated during the

fieldwork. This specific aspect of methodology may not be possible to adopt while conducting research in non-native community but it can be a model while doing research about own native people and community.

And it is to mention here, as a lesson from my field experiences, that while creating distance and treating our research participant or community as more non familiar, exclusive and isolated not just from the outer world but also from our own subjective perspective could keep the researcher always away from the 'reality'. In this context, it is an advantage for me as a researcher not to maintain the position of a 'detached observer' (which might not be possible for the non-native researchers) rather I was a participant in myself which I have explained in the beginning of this chapter. I was not just a native researcher of my own home country but the issue of research (i.e. smallholders' security) in itself is one of my own social and political concern as a member of a farming family in the mid-hills of Nepal. So, I could ensured free and open conversations, as well as mutual understanding on the most pressing issues of my research participants, without any barriers in language, meaning, or geographic differences. This allowed me to communicate without any syntactic, synchronic and/or diachronic obstacles.

I have experiences from my fieldwork that this familiarity of the social and political context often reflected in discussion with the participants whether they are local farmers or government officials. They used to tell me that '*tapailai tha xa dai (sir),...xa ni*?' (meaning; you know about it very well, isn't it?)during my conversation with the research informants. What made this shrewdness important is that the informants were very much interested to know about 'researchers' political position' or perspectives on the various challenges in vegetable farming they are facing with which might be completely different when the researcher is not embedded to the local context.

In this situation, informants are highly motivated to tell about their situation rather to know from the 'foreign' researchers. It is also important to mention that this embeddedness of the research position is interconnected with the sense of responsiveness that I lived through out the research process not just for the disciplinary expansion and theoretical dialogues and discourses but also to be politically grounded to take critical action for the rights and security of the marginalized community that I worked which is a major part of my intensive training at Utrecht School of Critical Theory 2012, on 'Risk Societies and Cosmopolitanism'under the guidance of Prof. Rosi Braidotti in the early winter of 2012, a professor emirates at the Utrecht University, the Netherlands.

In this sense, I could argue that the ethnography that I did in Kirtipur for this research is an 'embedded ethnography'considering various phenomenon of the living reality **(**Lewis & Russell,2011). I treated the study site and people close to my own social and political context and I consider the issue of exploration as my own economic and political concern. At the same time, I was also fully aware about the political implications of this work both at the time of doing fieldwork and the relevance of the research products; including this dissertation itself.

3.8 Researcher's Personal Experiences and Encounters

The inspiration for this research on human security stems from my academic training as a full-time master's student in the Human Security Program at Aarhus University in Denmark (2011–2013). The university had experimented this program at a very turbulent time in our history when new political and environmental threats to the security of people all over the world were emerging and conventional thoughts and approaches were constantly failing to comprehend the changes and transformations going around us (AU, 2011; Fukuda-Parr et al., 2003). This multidisciplinary program brought together various courses in social and environmental sciences and equipped me with a comprehensive understanding of human security, minority issues, conflict, and agro-ecology, among others. Alongside the core curriculum, I participated in several international conferences, seminars, and academic discussions on the issues and topics ranged from 'globalization' to 'risk society', and 'religion' to 'governance' and 'climate change' in various forums across the Western Europe. These academic opportunities in some of the best universities of the world allowed me to engage with some of the best professionals of their fields and global researchers and graduate students and deepen my understanding of global security dynamics and their implications for marginalized communities worldwide. Coupled with my background in anthropology at home, this exposure significantly shaped my critical perspective on the human security challenges of the various communities of my home country here in Nepal as well.

Additionally, my personal experiences in Nepal over the past two decades which was full of political and environmental crises, further fueled my interest in this topic. The violent conflict between the security forces and Maoists (1996–2006), followed by a series of political upheavals and instability, left an indelible mark on the country. The devastating earthquakes of April 2015 and frequent monsoonal disasters further compounded the situation. These crises prompted me to explore how people living in diverse circumstances strive for security and, conversely, to examine the factors that render them insecure (Erikson,

2010). My personal and academic trajectory thus converged on the concept of human security as a critical lens for understanding these challenges as a part of my PhD project at here in Tribhuvan University within the discipline of Anthropology.

While locating my position within the framework of political ecology of human security, I had consultations with my supervisors and other senior professors and faculty members at the Central Department of Anthropology (TU) in Kirtipur. Before producing a final draft of the dissertation, I had also shared my theoretical framework and my research findings with my colleagues in the Department of Anthropology in Tri-Chandra Multiple Campus and also in the Central Department of Anthropology in Kirtipur 2023. Based on the suggestions and feedback I received from these intellectual engagements, I thoroughly revised and refined the structure and discussions sections of this dissertation. After completing the initial draft of my dissertation, it took an additional year to refine the work by incorporating the valuable comments and feedback I received from various scholars, both formally through academic channels and informally through discussions. This continuous immersion is a part of the shared experiences of other anthropologists who often impose rigor during analysis rather than data collection, a common process in anthropology though it is less common in other social sciences (Erikson, 2010).

By the second half of 2024, I was able to finalize the manuscript in its present form. During the time between the conclusion of my fieldwork and the production of this final dissertation, I also undertook a responsibility of coordinating the very first International Conference on Rigvedic Himalaya (ICRH), which took place on December 7-8, 2023, in Pokhara, Nepal. This experience, although distinct from this ethnographic research, I regard it as an extension of my ethical responsibility as a scholar of social sciences engaging on the changing dynamics of Himalayan culture and society. Additionally, I prepared 6 research papers during this period and among them five are related to the issues and frameworks discussed in this dissertation.

In this way, balancing my fieldwork with professional commitments as a faculty of Anthropology and Social Sciences in couple of campus in Kathmandu, and also as a social activist provided unique insights that shaped the research design and progress in my research process.

3.9 Ethical Considerations

As with any ethnographic research, ethical considerations were on my top priority. I was fully ware that doing research on human communities is meant 'not to harm people and not to devalue them.'Before getting any information from my informants, I informed them about my work and its importance and implications openly, clearly and with full respect, and took their permission to use the data I got from them for my research and also assured not to disclose their personal details which could harm their individual reputation and social status.

To maintain the privacy of the respondents, I have not included the research participants' personal information as far as possible. In case of the inclusion of such details in some cases, I have changed the name of the respondents (pseudo names are included) and his/her place of residence is also hidden to maintain the anonymity of the participants. I collected and analyzed confidentially and destroyed all those personal information that could disclose the personal details of the respondents and of the research site after data processing been completed.

Given my own positionality as both an insider[1] (with previous ties to some of the members of the community) and an outsider (as a researcher from different ecological and socio-cultural context), I remained reflexive throughout the research process, constantly questioning how my presence and interactions may have influenced the data collected. Additionally, I was mindful of the potential risks to participants, especially in light of the sensitive nature of issues like land tenure, local power relations and others.

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[1] I consider myself both as outsider and 'insider'. Doing ethnography has a long tradition in anthropology. While, if anthropology and ethnography is more close to the researchers cultural and political context it is also equally important which is also known as anthropology of 'self', as opposed to the anthropology of 'other' (Uprety, 2021).

CHAPTER 4

PLACE AND PEOPLE

This chapter introduces the study area, the Kirtipur Municipality as a part of Kathmandu Valley. In the beginning, it focuses on ecological, historical, socio-cultural, political, and economic dimensions of the entire Valley itself. It provides an examination of it's geomorphology and historical/political development followed by an explanation of its socio-cultural landscape and it's evolving dynamics. A main reason to present the description of the Valley is that the ecological and historical connections of Kirtipur are often overlapped and inextricable with the entire Kathmandu Valley. The key aspects of the Valley discussed in this chapters are; ecology and history, socio-cultural dimensions, population characteristics, urban transformation and the various dimensions of the agriculture. These aspects are presented and discussed as they present the larger pictures of the Kirtipur itself and help to generalize the findings in the context of the Valley itself.

4.1 Ecology and History of Kathmandu: An Overview

The Kathmandu, the capital city of Nepal, is located between $27^0$36' and $27^0$48' North, between $85^0$12' and $85^0$31' East (Ishtiaque et al., 2017). It is surrounded by the Himalayan mountain range that are 1900-2800 meters tall in all its four directions. The Valley which is the area of 899 sq. km. is drained by the river Bagmati joined by other several small rivers and rivulets dividing it into several sections and layers from north to south and east to west(Hamilton, 2007; Rai et al., 2019). The valley was also well known for the trans-Himalayan trade from Northern India and also a meeting point for the ancient traders, travelers, and religious devotes from the Tibet. It is a cradle of the ancient civilization of the Himalaya with several religious sites; such as Pashupatinath, Sowyambhu, and Bouddhanathand various sects of Hindus and Buddhists practicing their religious and cultural celebrations and rituals side by side. It has remained as a center of politics, commerce and civilization for more than two millennia throughout the central Himalayan region in South Asia.

The recent explorations provide important indication about the geo-morphological characters of the Valley, located on the southern slope of the Nepal Himalayas. It is an intra-mountain basin formed by lacustrine sediments deposited during the Pliocene and Pleistocene epochs (Sakai, 2001). As the ancient lake that once occupied the basin gradually receded, a series of terrace surfaces emerged, including the Pangagaon, Chapagaon, Gokarna, Thimi,

and Patan terraces(Saijo & Kimura, 2008). Saijo and Kimura (2008) further mention that these terraces provide crucial information about the basin's geomorphic history and have been extensively studied to understand the paleo-climate, sedimentary environment, and crustal movements in the region.

There are various myths and fables from the ancient time about the beginning of human settlement and civilization in the Valley in Hindu and Buddhist scriptures (Hamilton, 2007). Based on the chronicles, Regmi (2007) explains that the Valley was a lake and a story is that the lake was drained out by the Lord Krishna and later by Manjushree made it inhabitable (Regmi, 2007). While who turned the Valley into the habitable place may different according to the sources. The Lord Krishna (or may be by Manjushree himself) cut through the ridge of Chovar which lies on the south of the Valley and all the water drain out then made the valley available for habitation. There are disputes about how and when did the agriculture started in the valley. Some of the historical records relate that the divinity Manjushree himself turned it into an agriculture field. The Gopala chronicle emphases that the Valley was originally covered in dense forest(Hamilton, 2007). The names of the first dynasties or the pre-Kirati rulers; Gopalas and Mahisapalas (herdsmen and buffalo keepers), reinforce this assertion (Regmi, 2007).

Various historical descriptions mention that the most ancient sites of human intervention in the valley are Sowyambhu(nath), Guheshwori, Pashupati(nath) along with the town of Manjupattan, ruled by the Indian King Dharmakar(Regmi, 2007). In the records about the earliest human population and there occupation there is no mention of autochthonous population. But, there are clear descriptions about the pilgrimage coming in large numbers to honor the gods of Nepal from both south and north of the Himalaya. It is generally agreed among the historians that the Sowyambhu and Guheshwori were some of the early settlement of 900 BC to 625 BC. The Gopala(banshis)and Mahispal(banshis) were supposed as the pioneer settlers of the settlements (Regmi, 2007).Regmi (1969) argues that Kiratis and Lichhavis had arrived in the first century AD and afterwards and contributed to the political and cultural development of the valley. However, there is no clue what happened with Gopalasand Mahispalas following the arrival of Kiratis (or Kirat).

The Kirat civilization, which ruled the Valley from 800 BC to 300 AD, more than a thousand years, played a significant role in shaping the early agricultural practices in the region. According to Regmi (2007), there were 32 Kirat rulers who governed the Valley, and evidence suggests that agriculture had already begun in the later part of their rule, if not

earlier. The Kiratis were known for their organized governance, and their advancements in agriculture contributed to the Valley's emergence as a prosperous and safe region.

During the Kirat period, the Valley attracted various groups, particularly those fleeing the Northern Gangetic Plain due to wars, famine, and pandemics (Hamilton, 2007). The Valley, with its fertile land and relatively protected environment, became a haven for these groups, allowing them to establish new communities and agricultural practices. The question who are the Kiratis now is very difficult to answer as there are no such evidences to support their continuation ethnically. The remaining archaeological and cultural facts reflect that they had played important role to lay the foundation of the human civilization in Kathmandu Valley. The migration of people into the Valley during this early mediaeval time likely facilitated the exchange of agricultural knowledge and techniques, enriching the existing practices. The Valley's natural geography, with its rich soils and moderate climate, made it an ideal location for farming, and the Kiratisare believed to have capitalized on these advantages to advance their civilization. The eventual integration of diverse communities, including those from the southern plains, further shaped the cultural and agricultural landscape of the Valley. This early agricultural legacy influenced the subsequent dynasties that ruled the Valley, including the Lichhavis and Mallas, who continued to develop the Valley's agricultural systems, leading to a sustained agricultural tradition that remains central to its economy throughout the history (Nepali, 1965). Scholars also believe that the economic, social and cultural legacy of the dynasties and regimes is still thriving in one or other way in some of the contemporary Newar*s* of the Valley. I have also met a locals in Sankhu, a cultural town in the eastern part of the Valley, who claimed that the cultures of worshipping natural stones at various sites there as the various forms of divine manifestations are the continuation of the rituals from time immemorial. Such sites and practices are widely spread all over the valley and the genesis of this sites and practices may go back to *Kirati*period and even before (Sharma & Shrestha, 2016).

Following the fall of the Kiratregime in the valley, a remarkable transformation took place in valley's economy after opening an Indo-Tibet trade route in the *Lichhavi* era in the 7th century. In 10th century the kingdom of the valley had expanded the entire valley and was known as Kantipur. King Jayasthiti Malla (1380-1395 AD) was one of the most influential ruler of the valley, who was known as a great reformer, politician and judicious administrator (Whelpton, 2005). The expanded town had been divided into three kingdoms: Kathmandu, Bhaktapur and Lalitpur by the end of 8th century. This era has presented the city with

extraordinary attainment of architecture, urban planning, arts and crafts, infrastructures and development of institutions (socio-cultural) for urban management. Today, we can see the urban elements in the major cities as well as satellite cities.

Lichhaviswho ruled the valley more than three centuries (450-750 AD) were agriculturalists. They had entered into the valley from south and they were Sanskrit and Pali speaking groups. Other groups who had already entered into the valley during the Lichhavi period were Vriji, Shakya, and Koliya from the Gangetic plain in south which had caused the turbulent rule of the Valley for another three centuries. The pottery unearthed in Dumakhel (in Kageshwori), ten kilometers north-east of Kathmandu, shares similarities with that of Northern India, proving at least that the Valley's inhabitants maintained trade relations with the Gangetic plain at that time, or that they care from this region (Whelpton, 2005).

Lichhaviswere well-experienced in farming compare to the Kiratis to whom they had defeated. They encouraged the clearing of new land by accepting it from taxes to the cultivators from the south. They build canals for irrigation and encouraged for wet rice cultivation in the valley. It is also mentioned that the Lichhavis had also cultivated garlic and onion including rice and other cereal crops (Kirkpatrick, 2007). No matter that rice was the most valued production in their rule. Even the calculation of the land was done according to the amount of rice it could produced.Manika was the unit of measurement of paddy land in Lichhavi period (Regmi, 2007). Both of the political rules and the religious institutions of the era had given high importance to rice and rice field.

The Lichhavis were overthrown by the Mallas, who ruled the Valley from approximately the 12th century until the second half of the 18th century. The Mallas were finally defeated by Prithvi Narayan Shah, the king of Gorkha, a small state west of Kathmandu, who unified the valley under his dynasty in 1769 AD and it lasted for about 240 years until 2008. The Malla period was not only significant for its cultural and architectural contributions but also for its emphasis on trade and agriculture. The Mallas capitalized on the valley's strategic location for trade between Tibet to the north and the northern Indian cities of Patna and Calcutta to the south (Sharma & Shrestha, 2016). Despite their focus on trade, the Mallas also prioritized agriculture, which had deep roots in the valley. The traditional farming community, known as Japyu, continued to thrive during this period. TheJapyu community is believed to have descended from the Kirati, an ethnic group that maintained a presence in the valley even after losing political power to the Lichhavis.

During the Malla rule, the Valley saw the introduction and cultivation of new crops. Rice, which had been introduced from India prior to the Malla era, was a staple crop in the valley. Maize, brought from the "Eastern countries" (likely referring to Southeast Asia or China) in the 16th century, became widely planted in the 17th century (Dollfus et al., 2009). Other varieties of vegetables and crops were introduced later by Westerners during the Shah and Rana periods in the 19th and 20th centuries. The Mallas also undertook significant infrastructural projects, including the construction of irrigation canals and ponds, which supported the valley's agricultural productivity. They demonstrated a keen interest in introducing new crop varieties to enhance farming in the region. It shows that the traditional cultivators of the Valley were both innovative and strategic to meet the requirement of food quantity and technology to produce the required quantity and quality of food.

They have shown similar ingenuity on the appropriate use of land for different purposes. The historical urban settlements of the Valley were concentrated in specific areas like Kantipur, Patan, Kirtipur, Thimi, and Bhaktapur. These medieval urban centers were established with respect for the productive agricultural lands surrounding them, ensuring that the Valley's farmland was protected to support food production for the local population (Nepali, 1965). The traditional Newari farming practices of the Valley were also ecologically integrated and sustainable, reflecting a deep awareness of the land's ecological value. However, this awareness and ecological sensitivity got diminished in the succeeding periods. Scholars argue that the cultural and ecological degradation of the valley started with the invasion of the Gorkhali rulers as it halted the progression of the unique culture and civilization of the Valley (Deshsanchar, 2024).

The King Prithivi Narayan Shah of Gorkha, had conquered Valley in 1769 A. D. He had defeating the Malla kings of the Valley and established Kathmandu as the capital of the unified entire Himalayan Kingdom, Nepal. His successor ruled the country in a hereditary basis by another 11 generations. There are some references in the King Prithivi's messages to his successors and countrymen which suggest he was equally sensitive to protect the productive land. Even after the Gorkha conquest, the ruling Gorkhali kings upheld this agricultural preservation, recognizing the valley's unique socio-ecological fabric. This careful restriction on urban expansion prioritized less fertile or less arable lands for any necessary development and human settlements, leaving productive farmlands intact.

However, this practice began to change significantly during the *Rana* regimes of the 19th and 20th centuries. The country was ruled by Ranas during 1846 – 1950 A. D. limiting

the *Shah* Kings merely for a formality (Whelpton, 2005). During this period, the sub-urbanization of Kathmandu started to take place as the Ranasand Shamshers started building palaces in major agricultural land in the city. They had initiated the construction of palaces and roads following their visits in British India and even into Europe. Along this, around the palaces and also in the peripheries other settlements started growing attracted by the growing infrastructure facilities. The Ranas initiated various urbanization projects without regard for the valley's fragile ecology, transforming many of its farmlands to make way for palaces, new road systems, and administrative buildings. This was the emergence of the encroachment of productive agricultural land of the valley in the modern history.

A democratic movement ended the Ranaregime in 1950 A. D. By that time, rulers have carried out the infrastructural development without taking any consideration to ensure the conservation of the fertile land of the Valley (Deshsanchar, 2024). They did not care about the ecological principles governing land use and urban expansion increasingly encroached upon agricultural lands and failed to implement effective land conservation measures. The pace of the new infrastructure development increased even more following the emergence of new rule in the middle of the 20th century by encroaching the large part of the farmland. By 1980-1990 the downtown landscape of Kathmandu already transformed into a metropolitan urban space with devastating impacts on the local agriculture based economic system of the Valley (Istiaque et al., 2017).

As a result, the pace of urbanization in the Valley had accelerated, especially over the past three decades. From the 1990s to the 2020s, extensive portions of the valley's farmland have converted into residential areas, commercial zones, roadways, and other urban infrastructure. This unchecked urban sprawl has not only fragmented the once-integrated farming plots into smaller, less sustainable parcels but has also forced farmers to adapt to diminished and increasingly scattered land resources. Today, small and medium-scale vegetable farming operations are concentrated in these fragmented parcels, often leading to ecological strain and diminishing agricultural productivity. This situation is even more critical in Kirtipur. The transformation underscores the urgency of re-evaluating land-use policies in the Valley to protect the remaining arable land and to consider more sustainable approaches to urban expansion that can support the Valley's unique ecological and cultural heritage.

4.2 Socio-cultural Dimensions

The Kathmandu Valley, historically dominated by the Newar(also known as *Newa*) community, is a hub of unique socio-cultural practices deeply rooted in religion, art, and traditional agriculture. They are also credited for the creation of its historic civilization and rich cultural heritage of the Valley.The Newar*s*, of Kirtipur and other parts of the Valley known for their deeply religious nature, place immense importance on festivals and rituals, which are distinct from those celebrated by the Indo-Nepalese communities (Nepali, 1965). These festivals and rituals play a critical role in affirming their cultural identity and sense of 'belongingness'. However, the Newars are frequently identified as *adhibasi*(meaning; aboriginals) in the right based political discourse in Nepal whichdoes not smeem true as there are clear racial, historical and cultural features which show it as a mixture of multi race, with multi-histories of migration from different places and combination of multi-culture groups (Dahal, 2016).

Racially and culturally a unique blend of Indo-Aryan and Tibeto-Burman influences, with contributions from ancient migrations from India and Tibet, they have maintained a distinctive way of life for over two millennia.Speaking Nepal Bhasa (Newar language) and practicing a syncretic form of Hinduism and Buddhism. Newars are celebrated for their exquisite art, architecture (including multi-tiered pagodas and UNESCO-listed Durbar Squares), vibrant festivals, intricate crafts, and sophisticated urban traditions that continue to define the valley's identity (Whelpton, 2005). However, there are concerns that with the modernization and emergence of Gorkha regime in the Himalayan country, the adequate government support for the preservation of festivals, monuments, and related rituals is not going.

According to the latest National Census (2021) the total Newar population in the country is about 1.3 million and about two third of the total Newar population is living in the Valley. The Newar society, despite its relatively small size, exhibits a complex caste system, regarded as one of the most orthodox in Nepal. This system comprises over 30 castes, each associated with specific ritual and economic functions. Traditionally, spatial segregation was a prominent feature, with distinct castes occupying specific areas within settlements. Newar villages, therefore, rarely function as autonomous units; instead, they rely on broader ritual and economic networks that extend beyond their confines. The interplay of caste, function, and settlement structure underscores the intricate social fabric of the Newar community,

contributing to the valley's rich cultural heritage including various other communities of different social systems, cultural practices and belief systems.

Present day Valley is a mosaic of diverse ethnic groups, each with unique lifestyles and economic activities. The Newar*s*, racially and culturally mixed but continued an unique way of life in Kathmandu Valley, are traditionally rice farmers, had developed compact settlements along river terraces and mountain ridges (Müller-Böker, 1988). These settlements were surrounded by terraced fields optimized for irrigation and rice cultivation. Ecological adaptability had allowed them to integrate wheat and vegetable farming into their agricultural practices. In contrast to Newar*s*, the Bahuns or Brahmins and the Chhetriswho were also known as Parbatiyas (meaning; people from hills) had scattered settlements surrounded by bāri (dry fields). Their staple diets often included maize, millet, and wheat, cultivated on less irrigated bārilands. Unlike Newar settlements, their hamlets typically featured unstructured or inclined terraces, reflecting variations in topography and agricultural practices. The wave of urbanization and modernization, which began in the 1980s, has profoundly transformed this conventional agricultural and socio-cultural practices of the Valley.

Along with the changes in economic and social landscapes of the Valley in the last three to five decades, there is deeper cultural transformation which can be observed in Kirtipur. These transformations are particularly evident in shifting values, evolving lifestyles, and changes in identity formation. Modern influences are reflected in fashion trends, altered food habits, restructured family dynamics, and the growing role of technology in daily life. Young people in the valley face significant pressures from peers and media, both of which play crucial roles in shaping their identities. While modernity has introduced global trends in social interactions and technology use, traditional cultural values persist, albeit in redefined and transformed forms. A major driver of this urbanization and modernization has been the exponential population growth in the valley, largely fueled by in-migration.

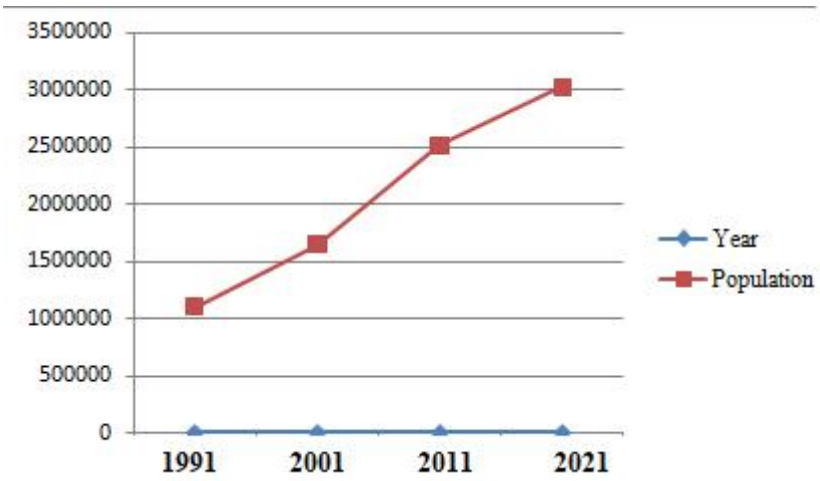
4.3 Migration and Population Growth

The urban areas of the Kathmandu Valley were limited within five historic settlements of Kathmandu (Kantipur), Lalitpur (Patan), Kirtipur, Madhyapur Thimi and Bhaktapur until 1980s with a less than one million population. However, since the 1990s, it has turned as one of the rapidly urbanizing mountain basins in the Himalayan foothills in South Asia. The UN reported that between 2010 and 2014 the urban growth rate of the Valley was 3.94% showing it as going through significant transformation of its land use system and

agriculture production including other environmental challenges(Ishtiaque et al., 2017). In 2020s, the Valley, with the population of more than three million and an annual growth rate of more than 6%, stands as one of the fastest-growing metropolitan areas in the region.

Figure 4.1

Population Growth in the Kathmandu over Three Decades (1991-2021)



Source; CBS (2012); NSO (2023).

Migration, both internal and international, has been a significant force in shaping the socio-economic and demographic landscape of the Valley. Over the last three decades, the Valley has witnessed a dramatic population increase, with the combined population of the three districts; Kathmandu, Bhaktapur, and Lalitpur, tripling from 1.1 million in 1991 to 3.02 million in 2021 which is presented both in Figure (4.1) and Table (4.1) in detail. Several factors have driven this migration trend. This surge in population is not solely due to natural growth but due to the influx of migrants from hill and Tarai districts of Nepal due to various push factors like political insecurity, natural disaster, unemployment and other and pulled by the better employment opportunities, education, healthcare, and living standards.

Table 4.1

Population Growth in Three Decades in Kathmandu (1991-2021)

District	Census Year				Area (Sq. km.)
	1991	2001	2011	2021	
Kathmandu	675341	1081845	1744240	2041587	395
Lalitpur	257086	337785	468132	551667	385
Bhaktapur	172952	225461	304651	432132	119
Total	**1105379**	**1645091**	**2517023**	**3025386**	**899**

Source: NSO (2023)

4.4 Population Characteristics and Agricultural Land

Among three districts of the Valley (Kathmandu, Lalitpur and Bhaktapur) Kathmandu district has the highest population density at 5,169 people per square kilometer, followed by Bhaktapur at 3,631 and Lalitpur at 1,433 (Table 4.2). The demographic characteristics of the Valley, encompassing the districts of Kathmandu, Bhaktapur, and Lalitpur, reflect significant variations in population density, annual growth rates, and migration patterns. While household sizes are relatively consistent across the three districts, notable differences exist in population density and growth, which highlight underlying social and economic shifts shaping the valley.

The lower density in Lalitpur is largely due to the district's extensive hilly and remote areas which is sparsely populated. If the urban areas of Lalitpur alone were considered, its population density would closely approach that of Bhaktapur, underscoring the Valley's farmland concentrated urban growth. A further unique characteristic of Bhaktapur is its rapid annual population growth rate, which, at 3.35%, outpaces both Kathmandu and Lalitpur, reflecting a pattern of outward urban expansion from the capital into neighboring districts and their peri-urban communities. This shift suggests that as land in Kathmandu becomes increasingly scarce and expensive, migrants are choosing peri-urban areas of Bhaktapur and Lalitpur as viable alternatives for residence and employment.

Table 4.2

Population Characteristics of Kathmandu (2011, 2021)

Districts	HH no.(NPHC 2021)	Population (NPHC 2021)	HH Size	Popln. Density	Population (NPHC 2011)	Annual Growth Rate
Bhaktapur	108,406	432,132	3.98	3,631	304,651	3.35
Kathmandu	542,892	2,041,587	3.75	5,169	1,744,240	1.51
Lalitpur	140,130	551,667	3.93	1,433	468,132	1.58
Total	**791,428**	**3,025,386**			**2,517,023**	
National Average:						
HH size:		*P. Density:*		*Population Growth Rate:*		
4.37 persons/HH,		*198 persons/sq. km*		*0.93% (2021)*		

Source: NSO (2023)

Among these three districts of the Valley, in terms of the area Kathmandu is the largest one. The name of this district comes from the capital city Kathmandu itself. The total area of the Kathmandu district is 395 sq. km (Table 4.3). The total cultivable land in the district is 212 sq. k. m. (KGK, 2022). According to the national census (2021) the total population of Kathmandu is 2,041,587. Its population constitutes large number of migrants from different parts of the country. There are 538,163 families in the district. The average family size is 3.79 in the district. The population increasing rate is 1.4. It is the most populous district in the country where people from across the country has arrived for studies, business, work, and for other purposes.

Table 4.3

Total Area and Cultivable Land in Kathmandu

District	Total Area (Sq. km.)	Cultivable Land (Sq. km.)	% of cultivable land in KV
Kathmandu	395	212	53.67
Lalitpur	385	152.96	39.73
Bhaktapur	119	102.4	86.00
Total	**899**	**467.36**	**51.97**

Source: KGK (2022)

Lalitpur district lies in the southern part of the Kathmandu Valley. The district is divided into six local government units; Metropolis (1 nos.), Municipalities (2 nos.) and ruralcouncils (3 nos). It is the second largest district in the Valley. The area of the district is 38,500 ha. and about 15,298 ha.land is suitable for agriculture. Currently the area of about 14,000 ha.is under cultivation in the district (KGK, 2022). So the average land cultivated by each family is 0.0992 ha. (992 square meter) which is less than 2 ropanis in average. According to the national census of 2021 preliminary report, Lalitpur district has 551,667 population. Total number of family in the district is 141,012. The average size is 3.89 members in each family. The population density of the district is 1,424 persons per sq.km. This is higher to the average size of the valley and of the country.

Bhaktapur is the smallest district in its area among three district of the Valley. The district covers an area of 119 sq. km. It lies in the eastern part of the valley connected with Kavre district out of the valley. While it is the small in size but it has the highest percentage

of cultivable land. There is agriculture in 8077 ha. (KGK, 2022). The soil fertility of this district is considered as the highest and farmers grow varieties of crops throughout the year. The district is also known for the new agriculture experimentation and trails of new varieties of crops and technique in the modern agriculture history of Nepal. Administratively, the district is divided into four municipalities; Bhaktapur, Changu Narayan, Madhyapur Thimi, and Suryabinayak.

According to the National Census (2021) the total population of Bhaktapur is 432,132. There are 108,550 households in the district. The average family size is 3.97 in the district. The population increasing rate is 3.32 which is higher than the national average. The major reason of increasing population is due to in-migrating from other part of the country especially from Sindhuplanchowk, Rasuwa, Ramechhap, and Sindhuli districts located in east from the Valley. The migration into the district arose after Maoist war broke out in 1996 and become more intensive after 2001/02. Huge migration led to increase the real estate business by turning the fertile agriculture land for the road and houses in the last 5 to 10 years. A district profile of Bhaktapur (2010) shows that there are Newar(55%), Chhetri (19%), Brahmin (10%), Tamang (7%), Magar (2%), Dalits, Gurung, Rai, Muslims and others caste and ethnicgroups in the district. Though the profile shows the population composition of more than a decade ago and there is significant change in the total population living in the district, the ethnic composition has not changed significantly until now.

In sum, the population characteristics of the Valley reveal a complex interplay between migration, urbanization, and economic aspirations, with urban agriculture and security of urban farmers at the epicenter of these shifts. As both external and internal migrations continue, the Valley faces the dual challenge of harnessing the economic benefits of a growing, youthful population while addressing the infrastructure and resource limitations that threaten its sustainability. These demographic changes not only redefine the social landscape of the Valley but also raise important questions about the role of public authorities to balance to tackle the rising urban challenges, ensure better social and economic standards for the present population and ensure sustainable development for future generations.

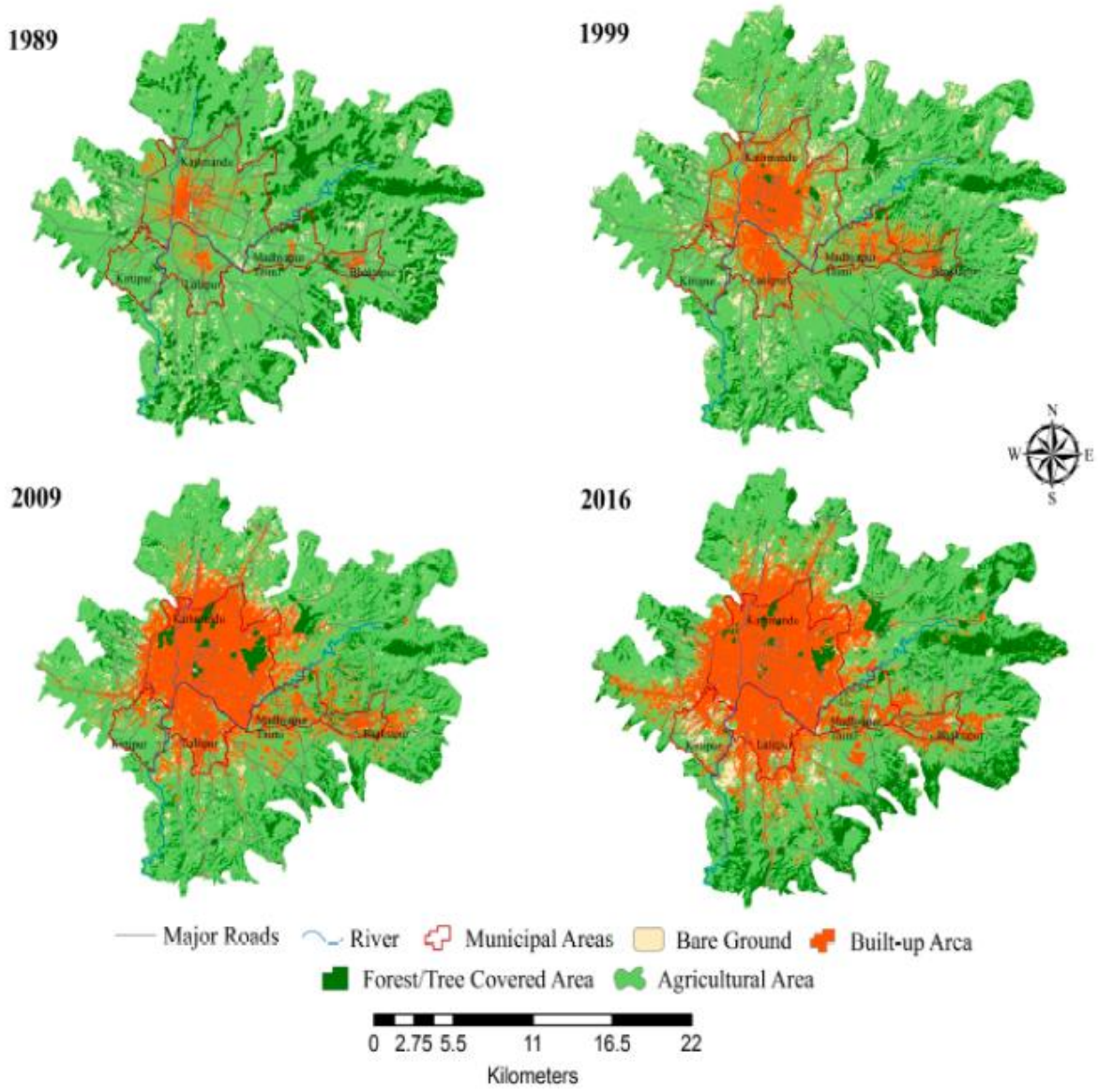
4.5 Urban Transformations and Changes in Farming Practices

The urban area of the Kathmandu Valley is heavily concentrated within and around the Ring road of the Valley and agriculture practices have also followed the same path of population dispersion in the last couple of decades since 1990s including vegetable farming

are pushed outside the Ring road in the peripheral communities. While, the case of Bhaktapur is different as it is located outside the Ring road of the Valley. Compared to other districts, Bhaktapur plays a vital role in the production of vegetables that feed the consumer population concentrated in the metropolitan areas of Kathmandu and Lalitpur inside the ring road. The visual presentation of the land use and land cover changes in the Valley over the last three decades shows how the urban area has increased over the period and encroaching the cultivable land in the center of the Valley (Map 4.1).

Map 4.1

Land Use and Land Cover Change in Kathmandu (1989- 2016)



Source: Ishtiaque at al. (2017)

The major economic activities of the local families living within the Ring road and in other major urban towns of the Valley are trade, commerce and service industry as it the

location of the country's capital city with more opportunities. The responsibility of agriculture has shifted as a key economic activity for the majority of migrant families residing outside the Ring road and limited in the traditional farming communities of Bhaktapur district. It does not mean, there is absence of agriculture within the Ring road. There are various types of agricultural practices going on such as rooftop vegetable farming in hundreds of households, small orchids, and flower nurseries in the downtown Kathmandu. But such practices are symbolic of (post)modern farming by the handful of elites of the Valley and the significance of smallholder farming driven by the migrant families in the recent decades can not be undermined by this sahariya'boutique practices'.

Scholars consider that the emergence of this new mode of farming as an important part of the local economy providing jobs and livelihoods of its large numbers of poor and marginal families (Gurung et al., 2016; Rai et al., 2019). A common understanding also align with them that this new mode of farming has turned as important source of income, jobs, and livelihoods for migrant smallholders of the Valley. However, the holistic study might give its different picture.

This urban transformation also clearly indicates that the Valley has been experiencing several new social and environmental challenges in recent decades. Some of the major challenges are overpopulation, expansion of urban infrastructures, encroachment of agriculture land, traffic congestion, air pollution, declining water table, flooding in the rainy season, and loss of open space (Ishtiaque et al., 2017). However, the smallholders of the peri-urban communities are not exceptional to face the urban challenges and suffer with the rising uncertain social and economic conditions in the bustling Metropolitan.

On the one hand the rapid urbanization has been breaking the larger agriculture plots of the Valley into the small and broken plots and changing the overall landscape of the valley. On the other, a new agriculture phenomena of commercial vegetable farming has been emerging in the same pace.Despite these pressures, this new wave of smallholders' commercial vegetable farming has emerged in the Valley in the last few decades. Therefore, how the situation of these marginal farmers in the midst of these largely spontaneous and minimally regulated is a serious concern.

4.6 Production, Import, and Selling of Vegetables in Kathmandu

In the previous sections of this chapter, I have highlighted the changing dynamics of population, land use, and the agricultural system in the Kathmandu Valley. These dynamics

are crucial for understanding the context of the emerging new risks and uncertainties in the urban farming faced by the smallholders in the country and in the Valley. However, an equally important aspect that requires discussion is the cultivation and production of vegetables, changing market situation, the practice of selling crops by the smallholders, and the risks and uncertainties associated.

4.6.1 Vegetable Production in Kathmandu

Among three districts of the Valley, in Kathmandu, there is also an extensive farming of fresh vegetables, mushroom, and potato (Figure 4.2 below). In the F/Y 2078/79 B.S., there was cultivation of green vegetables (1989 ha.), mushroom (1357 ha.) and potato (989 ha.) in the district. The production was 35347 MT, 1357 MT, and 19719 MT production respectively (KGK, 2021). Major vegetables produced in the district are cauliflower (5524 MT), cabbage (4278.4 MT), green leaf (5181.3 MT), cucumber (5100 MT), tomato (20575 MT), radish and pumpkin (KGK, 2022). Other vegetables produced in the district were; chilly, broccoli, soybean, turnip, onion, bitter guard, sponge guard and others (see Appendix 4 for the details of the crops produced and their quantity in the year 2021/022).

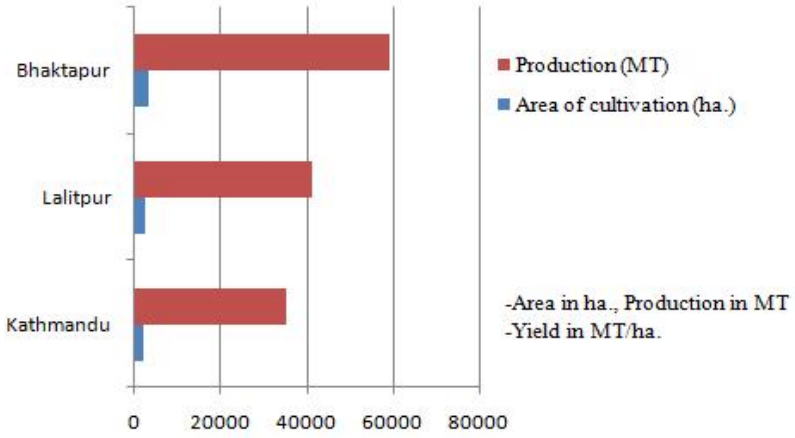
Likewise, in Lalitpur district major cereal crops produced in the district are paddy, maize, wheat, and oilseeds. Major vegetable produced in the district are; cauliflower, cabbage, tomato, radish, green leaf, carrot, beans and others. The largest quantity of vegetable produced in the district is cabbage (8140.6 MT) followed radish (6161.0MT), and tomato production of 4666.2 MT (KGK, 2022). Other major vegetables produced in the district are; chilly, broccoli, soybean, turnip, and other vegetable are also produced in considerable quantity (See Appendix 4 for the details of the fresh vegetables produced in the year, 2021/022).

Though its total area and the area under cultivation of Bhaktapur is small compared to other districts the quantity of production of vegetables is higher than others. Major vegetables produced in Bhaktapur are cauliflower, cabbage, broccoli, tomato, radish, beans, soybeans, chilly and others. According to the KGK report (2022), the largest quantity of vegetables produced in the district are radish (5,291.4 MT), green leaf (5,068.2 MT), cabbage (5,291.4 MT) and cauliflower (4,923). The table presented in Appendix 3 shows that the productivity of radish is highest (27.9 MT/ha.) followed by tomato (26.0 MT/ha.) in the district in the year 2021/022. Comparatively, all the districts of the Valley produce significant amount of the

vegetables. The total vegetable production of three districts was 135,834 MT in the year 2021/022 which was about 40% of the total vegetable required in the Valley (KGK, 2022).

Figure 4.2

Fresh Vegetable Production by Districts in Kathmandu, F/Y 2078/79 (2021/22)



Source: MoALD (2022)

4.6.2Import of Vegetables in Kathmandu

The studies and government reports on vegetable import in Kathmandu Valley show that that despite the Valley's substantial vegetable production, local output is insufficient to meet its demands. The valley relies heavily on external sources, with 50-60% of fresh vegetable supplies imported from the hilly regions (including Kavre, Dhading, and Bhaktapur) and other parts of Nepal (KGK, 2022; KFVMDC, 2023). While the import of onion, potato, lemon, fishes and fruits is high from India. Likewise, the import of garlic and apple from China is significant. There are different formal and informal sources of vegetable import into the Valley while the local producers' easy access to the market of the Valley is not yet properly regulated.

In the case of Kalimati market alone, it recorded a total arrival of 270,936 metric tons of agricultural produce for tradingin the fiscal year 2079/80 (KFVMDC, 2023. This included vegetable-based products accounting for 83.92%, fruit-based products at 9.32%, spice-based products at 4.6%, and fish-based products at 2.0%. The market features significant imports from India and other countries, including China, Bhutan and others. Notable imports include onions, potatoes, lemons, fish, fruits, and tomatoes from Indian regions, as well as apples and oranges from Chinese regions. The arrival statistics also show that the fresh vegetables are primarily supplied from the various districts across Nepal. Among the prominent contributors

include Dhading, Kavre, Makwanpur, Nuwakot, Chitwan, Bara, Parsa and Sarlahi districts. Supplies extend from the mid-hills in the east to the far-western regions like Kanchanpur district.Agricultural commodities arrive through farmers, intermediaries, traders, and market businessmen.

4.6.3Selling and Price Determination of Vegetables in Kathmandu

In Kathmandu Valley, vegetable selling primarily involves a mix of local producers, collectors, middlemen, traders, and market operators who channel produce through both formal and informal systems. In my discussions with the vegetable produces and collectors in Kathmandu, the largest proportion of the vegetable produced in Kathmandu Valley goes to local markets through informal system. It means, the local collectors collect vegetables from the farmers in personal contact and send them to either local markets directly or to the traders or middlemen. Another form of informal selling involves selling products by the farmers individually or collectively in local market.

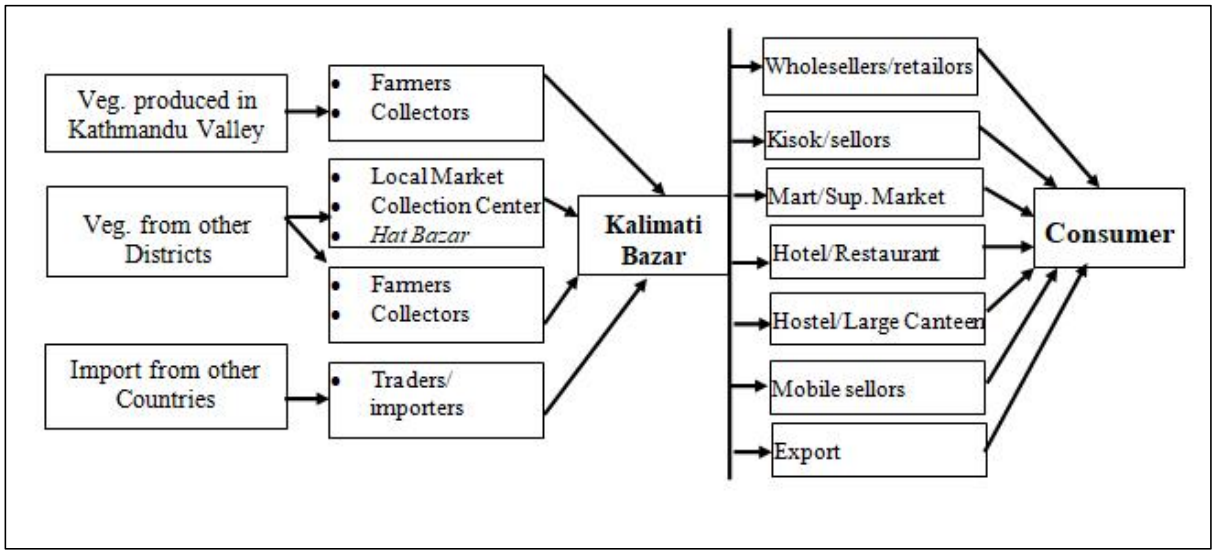
While in formal system, the products go to the organized Market like Kalimati, Balkhu and others and sell to the vendors in the daily updated price. The formal market, exemplified by the Kalimati Fruits and Vegetables Market, handles a significant portion of external imports and some local supply. A model of formal market that is regulated centering the Kalimati bazzar is presented in the Figure 4.3 below. As mentioned before, in the year 2079/80, it sold with 270,936 metric tons imported of which 83.92% were fresh vegetables (KFVMDC, 2023). In this market, sellers include farmers directly, intermediaries, and businessmen who bring goods from the other national areas, or international sources like India and China and partly from the producers of Kathmandu. Sales occur mainly through wholesale trading starting early in the morning, with distribution extending to retail markets, large private buyers, bicycle vendors, hotels, hostels, security agencies, and foreign missions (see Appendix 3 for the specific details of the spatial division of the Kalimati market and the traders involved).

In addition to Kalimati market, the present of state of the distribution of vegetable (including fruits) market is highly complex and extended all over the Valley characterized by the large numbers of vendors and marketplaces. A mapping study conducted by the Resource Centre for Primary Health Care (RECPHEC, 2016) in Kathmandu Metropolitan City identified a total of 39 semi-permanent vegetable markets and 124 mobile vendors involved in fresh produce distribution. Semi-permanent markets operate without fixed structures or

designated market spaces and typically occupy parts of public rights-of-way or areas adjacent to temples. These markets usually function either in the morning or evening or in some cases during both periods, with most vendors not required to pay formal rent. Mobile vendors, who constitute a significant portion of the distribution system, rely on bicycles, four-wheel carts, or baskets to transport vegetables. They commonly follow specific routes or operate from relatively fixed locations along streets, particularly in narrow lanes and residential neighborhoods. Together, these semi-permanent and mobile vendors play a crucial role in ensuring everyday access to fresh vegetables for urban residents, highlighting the informal yet indispensable nature of food distribution in the Valley (Appendix 7 and 8).

Figure 4.3

Import and Distribution of Vegetables in Kalimati Market



Source: KFVMDC (2023)

This discussion on the production, import and selling of the vegetable in Kathmandu Valley highlights some key characters related to the rising risk and uncertainties of the smallholder of the Valley. Kathmandu Valley's vegetable production has significantly declined due to rapid urbanization over the decades, which has converted fertile agricultural land into urban infrastructure, reducing local output and creating a substantial supply-demand gap. The Valley's vegetable market is heavily dependent on imports, particularly from closest districts of Kathmandu and India, to bridge the demand gap driven by urban population growth. Selling occurs through dual channels: formal wholesale markets like Kalimati dominate for imported and larger-scale domestic supplies, with market-driven pricing

influenced by quality, source, demand, timing, and conditions (no committee intervention), and distribution to retailers, hotels, institutions, and vendors.

In contrast to these organized systems of vegetable collection and selling, local production largely bypasses these systems due to access barriers and relying on informal networks to reach to the markets for selling the large quantity of the crops. However, the local producers are exposed to price volatility and low margin of the crops due to middlemen exploitation which they call *bichaulias* (Chapter 5, p. 120). This structure reflects socio-economic shifts from market liberalization but underscores an unsustainable trajectory, with local agriculture losing ground and calling for better security measures to sustain smallholder farming amid ongoing changes in distribution mechanisms and competitiveness. To understand this large urban phenomena and their implications on the security of the smallholders, Kirtipur Municipality of the Valley is a living example where I conducted this study. The following Chapters (5, 6 and 7) of this dissertation examine various aspects of smallholders and smallholdings of the study area to understand the situation of human security of the vegetable farmers before going to conclude it.

CHAPTER 5

EMERGENCE OF SMALLHOLDINGS IN KIRTIPUR

This chapter has a specific focus on the agrarian transformations in Kirtipur over the past decades and emergence of smallholding urban farming, particularly commercial vegetable production. Firstly, I present a historical description of Kirtipur Municipality as a continuation of the previous chapter that introduces the various aspects of Kathmandu Valley. Then I describe the factors shaping the smallholding vegetable farming in Kirtipur which is closely linked with the political decisions and its subsequent consequences on the land use system over the decades. Thirdly, I show how this transformation has produced a new situation of smallholding vegetable farming driven by the migrant families. Finally, I examine the specific situation of the smallholders and show how the vegetable farming has become their choice of livelihoods and income in the urban context of Kirtipur in Kathmandu Valley.

5.1 Kirtipur Municipality: From Past to Present

Kirtipur is one of the major oldest medieval towns of the Kathmandu Valley, located on its south west corner on the Kirtipur hill-top. The Municipality was constituted for the first time in 1996 and second time in 2017 and gave its present shape. See Appendix (6) for the constitution of Kirtipur in its present form over the time. According to the new federal restructuring following the new constitution of 2015, the town is now under the jurisdiction of Kirtipur Municipality which is one of the 10 municipalities of Kathmandu district. It is located at $27^0$38’37’ to $27^0$41’36” north latitude and $85^0$14’64” to $85^0$18’00” east longitude(KM, 2022). It is bordered by the Lalitpur district to the east, Chandragiri Municipality to the west, DakshinkaliMunicipality to the south, and Nagarjun Municipality and Kathmandu Metropolitan City (KMC) to the north(Map 3.1, p. 60). As mentioned in the website of Kirtipur Municipality (KM), it has 10 administrative wards and covers an area of 14.76 sq. km. (1,476 ha)[2].

Kirtipur, also stands as a remarkable testament to the Valley’s layered past. Geographically, the town is perched atop a prominent hill approximately 65 meters above the surrounding plain land (Shrestha, 2057 B.S.). The top of the hill offer a 360-degree panorama of the Valley, visible from every direction. The Valley itself, including the region of Kirtipur, was formed millions of years ago through tectonic activities. Geological studies indicate that

[2]See introduction of Kirtipur Municipality: https://www.kirtipurmun.gov.np/en/node/4

the valley was once a large lake, and its eventual drainage likely through a combination of natural processes and human interventions such as the cutting of the Chovar Gorge occurred in multiple phases. The first drainage episode is estimated to have occurred between 1.5 to 0.5 million years ago, and the second between 0.5 and 0.2 million years ago (Shrestha, 2057, B. S.). The Chovar gorge, which lies to the south of Kirtipur, played a critical role in the valley's final transformation into a habitable landscape, with significant outflow events dating back approximately 12,000 to 15,000 years ago (Saijo & Kimura, 2008).

Prior to organized human settlement, the area surrounding Kirtipur hill was densely forested. According to local oral histories and early chronicles, the earliest settlers in the region are believed to be from the Gopalbamsi (dynasty of cowherds), who were later succeeded by the Kirat people. This early phase of habitation is echoed in name of local places that still exist in Kirtipur today. Place names such as Sañgal (meaning "cow house") and Gwapuñkhu (meaning "cow's pond") in the southern part of Kirtipur Hill are believed to originate from the Gopal era, suggesting the pastoral heritage of the first inhabitants (Shrestha, 2057).

Although archaeological findings to date are limited, some scholars argue that human presence in the Kirtipur area dates back to the early Holocene period (that begins around 11,700 years ago). Visible lignite layers (a type of soft brown coal) in a few sites within the Valley also point toward long-term geological and environmental transformations that predate intensive agricultural and urban settlement (Shrestha, 2057 B.S.)Despite the earlier forms of habitation, the first organized urban settlement in Kirtipur is generally attributed to Lichhavi King Shivadev III in the 11th century AD (Nepali, 1965; Shrestha, 2057 B.S.). The town expanded gradually on the hilltop, and its medieval character with dense clusters of brick and timber houses, narrow alleys, and tiered templesstill defines the aesthetic of the old town.Nearby ancient settlements such as Panga, Chovar, and Nagaun also reflect Kirtipur's longstanding importance. Panga in particular is known for its traditional houses and skilled Newar craftspeople, while Chovar is culturally renowned for its mythological and geological significance related to the drainage of the valley (Nepali, 1965).

This elevated location of Kirtipur played a strategic role throughout its history, particularly during the military campaigns of the 18th century, when the Gorkhali King Prithvi Narayan Shah faced fierce resistance in his efforts to conquer the valley. Among the many towns in the valley, Kirtipur's position made it particularly difficult to subdue, and it was not until 1766 AD, after multiple bloody battles, that the Gorkhali forces finally managed to take

control (Shrestha, 2057 B.S.).Following its conquest by the Gorkhali army, Kirtipur underwent significant demographic and spatial transformations. The conquest led to the gradual spread of settlement from the fortified hilltop to the lower lands, particularly toward Machhegaun and Matatirtha in the southwest, which were settled more intensively after 1766 AD. These changes marked the beginning of a more agrarian phase in the town's expansion in the second half of the 20th century transformed much of this landscape into infrastructural development and residential zones.

During my ethnographic fieldwork in Kirtipur, I engaged in informal discussions with local Newar community elders, often in tea shops and local cafés on the hilltop. In an informal discussion with a local informant (55/M) emphasized that the identity of old Kirtipur as an independent and culturally rich townhad persisted even in the face of political domination and economic marginalization. In peoples' oral tradition and memories, there was a historical continuity of Kirtipur's settlement but also reflected the enduring importance of land, tradition, and communal ties in the local imagination of Newars.

The national census of the both year 2011 and 2021 have identified Newar as a ethnic group of Nepal and its population consists of about five percentage of the total national population, primarily concentrated in Kathmandu Valley. However, the Newar itself is not a homogenous ethnic group. In my personal discussion, Newars of Kathmandu and other regions of Nepal have also reflected that Newar neither belong to a common racial group nor they are similar in terms of religion and language. Racially, they are considered as the mix of Aryan, Mongoloid and even Dravidian. In terms of Religion, they are nature worshippers, Hindus and Buddhists. Even today, their spiritual traditions are connected to worshipping of nature; such as rock, water, trees, and animals and so on which is evident in the rituals and celebrations in Kathmandu Valley and in Kirtipur as well. There are also distinct Hindu and Buddhist followers among the Newars in Kathmandu. While, in comparison with other Indo-Aryan hill groups and Tibeto-Burman communities of the mountain and hills they are recognized as a distinct social and cultural category.

There are various other characters of Newars which make the Newars truly a unique from other cultural groups. Some of the key features are the common origin (i.e. Kathmandu Valley), feast and festivals, rituals and rites, *jatra* and *parva*, social organization,settlement pattern, their competencies on art and architecture, business and trade, and other cultural, social and economic characteristics (Nepali, 1965; Shrestha, 2020). Based on sharing one or more of these features, the Newars of the country and of the Valley in particular, they have a

sort of belongingness. This cultural sentiment of Newariness among the local Newars of Kirtipur was equally visible. While, in some cases it was even stronger as they considered Kirtipur as an independent state in the medieval period. But these traditional and historical characters of the town are no longer in the similar vein and not that much significant in the present day. But the historical memory and lived experience makes Kirtipur a microcosm of the broader socio-political and ecological changes experienced throughout the Valley.

Over time, however, rapid urban expansion, shifting state policies, and the commodification of land have produced a complex landscape marked by the marginalization of the farming profession and the farmers themselves. Traditional cultivators face increasing uncertainty, while new urban challenges coexist with emerging opportunities for migrants and the younger generation. For many Newar elders living on the hilltop of Kirtipur, these changes signify a decline from what they describe as a 'golden past,' reflecting a broader transition from agrarian stability to urban uncertainty.

Kirtipur thus embodies the tensions between continuity and change that characterize urbanizing agrarian spaces in the Kathmandu Valley. For this reason, I selected Kirtipur as the primary site for in-depth ethnographic research to examine the contemporary challenges confronting smallholder farmers within an urbanizing context. Today, in Kathmandu Valley in general and in Kirtipur in specific, cultivation largely takes place in residual spaces left between expanding urban infrastructure and residential development. New cultivators who are migrated and economically marginal section of the society occupy these fragmented plots, while many traditional farmers have gradually withdrawn from agriculture. In this sense, Kirtipur has become a critical site of urban transformation and agrarian change, where shifting land use, migrant smallholders, and heightened livelihood insecurity intersect, making it an analytically significant location for this study.

5.2 Land Use Changes, Migration, and Population Growth

5.2.1 Land Use and Land Cover Change

The transformation of Kirtipur from a predominantly agrarian hill-town into a peri-urban fringe of Kathmandu is a layered process deeply embedded in the political economy of state-led modernization, urban infrastructure expansion, and shifting livelihood patterns. Historically home to the Newars, Kirtipur was once known for its productive terraced fields and highly organized land-use practices. The Newar community, renowned not only as skilled farmers but also as accomplished traders and artisans, had long practiced a spatial

separation between settlement and agriculture: residential clusters occupied the hilltop core, while farmland stretched across the lower surrounding plains. This ecological balance, however, began to unravel in the mid-20th century as a result of state-driven interventions and infrastructural development.

The first major disruption came in 1954 with the construction ofTribhuvan University and a Horticultural Research Center, which alone absorbed over 4,300 ropani (218 ha.) of cultivated land which was about 34.6% of Kirtipur's total land area at the time (Shrestha, 2019). This led to a rapid decline in agricultural land, from 89% in 1954 to just 55% a decade later. The situation worsened when an additional 600 ropani (30.5 ha.) was acquired in 1957, compelling many locals to leave their land fallow, either in fear of further government appropriation or in anticipation of selling to private developers (ibid.). Rumors of future state acquisitions, such as plans to build a major bus terminal, further intensified this trend. People considered themselves as powerless and insecure in terms of state's ability to control over their land. It did grow distrust deep in their emotion toward the state and consequently triggered a wave of land divestment among local farmers, weakening the traditional agricultural base that once anchored the way of life of Newar communities of Kirtipur.

Table 5.1

Land Use and Land Cover Change in Kirtipur (1996-2012)

Land Use Category	**Area in Hectors**		
	1996	**2006**	**2012**
Built up	48.53	168.67	225.70
Cultivation	1158.27	844.84	833.59
Fallow Land	104.23	191.94	169.26
Vegetation	141.88	239.07	225.22
Water Body	23.07	31.44	22.21
Total Area	**1475.97**	**1475.97**	**1475.97**

Source: Shrestha (2019)

The second major disruption occurred between 1964 and 1980**,** when the construction of the Ring Roadconnected Kirtipur more closely to the Kathmandu core. This new accessibility made the area attractive to Kathmandu residents seeking to escape urban

congestion, as well as to new migrants looking for affordable residential plots. My discussion with a Newar informant of Kirtipur revealed that in the late 1970s, as land prices began to soar from Rs. 45,000 to Rs. 70,000 per ropani, many farmers began selling off their land to developers, industrialists, and real estate speculators. At the same time, road development and infrastructure expansion in both northern and southern Kirtipur (for e.g., the gravel road to *Salyanthan* in 1969/70) triggered further conversions of farmland into residential and commercial zones. These changes were accompanied by increasing access to electricity, water, and transport in the later years, which further eroded the economic rationale for remaining in agriculture (Map 5.1) for the land use and land cover changes.

The loss of agriculture land increasing food insecurity was another alarming issue of this second disruption in land use of Kirtipur. Shrestha (2019) has shown in his study in the land use changes in Kirtipur that by 1974, dependency on agriculture among the local population had dropped from 83% (in 1957) to 63%. As agriculture became less viable due to shrinking landholdings, reduced irrigation, and the rising cost of labor, many locals shifted toward service, trade, and salaried jobs. Others, particularly younger generations, migrated out in search of better employment opportunities. The combined effects of state-driven institutional expansion, infrastructure-led development, and rising land commodification not only transformed land-use patterns in Kirtipur but alsoreconfigured the livelihoods, aspirations, and social structuresof its residents. The traditional system of land use which carefully balanced between food production, religious values, and social continuity has been increasingly disrupted by speculative development and unregulated urban sprawl.

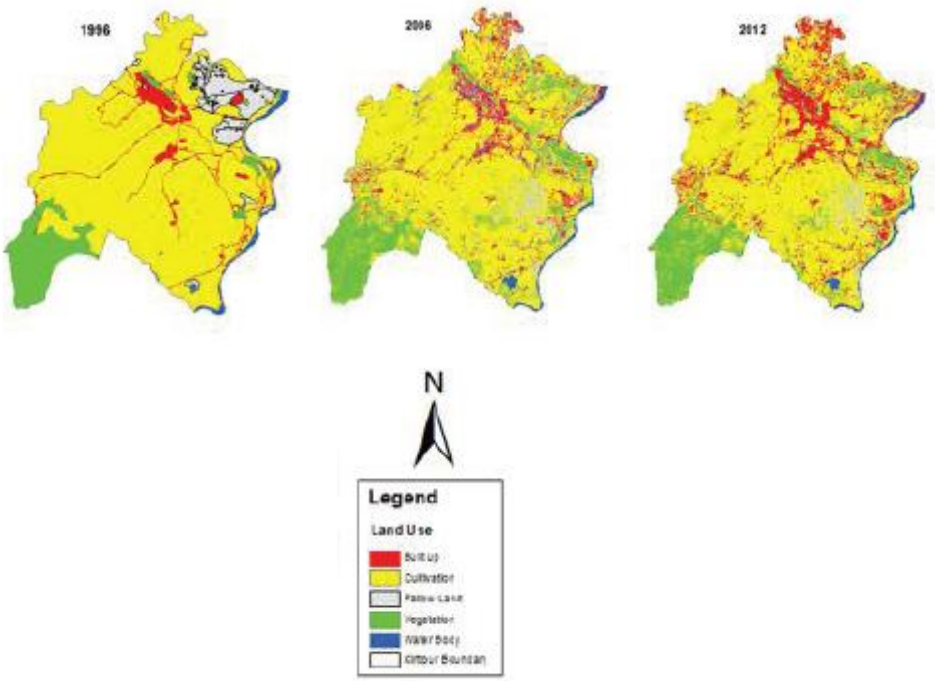
Third disruption in the land use system of Kirtipur unfolded following the political transition of 1990s and 2000s. Since 1990 there was change in the boundary and area of Kirtipur Municipality. In this phase, unlike to the state and buyers from other parts of the Valley, the individual migrant families from hills and Teri were key players who bought pieces of land from the local cultivators and gradually turned the entire field into a settlement area. The Google satellite image and the comparison of the pictorial comparison over the decades clearly show this differences (Figure 5.1 and 5.2). Furthermore, Shrestha's study presents this differences with geo-spatial data. He has shown that between 1996 and 2012, the built-up area in Kirtipur increased nearly fivefold, from 48.53 hectares to 225.70 hectares, a net gain of 177.17 hectares (Table 5.1 and Map 5.1). He has explained that this sharp increase in built-up area as directly linked to population growth, real estate expansion, and the rising demand for residential housing. In contrast, the area under cultivation saw a steep decline

from 1,158.27 hectares in 1996 to 833.59 hectares in 2012, a net loss of 324.68 hectares over 16 years.

The expansion of built-up areas and the decline of cultivated land in Kirtipur became even more pronounced after the turn of the new century due to the unexpected political and ecological reasons. Among them, the Maoist War (between 1996-2005) was a factor that forced people to leave from the hill districts, particularly from the western hills of the country. Likewise, the 2015 Gorkha earthquake also triggered a new wave of migration in Kirtipur. Despite the differing causes, the transformation of land use in Kirtipur, where agricultural land had been increasingly converted into residential and commercial spaces. A figure presented below (Figure 5.2)gives a pictorial view of the difference of the land cover over the 20 years of differences between 2004 and 2024.

Map 5.1

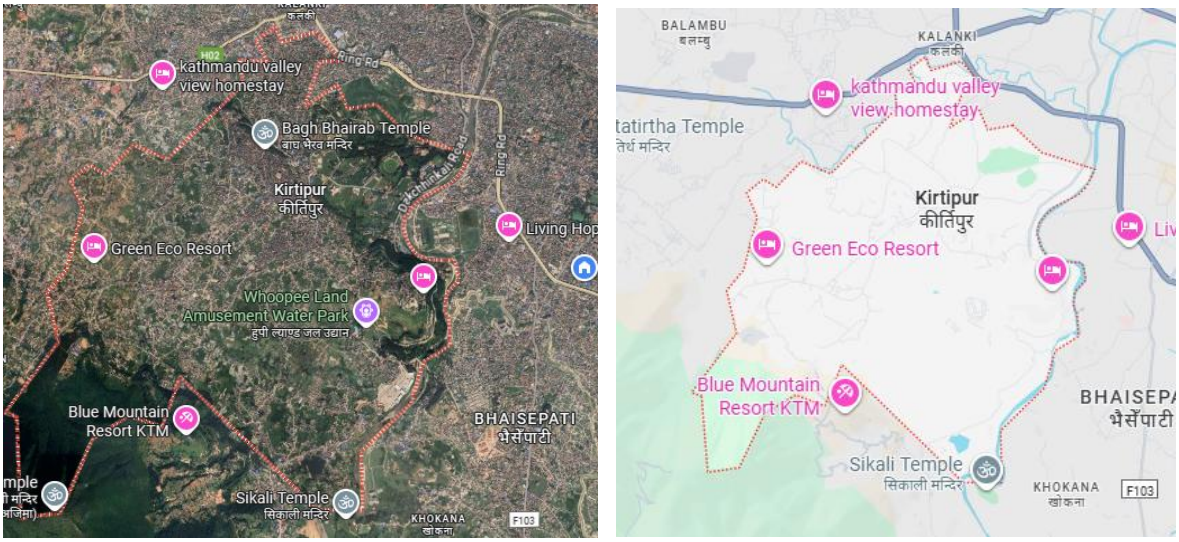
Land Use and Land Cover Change in Kirtipur (1996-2012)



Source: Shrestha (2019)

Figure 5.1

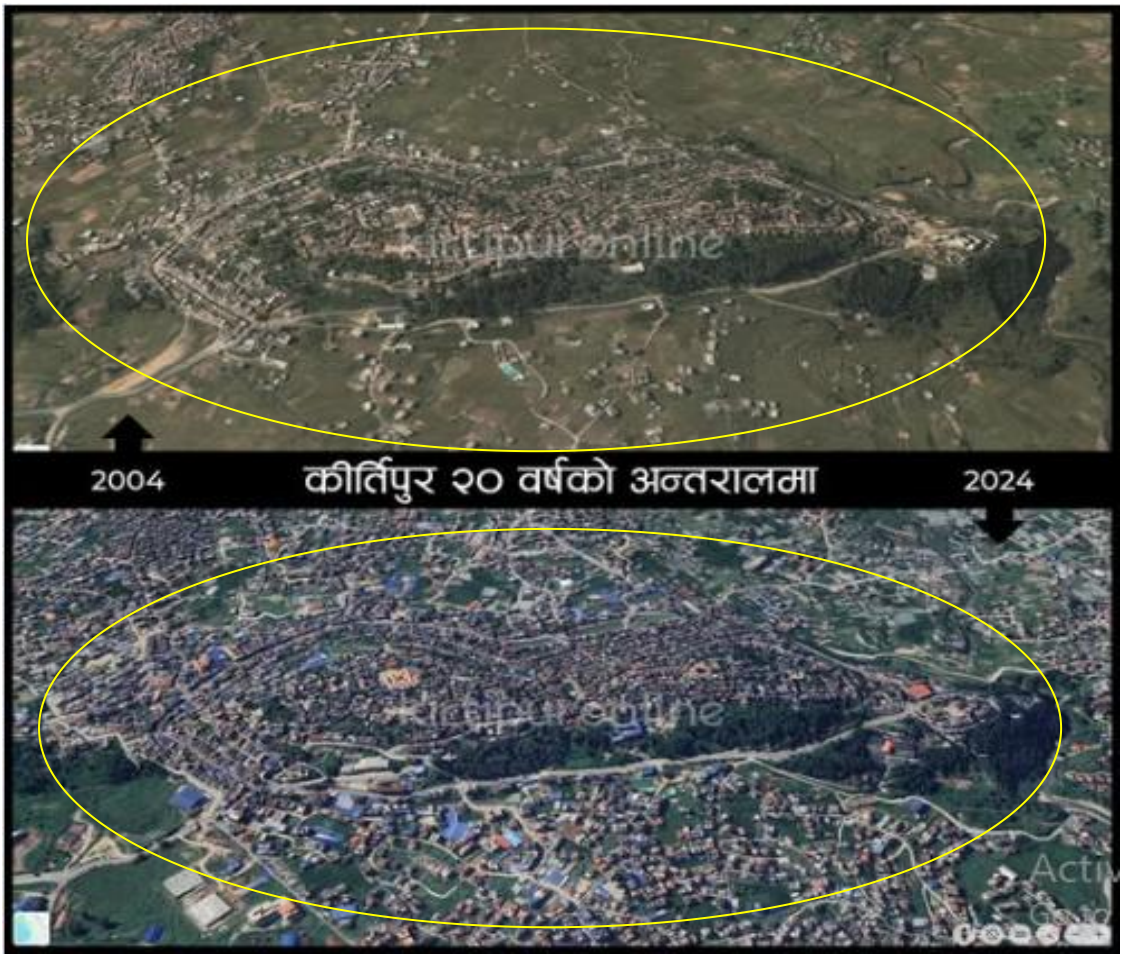
Google and Satellite Images of Kirtipur Municipality



Source: Adopted from Google Map (2024).

Figure 5.2

Land Cover Changes of Kirtipur (2004-2024).



Source: Kirtipuronline (2024).

This discussion on the land use and land cover changes and urban transformation in Kirtipur reflects both the direct conversion of farmland into residential plots and the increasing disinterest among landowners and local residents in maintaining agricultural livelihoods. These land use changes have significant implications for smallholders in Kirtipur. The shrinking of cultivable land and the rise of built-up zones directly challenge their ability to sustain agricultural livelihoods, forcing them either to adapt to marginal spaces (e.g., cultivating between housing plots), finding land in another district or to exit farming altogether while adopting other livelihood alternatives.

5.2.2 Population Growth

As there are changes in the land use and land cover of Kirtipur, a parallel phenomenon over the past three decades is that Kirtipur has undergone a rapid transformationin its population dynamics. As agricultural land continues to shrink, replaced by housing plots, roads, and other urban infrastructure, Kirtipur has simultaneously become a magnet for internal migration, especially following periods of political crisis, disasters, and COVID-19 Pandemic in the recent history.

According to census records, the population of Kirtipur stood at 40,835 in 2001. A decade later, by 2011, the number had surged to 67,171, marking a dramatic 64.5 percent increase. The upward trend continued, albeit at a slower pace, with the 2021 census recording 81,578 residents, an additional 21.4 percent growth over the preceding ten years (CBS, 2012; NSO, 2023). By 2021, the population has risen to 81,578, representing an increase of over 24% in just 10 years (Figure 5.3). This growth rate is more than double the national average of 10.18% during the same period (CBS, 2011; NSO, 2023). According to the Census of 2021, there are 24,150 households, with an average household size of 3.38 members. The gender composition of the population is 53% male and 47% is female. The municipality's population density is 5,527 individuals per square kilometer while the national average is 198 individuals which is extremely high. This is even higher in the average population density of Kathmandu district which is 5169 (Table 4.2, p. 87).

This trend of population growth in the Municipality underscores the ongoing strain on land and local resources in Kirtipur, as the Valley continues to experience rapid urbanization. In terms of housing, 43.7% of Kirtipur’s residents own their homes, while 55% live in rented accommodations. The remaining households are categorized under institutional or other forms of non-residential housing, indicating a variety of housing arrangements that reflect

Kirtipur's evolving urban landscape and rising new and unconventional human security threats of the residents.

Figure 5.3

Population Growth in Kirtipur (2001-2021)

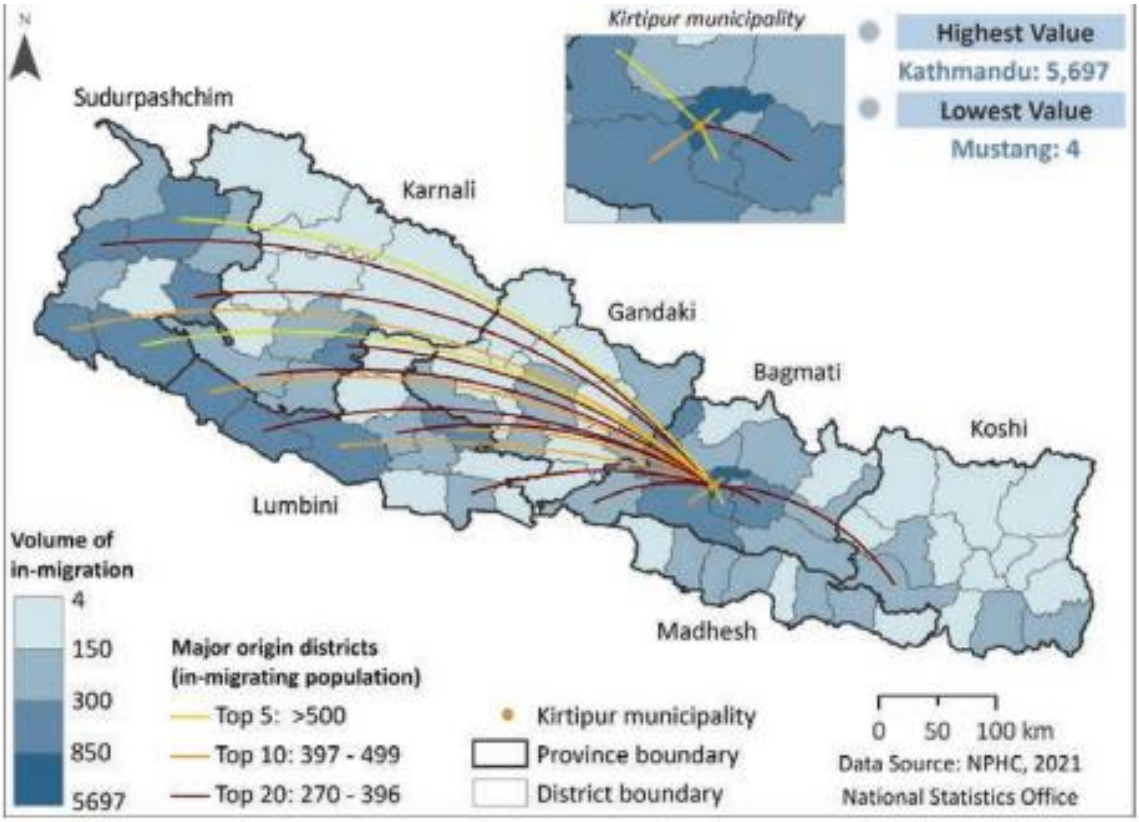
	1	2	3
Total Population	40835	67,171	81578
Census Year	2001	2011	2021

Source: CBS (2012); NSO (2023)

This population growth of Kiritpur and its other characters cannot be explained solely by natural demographic trends. Much of it has been driven by in-migration, particularly from various hill districts across Nepal. Migrants have increasingly chosen Kirtipur as a destination for its proximity to Kathmandu's urban core, availability of relatively affordable land or rental housing, and expanding educational and employment opportunities (Figure 5.4). The 2015 Gorkha earthquakeplayed a crucial role in intensifying this movement, as many families displaced by destruction or seeking more stable livelihoods, relocated to peri-urban zones like Kirtipur. Furthermore, my discussions with migrant families revealed that, following the COVID-19 pandemic, many who had previously lived separately in the hills and in Kirtipur began to reunite in order to reduce living costs and cope with the insecurities of being apart.

Figure 5.4

Migration Flow from Different District to Kirtipur



Source: NSO (2023)

Table 5.2

Ward-wise Population Distribution in Kirtipur

Ward no	1	2	3	4	5	6	7	8	9	10	Total
Male	3377	4217	2632	5499	6315	5569	3249	2034	4996	5359	43247
Female	3002	3808	2617	5451	5445	5313	2442	1718	4112	4423	38331
Total	**6379**	**8025**	**5249**	**10950**	**11760**	**10882**	**5691**	**3752**	**9108**	**9782**	**81578**

Source: NSO (2023)

I had asked about the changes in population dynamics and its implications on the urban phenomena particularly smallholdings during my events of qualitative data collection of life histories and in-depth interviews with the local Newar inhabitants. In such an occasion, a local Newar informant described the shifting population dynamics in Kirtipur as follows:

> I have witnessed three major waves of migration into Kirtipur. The first wave came around the political change in the 1990s. Back then, Tyanglaphant was almost empty, there were only a few houses near the Ring Road, and the plains where Bazaar stands today were largely untouched.The second wave followed the rise of the Maoist war in western Nepal. People from the hill districts gradually began migrating to Kirtipur during that time. The third wave came after the Gorkha earthquake. Many families moved in, and the built-up area expanded rapidly.

The gentleman did not stop to explain the recent waves of migration in Kirtipur. He also linked the phenomena with the history of the conversion of the farmland of Kirtipur into built up area by the establishment of Tribhuvan University that ultimately transformed Kiritpur for ever as a sub-urban town in the corner of Kathmandu Valley. He explained:

> My elders often mention how the establishment of Tribhuvan University marked a turning point. The conversion of farmland into built-up areas accelerated, especially as local Newar families shifted away from farming. Salaried jobs, businesses, and trade changed the socio-economic fabric of Kirtipur. Today, very few Newar families still cultivate the paddy fields. Even people of my generation have no interest in farming, agriculture simply doesn't appeal to us anymore.

Coming at the present scenario, the concentration of smallholders and its various other dynamics can also be understood in terms of the concentration of population and it gender ratio in each wards and major settlements of the Municipality. According to the census of 2021, the distribution of the total population of 81578 in 10 wards of the municipality is presented in the table above(Table 5.2). Out of 10 wards of the municipality, vegetable farming pocket areas are concentrated mainly in its 5 wards; 3, 4, 5, 6, and 9. Based on the distribution of the smallholders, the commercial vegetable pocket areas are distributed in four major pocket areas sites: (1) Neyghal and Salyanthan (ward no. 3 & 4), (2) Dhalpa, Jhulpokhari and Tusal (ward no. 9 & 4), (3) Bhatkepati and Simlepokhari (ward no. 5), and (4) Charghare, Pandychhap, Chugaon and Bhutkhel (ward no. 6). The map of Kirtipur Municipality in the Kathmandu Valley and the specific sites in each wards are indicated in Map 3.1 (p. 60.)

In conclusion, the intertwined dynamics of land use change, migration, and population growth have fundamentally reshaped the socio-spatial landscape of Kirtipur. Once dominated by fertile agricultural land and Newar farming communities, the municipality has undergone

rapid urbanization, particularly over the past three decades. Consequently, many local Newar farmers either left their land fallow or sold it to land developers, as agriculture became less profitable and more uncertain due to labor shortages, land fragmentation, and no state intervention to keep the farming intact. This transformation has been accompanied by a steady influx of migrant families, many of whom have settled directly on former agricultural plots such as in Tyanglaphant, Salyanthan and Pandychhap of Kirtipur Municipality. The growing demand for housing and infrastructure, fueled by political upheavaland disaster-induced displacement in the hill districts turned Kirtipur as a site of attraction which ultimately led to the steady conversion of farmland into built-up areas.

Additionally, the Newari identity of Kirtipur now transformed into a dynamic peri-urban space. It reflects the larger tensions that is going on over the town in the recent decades between heritage and modernity, between state planning and community memory, and between land as a means of production and land as a speculative commodity (Upreti et al., 2017). So the transformation unfolding over the last decades in Kirtipur is not just physical; it is deeply socio-**c**ultural, economic, and political(Pigg, 1992). Particularly, the community leaders of Kirtipur have deep concern over the potential risks and uncertainties embedded in Kirtipur's ongoing transformation which is not only destroying productive farmland but also alienating younger generations, escalating ecological challenges, reducing food production, and eroding the very basis of self-sustaining economic and cultural systems of the past.

5.3 Smallholder Farming in Kirtipur

5.3.1 Identifying Smallholders

In the following section, I present two life histories of the migrant vegetable farmers from my fieldwork in Kirtipur in spring of 2022. My intention to present the stories is to outline the basic details of the smallholding farmers in the study area. While studying about their histories, I was focused to understand the background of these farmers, their motivations or pushing factors that drove them to Kirtipur and their lived experiences about their expectations and achievements while undertaking the farming in the urban context compare to their ancestral land back in the hill districts. Both of the informants had migrated to Kirtipur and adopted the vegetable farming as a means of livelihoods in the newly arrived urban context of Kathmandu.

The first history is about a migrant farmer from Dhading Mr. Rajan (pseudo name). Mr. Rajan (aged 50) moved to Kirtipur three years ago following end of the COVID-19

pandemic. He has three sons and also grandchildren. His eldest son lives separately in Kirtipur, while Mr. Rajan lives with his wife, two other sons, their spouses, and his grandchildren. In Kirtipur, he has rented four ropani (0.20 ha.) of land in Bista Gaun (Ward No. 5). A local resident had recommended me to find his house.

When I visited Mr. Rajan's farmhouse in early March, 2022, his wife was serving him mid-day snacks. He was wearing farm boots, and a nearby plot had just been dug for planting new vegetable crops. When asked about his work, Mr. Rajan said, "the cabbage and cauliflower didn’t grow well this year, so I’m cleaning the land and preparing to plant green leaves, garden cress and coriander."

His wife, wearing black glasses and a small bandage on her right eye, mentioned she had recently undergone minor eye surgery. They welcomed me with tea and a boiled chicken egg hatched by their own chicken at home. While we conversed, I asked him about his reasons for moving to Kathmandu, the income and expenses associated with vegetable farming in Kirtipur, and his overall experience. Mr. Rajan explained that his decision to move to Kathmandu was influenced by both personal and practical reasons. He said:

> All of my children had already moved to Kathmandu. My brother had also left. In the village, it was just my wife and me. Carrying goods up and down the mountains was becoming increasingly difficult as we aged. There was no one to support us back in Dhading. My sons had already been living in Kathmandu for over a decade.

There were no such specific push factor that took Mr. Rajan from Dhading to Kathmandu. But as he got older and all the children and his own brother also moved to Kathmandu, he decided to be with the people close to him and his wife. It was very practical for his that living in Kathmandu meant being closer to his family, avoiding the physical strain of hilly terrain, and having easier access to health services.

Once arrived in Kirtipur, Mr. Rajan decided to rent land and start vegetable farming he had no idea about the challenges he would face in near future. Later he needed to extend the area. He added, "I began with two ropani of land, but the owner later asked me to take the entire plot around his land, so I ended up renting all four ropani from a single owner." Now, he pays NPR 30,000 per ropani (1 ropani=508.72 sq. m.) as rent and has already invested over a million rupees in establishing the farm house where his entire family lives, establishing farm boundaries and constructing plastic tunnels. These structures required significant investment in plastic and bamboo, in addition to costs for seeds, fertilizer, and

other inputs. He has managed to minimize the cost of production (cash outflow) working by himself. Sometime his family members including his wife and others also contribute. This is how he has not hired farm laborers by paying cash and minimizing the direct cost of production.

He needs to pay cash to get the farm inputs like seed, fertilizers, tools and others. He has already taken loans from cooperatives in Dhading and Kirtipur to invest in the farmland in Kirtipur. Despite his efforts, the farm hasn't yet yielded significant income. He was a farmer and had a good life with sufficient income by agriculture and construction work back in the village in Dhading. Here in Kirtipur as well, he has now enough space to keep livestock including buffalo, goats and chickens. But the overall production in the last year from the farmland was not satisfactory. He added:

> The crops didn't grow well this year. For now, the vegetables are only for household consumption and meeting small expenses of purchasing inputs, but I'm still taking loans to pay the rent. My sons are also helping with some of the expenses for building the farm structures. I hope, the next crop will be better.

While Mr. Rajan is committed to farming, he faces significant uncertainties regarding land tenure and future prospects of undertaking the profession. The land he cultivates is private property, leased under an informal agreement for five years. However, he believes he needs at least ten years to recover his investment which is not certain yet. He expressed his insecurities prevailed in the land tenancy as follows:

> The land around my farm is already being converted into *ghaderi* (housing plots). If the owner decides to sell the land, I won't receive any compensation for the money I spent on farm boundaries, plastic tunnels, and land preparation. It will all go to waste.

As there is uncertainty on the continuity of the farming and good profit, he expressed uncertainty about repaying all his loans through the farm income. As he expressed, the lack of a legal lease agreement further exacerbates his insecurity. Despite the challenges, Mr. Rajan remains dedicated to farming. His agricultural experience from Dhading has been invaluable, and he sees farming as his primary skill for generating income inherited from his parents. He and his wife continue to care for the farm and have also raised a few chickens and ducks for household consumption. However, the uncertainty surrounding land use and tenancy rights makes his future in vegetable farming precarious. However, he expressed his commitment for farming in the given condition as he does not have other option to continue

his profession and ensure the return of his investment. He further expressed, "I want to continue farming as long as I can work, but I don't know if I'll be able to stay here long enough to see a return on my investment." This life history of Rajan highlights the intersecting pressures of migration, urbanization, insecure land tenure, and the uncertain market which shape the human security situation of smallholders like Mr. Rajan in Kirtipur.

Another life history I studied of a smallholders of Kirtipur is of Mr. Tilak (pseudo name), who is 54 year old. Tilak had migrated from Salyan district in western Nepal and has been living in Kirtipur for about one and a half decades. His farm is located close to Mr. Rajan's vegetable farm. Unlike Mr. Rajan, Mr. Tilak has a smaller plot of farmland, of about 3 ropanies(0.15 ha.) where he has his farm house where his family lives, has vegetable plots and a cowshed. He also keeps few goats and chickens for his own consumption. He prefers to cultivate organic vegetables, but he acknowledges the rising costs of production (including land rent), farmers need to increase the quantity of the crops and use of chemical fertilizer which has made the farming unsustainable. He is highly concerned about the encroachment of farmland for housing, degradation of the soil quality and worsening the productive capacity of the land. He shared:

> Farming has changed drastically in Kirtipur. When I first arrived, almost all the land in areas like Pandychhap, Bista Gaun, Bhutkhel and all around the Kirtipur bazaar and Panga was agricultural. But now, these lands are filled with houses and roads. In front of my own eyes, the fertile farmlands have disappeared, replaced by urban expansion.

He also noted that smallholders arrived from hill districts in Kirtipur, as his arrival was, still going on. But the situation was getting very challenging in the recent years as the farmland over the entire municipality is rapidly shrinking. He shared a condition of the migrant smallholders to adopt the situation of Kirtipur in the changing context:

> Most of the farmers now cultivate on smaller plots, about 2 to 5 ropanies. Large-scale farming on 10 to 20 ropanies, which was common before, has become rare. Some of them have cow farm and producing milk. Farming here has become less about commercialization and more about subsistence both for migrant and local farmers.

Going back to the early years of his arrival in Kirtipur, the farming was attractive for the migrant families. There was enough land, landowners would be happy to lease the land as they were gradually shifting to other professions and their children were not continuing the farming. The network among the smallholders was also strong in the days. Tilak himself had

once led a farmers' group in Kirtipur consisting of 40 migrant farmers. In addition to sharing knowledge and skill about the farming he had micro-credit program but now the group is not so functional. He shared his about his group in this way:

> We had strength in numbers back then, all of us coming from similar backgrounds and trying to build a life through farming. Local people were constantly looking for the migrant families to cultivate their lands. But the situation has changed over the decades.The size of land gone down and land owner have option to convert it into ghaderi even though they cannot continue farming.

He has presented the changes in the land use system with booming real state business in Kirtipur as a major challenge to the smallholder farming. This change has not only shrunk the farm size but also added various challenges to the smallholders including the rising cost of production and reducing the quality and quantity of the crops. Consequently, farmers needed to adopt the situation by reducing their farm sizes or lease duration in addition to face skyrocketing costs of inputs like seeds and fertilizers. Despite these challenges, Mr. Tilak remained committed to farming. The reasons are, as he explained:

> Even though it's hard until now I am not thinking to stop farming. I prefer to have farmland because it keeps me busy and provides me an opportunity to have vegetables for my own needs and also get some cash by selling the crops. Now, it's not the main income source, but it's better than having no livelihood at all. The shrinking farmland and rising investments has turned farming more difficult, but as long as I can work, I'll continue.

This final remark of Mr. Tilak presents the current situation of the smallholding and smallholders of Kirtipur and shows his own existential dimension of the farming in Kiritpur. It also shows that smallholders in Kirtipur are not continuing farming as a profitable enterprises as various previous studies have indicated, rather it is a part of their livelihood and which is risky as well as uncertain.

The life stories of Mr. Rajan and Mr. Tilak offer critical insight into the complex realities of smallholders in Kirtipur, challenging conventional definitions that portray smallholders as static, household-based cultivators on family-owned land. In Kirtipur, smallholders are predominantlyinternal migrantswho bring agricultural experience from their home districts, but must rent land informally, often without legal protections or long-term tenure. These farmers, like Mr. Rajan, invest heavily; both financially and emotionally, into

establishing productive farms, yet remain structurally insecure, with no guarantee that their labor or investments will yield returns. Their farming is shaped by precarious tenancy arrangements, lack of compensation in cases of displacement and absence of formal state support. At the same time, they operate largely individually, with limited collective organization or institutional backing. Mr. Tilak's account further illustrates how even previously organized farming communities have fragmented due to urban expansion, rising input costs, and shrinking farmland. These cases reveal that smallholders in Kirtipur are navigating a high-risk agricultural frontier**,** marked by ecological stress, economic volatility, and political invisibility. Their experiences underscore the need to re-conceptualize smallholders not as fixed agrarian types, but as dynamic actors making strategic choices in response to insecurity, displacement, and the pressures of urbanization.

Additionally, discussion with them had also revealed that the number of migrant smallholders in Kirtipur is over one thousand including the registered commercial farmers. My discussion with the key informants and government officials and reviewing the previous studies show that currently there are around 300 registered commercial vegetable farmers in Kirtipur renting from 3 to 20 ropanies (0.15 to 1.0 ha.) of farmland from the land owners across four major settlements in the Municipality for a minimum lease period of five years. The highest numbers of smallholders rent about 3-5 ropanies (0.15-0.25 ha.) of land. The land rent ranges from NPR 20,000 to 30,000 per ropani per year. These arrangements are often made by the smallholders with more than one landowners as the land was already fragmented into smaller pieces. The main reasons to lend the land on rent by the owner were because they have ceased cultivating paddy due to labor shortages and the occupational shift of their families toward non-agricultural sectors like trade, commerce, and government service.

To identify the number of smallholders in Kirtipur I visited the agriculture office of Kirtipur Municipality located in Chardhara. The office did not have any specific details about the numbers of farmers and smallholders in the Municipality. While, it had prepared a record of the registered farmers in the office. The office updates the list based on the farmers applied to register according to the rules set by the Municipality by paying certain taxes. The updated list shows that there are total 58 registered groups while 10 of them have not paid renewal fee and disqualified in the list and the record of 48 is updated until the Jun 2022 which has 1034 total farmers (see Table 5.4 below and for further details about the group see Appendix 2).

The list gives further details about the spatial and gendered distribution of registered groups in the Municipality. Spatially, the farmer groups are distributed in the relatively newly

extended urban sprawl such as Pandychhap, Dhalpa, Bhutkhel and others. The Ward no 6, 4 and 5 which accommodates more than 90% of the registered groups are new settlements of Kirtipur developed in the last 3 decades where mostly the migrant families are living. This is also the area where the large area of conventional rice field has converted into the built-up area, plotting for ghaderi, and building connecting roads and built new local markets and other urban structures. Likewise, the list shows that out of 58 total registered farmer groups 40 groups are headed by female farmers in which 21 groups are solely formed by the women farmers. This shows that the high numbers of female are involved and taking responsibilities related to vegetable farming than men in the Municipality.

Table 5.3

Distribution of Registered Farmer Groups in Kirtipur

Ward No	No. of Group	Total Members in Group	No. of Woman Farmer Group	No of Group Headed by Female
9	2	20	0	1
6	27	511	15	24
5	8	170	1	2
4	16	218	5	12
3	3	50	0	1
2	2	65	0	0
Total	**58***	**-**	**21**	**40**
	48	**1034**		

*The record of the members of 10 groups is not available in the ledger. It is because they were inactive for the last three years and their record was not updated.

Source: Kirtipur Municipality (2022)

I had also observed the various agriculture activities undertaken my women farmers in the study area. In a case woman farmer migrated from Dolakah district, east from Kathmandu Valley, in Kirtipur was undertaking farm activities while her husband was working abroad. I met her in her farm house when she was just returned from the market by selling her vegetables. In another case, a woman farmer was selling vegetables in the local market. Her husband purchase vegetables from other farmers around her farm and also get additional from the wholesale market in Balkhu, in Kathmandu and sell for the consumers in Kirtipur.

This discussion on the life histories and the distribution of the vegetable farmers show that the emerging mode of urban farming is driven by the smallholders who are migrant and mostly the women farmers are active in the farm activities. They rent land from the land owners for a specific period and produce vegetables for cash income and employment generation. It has also illuminated several critical dimensions of smallholder vegetable farming in peri-urban Kirtipur, revealing it as a highly specific and adaptive livelihood strategy shaped by migration, gender dynamics, marketing realities, and deep cultural attachments of the migrant families to land. The smallholder model in Kirtipur is characterized by predominantly migrant farmers (often leaseholders on small plots), a pronounced gendered division of labor (with women increasingly central to production amid male out-migration), intensive commercial orientation toward perishable vegetables (e.g., tomato, cauliflower, radish), and reliance on informal or intermediary-heavy marketing channels that limit producer shares and expose farmers to price volatility and exploitation. These features distinguish Kirtipur's agriculture from more traditional subsistence systems, positioning it as a resilient yet precarious response to rapid urbanization and economic pressures.

5.3.2 Adoption of Vegetable Farming by Smallholders

The smallholders in Kirtipur, the smallholders are vegetable famers and many of them have also integrated livestock (such as cattle, buffalo, goats and others) in their farming. Among them, the practice of planting off-season vegetable farming (by constructing greenhouse in the farmland) is primarily introduced by the migrant farmers who have adopted commercial vegetable farming as their main livelihood strategy in Kirtipur. Over the last twenty years, these migrant smallholders, many of whom rent land from absentee landowners have steadily expanded their operations due to Kirtipur's favorable location near major urban markets and its high production potential (Rai et al., 2019).

The distribution of the smallholders in the Municipality is based on the availability of productive farmland in its different settlements. Among the migrant farmers, large numbers are concentrated in ward no. 6 of Kirtipur (locally called Pandychhap). Other farmers are scattered in ward no. 2 *(*Debdhoka), ward no. 3 (Dhalpa), ward no. 4 (Thapa Gaun, Tin Dharaand others), and ward no. 5 (Bhaktepatiand other settlements). Among the remaining wards, ward no. 1 (Nyagal), ward no. 7 (Bhajangal) and ward no. 8 (Panga) have small numbers of commercial vegetable farmers while in remaining two wards (ward nos. 9 & 10) there is no such significant number of vegetable farmers as these wards cover the ancient and

modern urban settlement of Kirtipur including Baghbhairab and Nayabazar(Kirtipur Municipality, 2023). Though the extent of the farmland and the smallholders differ among the different wards of Kirtipur as presented in the Table 5.3, the priority on vegetable farming is on top in each of them.

Table 5.4

Ward-wise Prioritization of the Major Crops in Kirtipur

Ward	1st	2nd	3rd	4th	5th	Remarks
1	Vegetables	Paddy	Wheat			
2	Vegetables	Paddy	Maize			
3	Vegetables	Paddy	Wheat	Maize		
4	Vegetables	Paddy	Wheat	Mushroom		
5	Vegetables	Paddy	Mushroom	Wheat	Maize	
6	Vegetables	Paddy	Wheat			
7	Vegetables	Paddy	Wheat			
8	Vegetables	Paddy	Wheat			
9	Vegetables	Paddy	Wheat			K. gardening
10	Vegetables	Paddy	Wheat			

Source: KGK (2022).

There are two registered agro-vet outlets in the municipality where the farmers purchase the agro inputs. One in ward no 2 and another in ward no 9. There are 5 Agriculture Cooperatives in the municipality where farmers deposit their saving and take loans. Most smallholders specialize in cultivating tomatoes and seasonal vegetables within plastic-covered greenhouses, locally referred to as tunnel or greenhouse farming. The preference for vegetable farming among smallholders in Kirtipur is rooted in a complex intersection of political history, migration patterns, urbanization, and livelihood adaptation that we discussed before. While migration into Kirtipur from various hill districts dates back to the 1950s, it was after the political upheavals of the 1990s and the Maoist insurgency (1996–2006) that a new wave of migrants, particularly smallholder families, arrived in large numbers. Displaced by conflict or seeking better livelihoods, these families many whom were from districts bordering the Valley as well as the Karnali and Sudurpaschim provinces sought safety,

opportunity, and stability in the expanding peri-urban fringes like Kirtipur in the country's capital.

Several factors made vegetable farming an attractive and feasible option for the migrant farmers in Kirtipur. Some of the factors are the farming background of the migrant, the availability of fallow land(left uncultivated by local landowners), proximity to urban markets**,** and therelatively low investment and quick returns**.** Earlier studies (e.g., Phulara, 2010; Rai et al., 2021) have also shown that vegetable farming has had a positive socio-economic impact, not only meeting the growing demands of urban consumers but also improving the livelihoods and employment opportunities for farming families.

My field discussion with Sudha(pseudo name), a 41-year-old woman originally from Rukum, offers a deeply personal lens into this phenomenon and her personal choice of the profession. A former Maoist cadre, Sudha recalled her active involvement during the insurgency, participating in party training sessions, organizing meetings, and campaigning for systemic change. She explained:

> Leaders used to talk about the economic prosperity of the country. As soon as the war ended and the Maoist party came into power, I came to Kathmandu. With other colleagues, I decided to get involved in farming as a response to speed up the economic progress. This was how I was taught in the past as a means to prosperity of the country.

Sudha's words reflect a crucial shift from political activism to agrarian engagement as an expression of post-war reconstruction and personal responsibility**.** This transition underscores how smallholder farming, particularly commercial vegetable cultivation has became a pathway through which migrants like Sudha reclaimed agency in a new urbanizing context.

Moreover, Sudha’s experience is not isolated. It resonates with the broader trend of migrant smallholders turning to agriculture**,** especially vegetables, due to a combination of practical incentives; availability of rental land, proximity to Kathmandu markets, and quick returns from high-value crops like tomatoes, cauliflower, and leafy greens. Thecultural familiarity with farming, brought back from their hill districts, and the desire to remain self-reliant in a volatile economy further reinforced this choice. She further explained:

> Once our revolutionary party was in power and leaders took the post we faced opposite to our expectations. Soon after our leaders forgot their commitments and

> lessons they gave us in the party school. They did not give priority on agriculture and creating a large scale employment for the youths. They utilized their time to make money for their family members and people around them. This was quite frustrating and sabotage in our confidence over our own leaders.

Despite her deep disillusionment with the party leadership who failed to uphold the principles they once taught in party schooling, Sudha consciously chose not to pursue power politics. She rejected a political path that requires unquestioned loyalty to leaders and constantly seeking economic gains through salaries, commissions, or informal dealings with traders and power brokers. Instead, her stance reflects a moral distancing from instrumentalized politics that have become common among political cadres of major parties in Kathmandu and a refusal to convert political engagement into personal economic gain.

At the same time, the rise in vegetable farming is closely tied to the decline of farming among native landowners. Studies from nearby communities of Kirtipur in Khokana (in Lalitpur) by Poudel et al. (2023) highlight how high labor costs, inadequate irrigation, and more lucrative opportunities in land leasing and urban employment have led local landowners to withdraw from agriculture. As in Khokana, Kirtipur has seen a shift from traditional collective farming toward individual leasing arrangements, allowing migrants to fill the agricultural gap. The vacant spaces between houses, once part of larger fields, have been repurposed for vegetable plots, making use of every possible patch of soil in an increasingly urbanized landscape. The Appendix 1 presents photos from the study area which show the conversion of cultivated land into housing purpose.

The trend of migration in Kirtipur further intensified following the 2015-Gorkha earthquake and the further infrastructural transformation in the urban areas of the Valley. The earthquake (which had also a serious impact in Kathmandu) intensified land conversion, as many families sold agricultural land to fund the rebuilding of homes. Combined with land pooling policies and speculative real estate development, these changes contributed to the rapid disappearance of traditional farming systems and a rise in threats of economic and livelihood insecurity(Timsina et al., 2020). Against this backdrop, the smallholders have adopted the strategies of turning limited and fragmented land into productive vegetable plots which represent both a response to crisisand a pragmatic approach to survival in the changing peri-urban economy of Kathmandu.

Once the entire family migrate into the cities and no such skilled to fit in the modern jobs then farming is only an option remained for them. As noted in my fieldwork in Kirtipur, a middle-aged migrant male farmer from Karnali Province described the role of the smallholders in deeplyembodied terms**,** stating:

> Playing with the soil, cultivating crops and engaging with livestock is not only a profession, it is a way of life. It is the way we farmers understand land and crops in the field and what is going around us. We know what is going on in our farmland and with our livestock as perfectly as we know all the physical and emotional characters of our own bodies and family members.

This statement of a key informant underscores how farming for the smallholders of Kirtipur is tied tointimate knowledge systems**,**intergenerational skills, and bear an existential significance. In short, thus, not just for economic reasons farmers choose the vegetable farming, but due to several structural and personal and existential factors contributed to adopt the vegetable farming by the smallholders of migrant families of Kirtipur. The distribution and expansion of vegetable farming in Kirtipur represents a form of localized re-agrarianisation in the shape of smallholding commercial cultivation, countering broader trends of agricultural declinein Nepal's hills. This contrasts sharply with the process of 'deagrarianisation' described by Upreti (2021) in the Eastern Hills of Nepal, where rural out-migration, labor shortages, land underutilization, and shifts away from farming have led to abandonment and reduced agricultural intensity. In Kirtipur, the migrant families from the hill carry the profession despite pervasive risks (land conversion, insecure tenure, governance gaps, and market uncertainties); instead, they intensify it as a vital means of livelihood. This persistence is driven not solely by immediate economic and social necessities; such as cash income, proximity to urban markets, and self-employment, but also by profound existential and cultural connections to land and crops, rooted in prior farming backgrounds and a sense of identity tied to agrarian life.

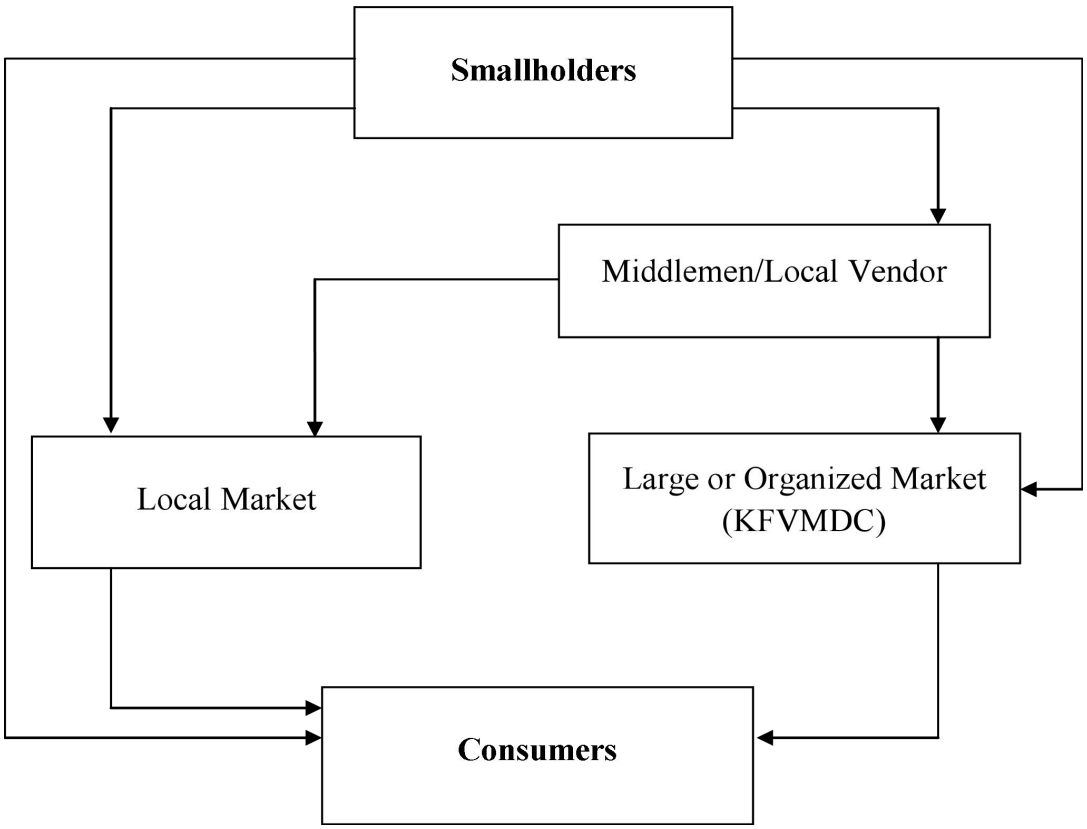
5.3.3 Selling and Profits from Vegetables

Another important dimension of the smallholder vegetable farming of Kirtipur is the practice of selling vegetables and involvement of smallholders in marketing the vegetables they produce (Figure 5.5). The informal discussions conducted in Machhegaun and Pandychhap show that none of the farmers sell their vegetables to the collection centers such as in Kalimati and Balkhu. Instead, more than half of the farmers sell vegetable via

middlemen or collectors. And others sell their crops to the retailers in local markets or to the consumers directly. The reason, they do not sell their vegetables in the major vegetable markets of the valley is because the markets are not in their walking distance. They need to pay extra cost of transportation while going to the market and give time for selling and have to be updated about the market rate of the vegetables regularly which is practically impossible for the occasional sellers as the market rate of the crops can vary in a day. These all conditions make the selling vegetables in bigger market in large quantity troublesome for the smallholders. And, they need to rely on middlemen also called as *bichaulia* who have wider networks and connections to sell vegetables in Kalimatior other bigger markets in Kathmandu. The appendix 3 gives specific details about the arrangement of Kalimati market in details and indicates the role of their *bichaulia* in the process of selling vegetables.

Figure 5.5

Vegetable Supply Channel from Farmers to Consumers in Kirtipur



Source: Field study (2022).

Within this market situation of the study area, a major concerns of the smallholders I encountered frequently was that they did not get fair price of the crops. Instead, highest proportion had taken by the middlemen involved in collecting vegetables from the farmers

and sending to the major market centers like Kalimati, Balkhu, Tukucha, Baneshwor and other in the Valley. Smallholders had reported that the cost of vegetable production was increasing every year as the cost of farm-inputs were rising. But, the price of the vegetables they got was not rising in the same pace. One more important issue they raised at that point was the impact of the imported vegetables which seriously destabilized the market and brought the serious fall in the farm gate price of the vegetables.

The concept of *bichaulias* emerged with the establishment of Kalimati Fruit and Vegetable Market, the first organized formal market of fresh vegetables in Kathmandu. *Bichaulias*; commonly referred to as middlemen, are intermediaries who operate between smallholder farmers and wholesale or retail markets. They play a central role in the collection, transportation, and sale of vegetables. For many smallholders, *bichaulias* constitute the most accessible and often the only link to urban markets. The primary function of *bichaulias* is to aggregate vegetables from multiple small-scale producers, often from fragmented and spatially dispersed plots, and transport them to wholesale markets, retail outlets, or designated selling spaces. In doing so, they absorb certain operational responsibilities, including arranging transportation, paying market fees or rent for selling spaces, managing daily labor costs, and bearing the risks associated with spoilage and unsold produce. These fixed and variable costs form a baseline for price negotiation and influence the final market price of vegetables.

Beyond logistics, *bichaulias* possess critical market knowledge. They closely monitor fluctuations in supply and demand, track seasonal variations, festival-related consumption patterns, and anticipate market saturation caused by local overproduction or sudden imports, particularly from India. This informational advantage allows them to respond quickly to changing market conditions, although even their calculations are often disrupted by unexpected supply shocks or demand volatility. Despite their functional importance, *bichaulias* are frequently viewed with suspicion by farmers and authorities alike. Farmers often perceive them as price manipulators who capture a disproportionate share of value, while government agencies tend to label them as informal or unregulated actors. However, in the absence of effective state-led price regulation, cooperative marketing systems, or farmer-owned distribution channels, *bichaulias* effectively become de facto market regulators. They mediate risk within an open-market system, yet much of the price volatility and uncertainty is ultimately transferred downward to smallholder farmers.

Traditionally, among the local farmers, the practice of selling vegetables in local hat-bazaar or morning shops in streets and city squire across was common. Since the establishment of Kalimati market and other institutionalized markets in Kathmandu, this practice weakened and very rare in practice. I had opportunity to meet few smallholder of Kirtipur selling vegetables in Baghvairab, a local market at the hilltop of Kirtipur where they sell whatever they have produced from their kitchen garden directly to the local dwellers. But this practice is no more significant and not a major mode of selling the vegetables even in Baghvairabtoday. Middlemen or retailers are the major players in the vegetable selling who collect vegetables from the farmers and sell to the consumers.

However, the middlemen system is not free from the problems but it is more problematic for the smallholders in the present context. The key concern is that the agricultural market in Kirtipur and in the entire Kathmandu Valley, where weak institutional oversight, middlemen dominance, and lack of protective mechanisms perpetuate vulnerabilities for smallholders. These findings reinforce the broader theoretical arguments of the study: in the context of a world risk society, peri-urban farmers in Kirtipur navigate manufactured risks from urbanization and globalization, mediated by political-ecological power imbalances. In conclusion, smallholder vegetable farming in Kirtipur emerges not as a relic of the past but as a dynamic, re-agrarianised response to contemporary challenges, one that sustains livelihoods and cultural continuity even as it operates "on the edge."

CHAPTER 6
HUMAN SECURITYTHREATS AND MITIGATION STRATEGIES

This chapter investigates the multi-layered human security threats confronting smallholders as on the edge of an expanding urban landscape, ranging from economic instability and land tenure insecurity to ecological degradation and market manipulation and others. It also focuses on theirdaily struggles and strategies to navigate risks and uncertainties and their limitationsin an increasingly unstable socio-political and environment situation of the country.

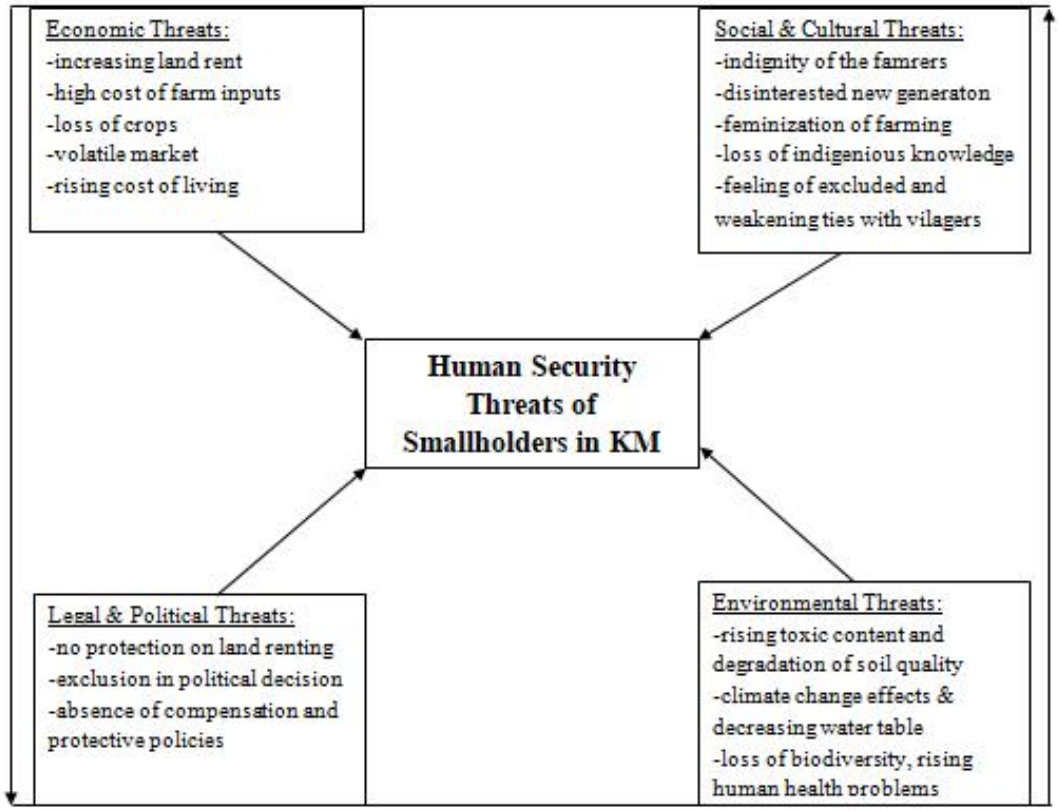
6.1 Human Security Threats of the Smallholders

The discussion on the previous chapter has shown the situation of smallholders in Kirtipur which is insecure due to rising risks and uncertainties in various aspects of farming cycle.This section draws upon of the study the ethnographic engagement with smallholders and other stakeholders during my fieldwork in 2022, in which I sought to understand the lived experiences and coping strategies of urban smallholders in an increasingly insecure agrarian landscape in Kirtipur Municipality.Based on the analysis of the field data, I have identified four major types of human security threats; (i) economic, (ii) legal and political, (iii) environmental, and (iv) socio-cultural. The types of the threats and their interconnections are presented in the Figure 6.1.

Drawing from life histories, focus group discussions, and in-depth interviews, with the key informants this section unpacks these interrelated threats. I analyze each type separately, not as isolated categories, but as interconnected dimensionsof the broader human security threats that smallholders of Kirtipur encounter. Some threats (such as economic and legal) are clearly quantifiable and material. Some of them include the rising cost of agricultural inputs, the decline in vegetable prices, insecure land tenure, and market dependency. However, other dimensions of security (such as environmental and cultural) are examined based on the subjective and experiential, grounded in farmers' emotional and symbolic experiences, such as the perceived indignity of being a farmer, the invisibility of their labor contribution for crop production, and the lack of state recognition. In this sense, both quantative and quality findings are used to examine the extent of these threats of the human security of the smallholders of Kirtipur.

Figure 6.1

Human Security Threats of Smallholders in Kirtipur



*Source:*Field study (2022).

6.1.1 Economic Threats

Mr. Kamal had migrated to Kathmandu in 2006 in search of employment and economic opportunity. He and his whole family was displaced due to the political turmoil following the Maoist war in the country. As he found job in a foreign company he then went to Malaysia. He worked in an agriculture company abroad. He retuned to Nepal in 2015 with a dream and courage to have a new startup in agriculture in Kathmandu and in other parts of the country. After his return, he started an agriculture cooperative, organized farmers and conducted various levels of trainings and workshops.

As soon as he started vegetable farming his earlier impressive perception towards the vegetable farming gradually faded away. He began to face the real challenges often hidden for those who are not directly involved in it soon after the few months of his involvement in the farming. He remembered his early days of starting vegetable farming in Kirtipur as follows:

> I had a big dream of new agriculture startup in Kathmandu when I returned to Nepal in 2015. But gradually, significant gaps began to emerge between what I had anticipated from my time abroad and the realities of working in Kathmandu. The technology and skills I had acquired overseas did not translate well to the conditions here. I faced a range of challenges related to technology, seed quality, soil conditions, and irrigation systems. As a result, I struggled with low production in the early years.

The farmers, my key informant, soon realized that the skills and technology he acquired while working abroad were not directly transferable to Nepal's agricultural context. He faced significant difficulties related to seed quality, soil conditions, and irrigation management which are the key components for a successful yield. These problems led to rising the cost of production and chances of being low production and financial strain during the initial years.

As he continued farming, additional challenges emerged, particularly related to market access and pricing. The dominance of bichauliasand Indian traders in the vegetable markets exposed a glaring vulnerability. The fluctuating supply of vegetables from India, combined with Nepal's open borders, meant that local farmers were frequently undercut by cheaper, foreign produce. There were no market protections or policies in place to shield Nepali farmers from such competition. The leader farmer expressed his experiences of early years of vegetable farming in relation to losing the price of the crops due to open market policies in this way:

> In the following years, I managed to address many of the challenges I had faced during the early stages of vegetable farming. However, when I began producing large quantities of vegetables, I struggled to get a fair price for my produce. I quickly realized that the vegetable markets were dominated by bichaulias and Indian traders, who controlled much of the market. There were several policy loopholes that contributed to the low prices for local farmers like me. These middlemen manipulated information about the market, including production and supply from India, local production, and the demand situation. Additionally, there were no restrictions on imports from India, allowing vegetables to be brought into Nepal at any time, from anywhere, further undermining the prices of our local produce.

Similar concerns were echoed by a group of migrant farmers during a focus group discussion I conducted in early 2022 in Bhutkhel, Kirtipur. Reflecting on their experience, the

farmers admitted they had not anticipated the high initial investment required to establish the farm, nor the ongoing operational costs needed to sustain it. They expressed that the cost of farm setup was significantly higher than they had expected. As the months progressed, they encountered rising input prices, increasing risks of crop failure, and market price fluctuations. The discussion revealed that many of them had entered into farming without adequate financial planning or risk preparedness, leaving them feeling highly insecure in their profession. The discussion further revealed that first they pay rent of the first year in advance (it is usually Rs. 20,000 per ropani/year). Their next cost for the preparation of the firm goes to establish boundary with cemented ground work and putting barbed wire or bamboos around the field.

Second major investment goes in the establishment of farm house, prepare field if it was a paddy land before, and establish green houses. Third, they also need to invest for the farm inputs including seed, fertilizers, equipments (such as tiller), water tank, water pump, and others. They also have to invest for the farm labor.

Here is a brief experiences of a key informant (migrated from Western hill and running vegetable farming since more than a decade in Kirtipur) in his own words about the cost smallholders of Kirtipur make while starting the vegetable farming:

> While establishing the vegetable farm most of the beginner farmers finish their initial balance. In addition, they need to wait for another 2 to 6 months to get the first harvest of the fresh vegetables. Until then, even a smallest firm owner invest 0.3 to 0.5 million rupees. We need another amount of cost for living and continue to invest on the firm for its regular operation. This is how in the first round of the establishment of the vegetable farm, farmers' balance goes heavily down and debt begun to rise contrary to their expectation. This situation ultimately pushes farmers into a difficult position where they cannot easily abandon their farms or exit farming altogether. Instead, many become trapped in cycles of debt, as they continue investing in their farms despite uncertain returns and mounting financial pressures.

This combined cost of farm establishment turns quite expensive if the term of agreement with the landlord is > or = to 5 years. On the other hand landowners do not want to have the agreement for longer term (>5 years) as the value of land may change and it may be profitable to sell land for housing and other purpose. It is another threat related to land tenancy which is discussed in details at the end of this sub-section.

The main issue in relation to this economic insecurity is the high establishment and operation cost of the vegetable farms and no certainty of returns which is further complicated by the threat to break the land agreement with the owners at anytime. It is because, the land price is increasing and the land owner themselves are also in the high pressures of selling their land for housing by the real state workers. While talking about this issue and the crisis of farmland in Kirtipur, the municipality officials replied that they had already stopped to identify and prepare specific policies of farmland regulation for agriculture activities. So, this indicate the intensity of the conversion of the existing farmland into the built-up areas and marginalization of the issues of the cultivators on the land that compounds the security of the cultivators.

Once they have produced good amount of vegetables, another economic threats lies there is challenges in selling the crops they produced. A woman farmer of Machhagaun Kirtipur explained that;

> When we sell our vegetables, we get 50% less than what they should be sold for. Imported vegetables flood the market, and we can't compete with them. This makes it hard for us to make a profit. We mostly sell our produce in the local market, but sometimes a few of us travel to Kirtipur bazaar to sell, though it's still difficult. The price we get is never fair. Even when we sell cucumber at 50 rupees (per kg.), it's much lower than the 80 rupees it's sold for in the market. And we still have to sell at a loss sometimes.

High cost of production is another economic threat of the smallholders of Kirtipur. They consider that they pay high cost for the farm inputs and in return, they get low quality of inputs from the suppliers. This issue has become even more important in the recent years as most of the farmers have stopped to keep livestock and their dependency to the private suppliers for chemical farm inputs have increased. Another woman farmers in a discussion revealed:

> Fertilizers that were once Rs. 30 per kg are now Rs. 60, and they're mixed with salt. This makes farming even more expensive. The lack of proper fertilizers has significantly increased our costs, and the absence of livestock for manure makes things worse. Before, we had livestock to help with farming, but now only three out of 15 members have any livestock. Without animals, we must rely on buying chemical fertilizers and pesticides at high prices.

While discussing about the farmers' perception who jump into the vegetable farming in in Kirtipur in the Kathmandu Valley, the leader farmer (Mr. Kamal) explained that most of the migrant farmers are not that much financially smart to consider cost and benefit ratio and they are also not familiar with the various factors that rise the cost of production in the valley. He added, "they get into the farming as they have the basic skills of preparing farmland and basic technical knowhow about the plants and cultivation by default as they had faming back in the hills." However, "the real teeth of the commercial farming and surviving in competitive market gets manifest once we dive into it" Mr. Kamal emphasized.

He further explained:

> Once farmer gets aware about this situation, they mostly find themselves in the trap as they have already invested huge amount and they have to suffer for several years to come. At this point farming becomes there compulsion even though they regularly have to face various types of risks and insecurities.

As they continue farming for couple of years, they realize other threats that shatter their sense of security. Now Following the threat of rising cost of production, another threat that concerns the smallholders of the valley is losing right price of the crops. The political dynamics of this situation is associated with the marketing of the vegetables they produce for which they have to rely on the 'middle men'. Farmers, consider that this system is a major hurdle which that hampers the right price of the crops.

With annual rents reaching NPR 20,000 to 30, 0000 per ropani, farmers often face financial strain, compounded by volatile market prices. A key informant responded my query as:

> Some farmers are in profit, but others are in loss. It continually happens because of different reasons. However, a general scenario is that the faming in Kirtipur is not going to be more profitable as it was 10, or 15 years before. One key reason is not getting a fair price for the vegetables.

It is the nature of the crop; i.e. vegetables, which they should bring to market as early as possible after it is harvested. So to rely on middlemen becomes a necessary condition to most of the vegetable growers of the Municipality. Once the crop is ready in the farm they have to harvest and sell in the market. While, getting the right price of the vegetable is highly challenging in the context of controlled vegetable market of Kathmandu mostly by the non-farm workers. At this point, they need to sell the crops as they are prepared. They can not sell

the crops in the market by themselves. Because they need to get ready for their farm works everyday. In this case the timely harvest of the crop is important, no matter the price of the crop in the market. If they do not harvest crops on time, it will simply get destroyed in the filed. My informal talk with the migrant farmers from Nuwakot and Makawanpur producing vegetables in Bhutkhel revealed that:

> We need to rely on the middlemen to sell the vegetables. They take about half of the price. In market there is Rs.60/kg potato but we do get Rs. 30 to Rs. 35 per kg. So the largest proportion of the profit goes to the middlemen. We can not hold not to harvest our crops once they are ready. But we do not know what going in the market (the demand) and the price we get is what the middleman gives us.

They explained how they loose the fair rice of their crops. In their own words:

> Farmers are attractive to vegetable farming. Even local people are also interested to upscale their kitchen garden. But it is very difficult when it comes to sell their crops. The cost is high for the farm inputs but they do not get profit. We sell vegetables in low price while consumer also paying almost double of it. The huge profit margin goes to middlemen.

It is only in the very extreme cases that farmers go to local markets and door to door of the consumer to sell their crops. For example, at the time of COVID-19 when there was lockdown and no free movement of people and vehicles they visited local market and door to door of the consumers to sell their vegetables. But, that was exception.

Now the marketing system has changed. They consider that the traditional model of selling vegetables is already outdated. In the changing context of farmers have to rely on the middlemen who go the firm and collect vegetables from the farmers to bring into the vegetable market in Kalimati and other bigger vegetable selling centers in the valley. While this system of selling vegetables is not in favor of the farmers or producers. Farmers consider that the largest proportion of the profit goes to those middlemen who pays only about Rs. 50/KG to Rs. 60/KG of the total price of the crops paid of the final consumer. They see there is a huge gap between the farmers and the consumer. This practice does not only discourage the farmers but also gives constant pressure of getting lost in the farming.

Another discussion with a woman farmer also revealed the deeply embedded insecurities of the smallholders. They explained that the vegetable farming in Kirtipur is highly sensitive and insecure. A women farmer explained:

> The farming practice that we have now is no more sustainable. It needs large amount of investment to purchase agriculture inputs imported from other countries. It was not the context in the past when local farmers used to work in the farmland. They had livestock for organic manure. All inputs were coming locally including seeds and manure. Now everything has to purchase and coming from out of the country. We need cash to purchase almost all inputs; fertilizer, chemicals, pesticides, manure, water, labor and so on. We have our own small plots of land and we mostly cultivate vegetable by ourselves. Even in this condition there is no profit. How could the farmers renting land and doing farming get profit?

Another economic insecurity associated with the smallholders is an issue of mortgaging their property for loan. Migrant farmers engaged in commercial vegetable farming in the Valley rely on loans from banks. They rent land in the Valley, securing these loans by mortgaging their property in their home districts. Often, their farm income is insufficient to repay the loan installments regularly. Consequently, they face the prospect of either selling their land or sending their children abroad to earn money to repay the loan after few years of venturing into him farming.

In sum, the testimonies of leader farmers and other smallholders in Kirtipur reveal a complex web of threats caused by various political and ecological reasons embedded in the practice of vegetable farming. These threats are not simply local phenomena but are historically rooted, politically conditioned, and intimately connected to wider global forces. For many migrant smallholders, farming is not a choice but a necessity, yet they must navigate a precarious agricultural value chain marked by rising input costs, price volatility, crop loss, and weak market access.

6.1.2 Legal and Political Threats

The legal and political threats of migrant smallholders of Kirtipur are associated with the issues of their land tenancy and identity itself. While, in both issues smallholders find themselves in defensive positions. My discussions with them have revealed that the issue of land tenancy becomes crucial when there is untimely termination of the leased agreement by the land lord. And in relation to their identification as the smallholders of Kirtipur is absent in the government authorities as they are not considered as the permanent resident or voters of the municipality. Beside, that there are also various government support programs from the municipality which marginalizes the migrant farmers.

The local land owners are particularly Newarsin Kirtipur and there are few proportion of Chhetri, Brahmin and other caste groups. They give land on rent to the smallholders and in return they get annual rent. There were also frequent cases of the termination of the agreement before 5 yrs. or without the agreement period is matured. While, in such case, the cultivators (smallholders) are not protected by any legal provisions instead, the existing legal and administrative practices favors the landlords. In this case, both agency based (landlord) and structural based (such as state policies and practices) are the causes of threats of the smallholders.

Discussion with the participants in Bhutkhel, Kirtipur reveals that there is an agreement between the landowner and the vegetable farmers to run the vegetable firm. Conventionally there used to be a verbal understanding with 3-5 local witness. They used to agree on the lease years and the annual rent of the land. Such agreements have turned fatal in the recent years as the landowner switched their idea to use the land for housing or selling for others. Therefore, in the recent years there is mostly a written agreement in between the land owners and the farmers.

One of the key concerns of the smallholders is that the term of agreement to use the land. The discussion also revealed that it is known that more than half of the farmers have agreement just for 5 yrs. even though they do have some sort of negotiation with the landlords that they would continue the agreement for another five year, so 10 yrs. at minimum in total. But it is not certain, instead it a source of insecurity for the farmers because the written agreement is only for 5 yrs.

Now, they begun to understand that if the land owner does not get ready to extend to the agreement at least for another five year (in total 10 yrs.) it is certain that their income would never possible to meet the investment they have had to establish the farm. But there is also a threat in the peri-urban areas of Kathmandu that any plot of registered land (private land) could go for housing and other construction at any time as the land has already turned into a commodity of the open market in the valley. In such case there is no legal security for the farmers. They need to rely completely on the mercy of the landowner. This is a big challenge and threat to continue farming for the longer term and ensure the economic profit from the vegetable farming.

As discussed in the case of the FGD in Bhutkhel, farmers explained that mostly there is 5 yrs agreement of the lease period of the farmland. And there is also informal negotiation

to extend the agreement for another 5 yrs., in most cases. But in practice it does not work all the time. Farmers have to leave the land in 5 yrs. if the landlord gets profit by selling the land for housing or for other purpose. In this case, they do not give priority on ensuring the continuity of the farmland. That is a huge loss of the investment done for the establishment. It is also a practice of the landowners that they do not want to have 10 yrs. lease term as the value of land is highly changing over the years and the interest of the landowner may change at anytime for the use of their land. In this situation, Mr. Kamal (the leader farmer) says,"inexperience farmers, they go in debt very soon if they could not continue farming on the rented land for at least 10 yrs."

In addition to the issue of the untimely termination of lease period, smallholders also has to deal with the boundary related issues as there is no landowner is the regular present in the farmland. In such cases, they are frequently subjected in a weaker and subordinated position. Their position turns even more precarious when the land owners are not supportive. Whenever, farmers wants to register their farm in the government agencies at that time the owner has to provide the copy of land registration, tax clearance and other which they hesitate and do not entertain to provide. In other cases, the smallholders do not have formal and written agreement. Just based on local consensus model they start their firms which was in wide practice until last 10 to 15 yrs. ago.

While discussing with a group of smallholders in Salyanthan about the support from the government agronomists, the farmers expressed their dissatisfaction over the authorities. They responded:

> We have to depend a lot on the local agro-businessman for seeds, fertilizers, and other inputs, but there’s no government support. We know there are officials in the municipality’s agriculture office, but none of them visit us. They are only there to collect their salaries. They don’t understand the issues we face in our farms because they don't come to our field and ask about the problems.

A school teacher and a local Newar farmer in Dhalpa in Kirtipur named Umesh (pseudo name) shared his experiences about the complexities related to land while cultivating in rent:

> I started vegetable farming in a plot in Dhalpa, Kirtipur 2 yrs. ago. There was already an established firm. I bought this firm from a farmer. This land is owned by local Newars. Now they don't do any cultivation. They just give it for rent. I have 10

> Ropanies land. I rented for 5 yrs. and expect to get in rent for another 5 to 10 years. Until 2070 BS this land was for traditional paddy cultivation. If landowner turned offensive I may go bankrupt at anytime. There is no any legal security and support to ensure the return of my investment to establish various structures in the rented land. This is a most pressing concern for the farmers but there is no where to hear this concern. Once we already started the farming, landlords do not prefer to do formal agreement.

In his experience, Umesh emphasizes the constant threats that smallholdersface on leased land in Kirtipur.

The relationship between landowners and tenant farmers can also create insecurity. Umesh noted conflicts such as disagreements over lease agreements and farmers reselling lease rights without the landowner's consent. Additionally, bureaucratic hurdles like missing tax or land registration documents hinder farmers from formally registering their operations as a new provision set by government.

Umesh is critical of the government's approach to agricultural subsidies, which he claims often benefits "fake farmers" rather than genuine ones. He shared his observations about the local government in his municipality and strongly advocated for localized and people centered governance as follows:

> Agriculture officials must be in every ward. They should visit the farms and keep records to ensure subsidies reach the real farmers.The government policy to provide agricultural loans at lower interest rates is not as effective as intended. While it helps farmers repay debts taken from friends and families, it does not suffice to cover bank loans. To repay these loans, farmers need to significantly increase their production, which is unlikely. What is already visible is that farmers are losing their land in the hills. This phenomenon ultimately forces them or their children to go abroad to earn money to repay the loans.

Smallholders in another event of discussionhave shown their concerns over the support from the local municipality. A discussion with the farmers group revealed as follows:

> We had formed a farmer group. Following its formation, in the beginning, the municipality helped us with 50% of the cost for constructing greenhouses, but that's it. They gave us small amounts for seeds and tools, but nothing significant. However, we are continuing our group. We do a monthly savings plan where each of us deposits Rs.

> 100, but it doesn’t really help much in covering the costs of farming. We do not see government support more than in the tongs of the leaders. They say agriculture is a priority, but when it comes to helping farmers like us, nothing happens. We only see the benefits if we are close to political leaders.

The discussion on legal and political insecurity highlights how structural exclusion continues to shape the experiences of smallholder vegetable farmers in Kirtipur. Despite the presence of agricultural projects and programs, the benefits seldom reach the intended recipients. As shared by a local professor and former farmer, much of the support is captured by politically connected actors and so-called "fake" farmers, sidelining genuine smallholders. Moreover, migrant farmers who constitute the majority of Kirtipur's vegetable growers, face further marginalization due to their lack of formal land ownership, insecure tenancy agreements, and absence of political recognition. Their exclusion from local voter rolls reinforces their invisibility in municipal planning and policy priorities. These dynamics expose not only the failure of state mechanisms to protect and empower smallholders but also the deeper legal and political void in which urban agriculture exists as unrecognized, unsupported, and structurally vulnerable.

6.1.3 Environmental Threats

I have identified environmental threats of the smallholder of Kirtipur by the application of the participatory tools along the identification of the other threats discussed in previous sections of this Chapter. In addition I have included findings of the two life histories of the local farmers of Kirtipur to understand the historical dynamics and the complex environmental challenges embedded in the vegetable farming of the Municipality.

An FGD in the study sitein Salyanthanrevealed that the past generation of farmers had suspected that the chemical inputs that was already started at that time. It was in early 1970s- in the valley would ultimately harm the soil in the long run. The farmers recalled that the generation had also suggested, in that situation of the deterioration of the soil, to peel out the degraded top soil and produce a new farming soil with adding organic inputs in the farmland. Now they find the earlier generation was not wrong. Their assumption was true and the soil now has already deteriorated due to the over and continuous use of the inorganic content, particularly chemical fertilizers. The soil has turned acidic. If farmers go the agro-technician finding the solution of the problem of the soil of the farmland they suggest to add another chemical content to balance the PH value of the soil.

Another observation of a senior farmer of Kirtipur (68, M)has affirmed the reflections I got from the FGD:

> The soil quality of our farmland has gone destroyed. Use of chemicals increased while the organic manure is decreasing. The situation is to be reversed but it is not the question of an individual farmer. The land has crossed the limit of the production. There is huge problem of the loss of the micro nutrient in the soil of Kirtipur. Farmers are also not much aware about the right proportion of the chemical fertilizer to use in vegetable farming. It is also because of the regular use of the chemical fertilizer and no or less use of the organic manure.

The farmer opines that Kirtipur has already lost the potentiality of regaining the organic content in soil as the farming has already detached and dependent on inorganic inputs. He further explains:

> There is no more livestock as before in our community. Neither there is grazing land remained out there. Here, 3 out of 15 members have livestock. So, there is no such plenty of organic fertilizer as before. We have to buy both organic and chemical fertilizer so the cost of farming has increased.

So the condition of soil of the valley or the deterioration of the quality of soil is a serious threat to the environmental security of the farmers of the valley. While discussing about the solution of this threat, the leader farmers and the agro-technicians had shared their experiences and perception which are optimistic but challenging. They argue that it is possible to bring back the life in the soil of the valley which is deteriorated but not dead completely. But a serious action from individual farmers and governments is required.

As the degradation of soil quality, the farmers and agro-technicians of the valley have observed that the emergence/appearance of new pests and diseases that have turned vegetable farming even more challenging in the recent years. In their opinion, new pest and diseases are very much challenging for the vegetable producers. In their experience the Cole farming is seriously affected by the new pests and diseases. An agriculture technician responded this problem as the consequences of increasing acidity on soil. According to the agriculture technician, as the organic manure in the soil decreases the problem of acidity rises.

Next challenge is irrigation for the farm. There is no such external source of water that farmer could utilize for vegetable production. So they have to rely on the ground water. However, in the recent years the level of the ground water has gone very deep. The regular

supply of water discharge in the natural springs, ponds and well had gone diminished. They are also highly concerned with the increasing built up area which is considered as the major cause to reduce the water availability for agriculture and pushing the water table of the Valley even deeper.

A similar observation and perspectives of the group of the farmers in Lalitpur is that a new trends of farming by landlords and organic farming is increasing but the land is going shrinking, water table is going down and urban areas is increasing as the construction of new houses by destroying the farmland in the district. Another key informant, once was cultivating in Kirtipur and now renting plot in Lalitpur, explained various opportunities in vegetable farming for the marginal families migrated to the Valley. But those opportunities can only be turn into their favor having faced with large numbers of political and environmental challenges ahead.

She expressed her experiences while she had came to a farmers' workshop in Kirtipur where I met her and had an in-depth interview. She further said:

> Vegetable farming is still a lucrative occupation in the municipality. The number of commercial farmer is increasing in the last few years. However, more than 90% of the commercial vegetable farmers are migrants. They do not have their own land. They rent and cultivate the vegetables. But there are new tendencies emerging in vegetable farming. The retired professional of the local communities are also getting back to vegetable farming. The foreign returnees are already in good numbers in vegetable farming. And the attraction of local people is also increasing in vegetable farming. But the challenge is that the size of farmland is decreasing in an alarming rate. In my experience in the last 3 years, more than 30% farmland has already converted into ghaderi or turned into plotting land.

There is a similar experience of an agriculture officer working in a government office in Kathmandu. The officer is from East Nepal and graduated from a university of the country expressed:

> The major problem in valley's vegetable farming is that the land is getting shrunk and lost. One of the major reasons is increasing urbanization of the valley which mainly includes construction of new houses, roads, and other physical infrastructure. I am in Kathmandu just in 4th year of my job. During these years, in majority of the urban wards of my municipality converted more than 30 percent cultivated land into

> residence and built up areas. I came to know that following the Gorkha Earthquake in 2015, the pressure of migrant people has increased extremely high and it has not stopped yet. The pattern of new house construction is increasing even more in the peri-urban communities closer to the outer boundaries of the ring roads.

To understand the dynamics of decreasing farmland in Kirtipur and the emerging security threats faced by farmers, I engaged with Mr. Bhusan Maharjan (pseudo name), 58 yrs old, and a local Newar resident and former school teacher who transitioned to vegetable farming as an alternative source of income. Maharjan's insights are shaped by decades of farming experience and his involvement in community initiatives. I met him at his farm, a plot he had rented from local landlords, where he was overseeing his workers. As I arrived, an NGO staff working with handicapped children, facilitated my visit, introduced me to Maharjan. While discussing the challenges faced by farmers, he instructed one of his workers to serve me tea, reflecting the traditional Newar*i* hospitality that still prevails in such spaces.

Maharjan's story encapsulates the larger narrative of agrarian transformation in Kirtipur and rising environmental threats. He explained:

> This land, owned by local Newars, was once used for traditional paddy farming until 2070 B.S. (2013 AD). But as migration to Kirtipur increased and landlords faced labor shortages, they began renting out their land instead of cultivating it themselves.

He further highlighted the increasing cost of agriculture, the decreasing size of farmland, and the lack of profitability in traditional farming as primary drivers of this shift.

In 1990 the total population of the valley was about 1.1 million while it raised up to 3.1 million in 2021 which I have already mentioned in Chapter Five.. This exponential growth of population is clearly visible in Kirtipur with the expansion of housing and road network in the fertile agriculture land very recently. During my conversation in various settlements or Wards of the municipality, one extended paddy field has now converted into dense settlement areas with a complex road network. When I inquired about such expansion before and after the COVID-19 pandemic outbreak in the last five years, a municipality officer of Kirtipur said that there is no any agriculture land left in the municipality. He further added about the urban expansion in Kirtipur:

> Urbanization has not just expanded the population but it has added large numbers of houses, road networks, and other urban infrastructures which have direct relation with shrinking the area of cultivation for the vegetables, splitting or reducing the area of

> the farm size and other associated environmental problems. Now its too late. We do not have any strategy to revive the land and I do not see it would be possible in near future.

The farmers, local land owners and the development workers are also aware about the environmental problems associated with the vegetable farming. There is frequent discussion on the environmental pollution due to the maximum use of plastic other inorganic inputs in the farmland. And local farmers are also aware about the deteriorating soil condition. However, they can not do anything right now. So the easiest way is to sell their land for ghaderi which has destroyed the productive land of Kathmandu. A local Newar community leader expressed that:

> The local people did not know about the idea of the tunnel farming. They had learned from the outsiders. While tunnel farming is not also a sustainable alternative. We have to rethink on it. It make the difference in temperature in the local environment. Local farmers are already facing several health related problems due to the changes in the local environment. Even though, tunnel farming is high in demand and farmers want to grow their vegetables in plastic green house. Because of this technology the production of vegetables has gone up but the production of other crops has severely gone down. The increasing vegetable farming in the municipality has reduced the production of the crops like rice and wheat. There is sharp decline in the area of farm land for cereal crop production. This is a serious concern related to food security of the local people.

Another key informant and a former farmer in Kirtipur, now cultivating vegetables in 25 ropani land in Luvu, Lalitpur. She has rented the land of 5 landlords at a same place. While in the last 5 years some of the landlords have broke the agreement and asked back their land for converting into *ghaderi* and sold in a high price. She has already returned 8 ropanies out of the total land she was cultivating. Similarly, she has observed massive increase of *ghaderi* by destroying the agriculture land in her locality.

Going back to the life history of Mr. Bhusan, he owns 10 ropani of rented farmland, but he shared that the land had rented was getting reduced. In Tyanglathe land has been reduced from 4 ropani to 2 ropani as the landlord sold it for housing. The same trend is happening all over Kirtipur. His opined that if that continued, there would be no agricultural

land left in the next 10 or 20 years. While, he still wants to continue farming until he is physically active. He further said:

> I started vegetable farming on this plot in Dhalpa two years ago. This land was previously owned by local Newars who no longer cultivate it themselves; they now rent it out. Renting land has become a common practice as traditional landowners increasingly move away from farming. I rent 10 ropanis of land for five years, and I expect to extend the lease for another 10 years.

Reflecting on his journey, Bhusan Maharjanrecalls his initial foray into commercial farming in 1990 as a part of a foreign donor project. He shared, "this was for handicapped children and their families. It introduced me to agri-business and vegetable farming. Later, the NGO took up similar initiatives focusing on income generation for families of disabled children."

Bhusan has expanded his agricultural endeavors, renting additional plots in Tyangla and Tinthana. However, he is worried by the shrinking size of farmland, “in Tyangla, I had 4 ropanis, but now it's reduced to 2 ropanis as the owner sold part of it for housing.” He described the rich history of self-reliant agriculture in Kirtipur and changing situation, "until 2070 BS, most of the land here was used for paddy cultivation. Farmers used organic methods and inputs like; black soil, human excreta, ashes, and carried manure to the fields manually. The production was high, even without chemical fertilizers."

The shift to vegetable farming began as urban migration increased demand for fresh produce. “We started a cooperative and created a 50-ropani vegetable farm. It was a promising venture until a flood destroyed it, and we couldn’t sustain the losses,” he recalled.

In his opinions, the land in theValley is highly suitable for vegetable production. The teacher farmer shared his view that if the growing rate of settlement and roads continues in the same speed for another 10 yrs, there will be hardly any space for cultivation. He further explains the situation of converting of agriculture land into housing or ghaderi as follows:

> Another aspect of the insecurity of the commercial vegetable farmers is primarily associated with the local farmers who establish their vegetable farm in their own properties. It has two aspects. One is the increasing value of the land for housing. This pattern has already discouraged the farmers who respect soil and farming as a ‘divine job’ and they do have traditional knowledge and skills on farming. Instead of

promoting farming their attention is inclining to convert their land for selling in high rice one or the other year.

In his experience, farmers now need to engage in larger-scale farming to achieve profitability and professionalism. However, he believes the political context in Nepal is unsuitable for large-scale farming due to the lack of government support and the highly unregulated market in Kathmandu. The cost of production in Kathmandu is very high, necessitating mechanization for large-scale production, which is not fully feasible. Manual labor-dependent farming continues to drive up production costs, making local produce uncompetitive against imported vegetables. There is no appropriate technology or system for commercial farming, making it unappealing for the new generation to start a career in agriculture. The size of the farmland itself is going down every year. This is one of the most conspicuous challenges of the vegetable farming of Kathmandu. No matter either migrant or local farmers both agree that this would be a major threat to minimize the vegetable farming.

A local farmer in Bhaktapur reflects his observation on the situation of shrinking of farmland as follows:

> First, the land for cereal production started to go down as it rapidly turned into the plots of vegetable production. And in the recent decades, we are losing farmland for modern development infrastructure (road, hospitals, and other buildings) and housing. There are large numbers of housing companies grabbing the very fertile farmland and turning it into a residential areas. Once the housing company begins in a locality, it affects farmers of the nearest areas and they also abandon for cultivation as the value of the land goes so much high and farmers don't see any attraction for cultivation.

The women farmers explained that one of the biggest problems they face is irrigation. They expressed:

> We don't have a river nearby, and the only water available is from pipes, but that's mainly for drinking. This lack of a reliable water source means that we rely heavily on rainwater during the rainy season to irrigate our crops during the dry season, though not everyone has the means to store enough water.

In conclusion, the environmental threats facing smallholder vegetable farmers in Kirtipur are multifaceted and deeply embedded in broader agrarian and urban transformations. The degradation of soil quality, increasing dependence on chemical inputs, emergence of new pests, and erosion of local agro ecological knowledge signal a shift away from traditional and

organic farming practices. Simultaneously, the steady loss of farmland to urban expansion and the weakening of local institutions have disrupted community-based resource management and ecological resilience. Over recent decades, a new configuration of farming spaces and categories has emerged marked by intensive, market-driven production on insecure land posing significant risks to long-term sustainability. These environmental transformations not only undermine the viability of smallholder farming but also raise urgent questions for policy-makers and local leaders, who must respond to these ecological challenges with context-sensitive, farmer-centered planning and support.

6.1.4 Social and Cultural Threats

Discussions with local Newar farmers in the Kathmandu Valley reveal a growing disparity between the increasing education rates and the declining involvement of the younger generation in agriculture. The new generation does not prioritize working on farmland, opting instead for salaried jobs, starting businesses, or going abroad. Consequently, local knowledge and traditional farming techniques are at risk of being forgotten. An elder farmer shared his experience and perception about the involvement of the new generation:

> Neither do they have the physical strength to work in the fields, nor do they possess the necessary skills. The value of agricultural work has diminished. Even without regular income or salaried jobs, local youths spend their time playing cards and drinking alcohol in local restaurants instead of cultivating their land. The status of farm work has significantly declined.

Additionally, it is observed that local farmers themselves discourage their children from pursuing farming. They prefer their children to excel in studies, secure good jobs in organizations, or go abroad for better earnings. A woman leader farmer of Bhaktapur to whom I met during a work shop in Kirtipur shared her experience about the intergeneration differences in vegetable farming as, "the new generation of local farmers has already moved away from agriculture. They do not prioritize vegetable cultivation. Instead, they are seeking jobs abroad or in banks and offices within the service sector."

Bhusan outlines the challenges in modern agriculture are stark. He highlights the increasing reliance on external inputs as a serious environmental challenges for the future of the vegetable farming of Kirtipur. He expressed:

> Now, everything has to be purchased fertilizer, chemicals, pesticides, manure, water, labor. The traditional system of cooperation among farmers is gone. Today, even

> small tasks like carrying materials require payment. The soil quality has deteriorated due to chemical fertilizers, while the use of organic manure has declined. We are talking about organic farming now, but how feasible is it when everything depends on costly imports?

The younger generation's departure from agriculture is another concern. He also points out the cultural breakdown due to the generational gap. In his experience, local youth don't work in the fields anymore. They lack the physical strength and skills to continue farming which is also a backbone of the traditional Newari culture and traditions. Many prefer salaried jobs, businesses, or going abroad. This has led to a labor shortage, forcing farmers to turn to machinery, though manual work is still unavoidable. In the past, Guthi groups were organized for agricultural work and social services. Now, they've become mere entertainment groups focused on food, music, and dance. The essential sense of cooperation has vanished.

Bhusanfears that without deliberate intervention, agriculture in Kirtipur will soon disappear. He added as follows:

> If the state doesn't designate specific areas as agricultural zones, in 10 to 20 years, there will be no farmland left, only houses and roads. Farming is no longer sustainable under the current system. It needs massive investment, and the returns don't justify the costs.

He concluded the discussion with a grim yet urgent observation. The paradise of self-reliant farming get lost. To revive it, his first priority was to reverse the social quality which was already destroyed and move back to organic farming. But, he was aware that to have this reverse gear in the agriculture of Kirtipur, no individual farmer was capable. It required a collective action and systemic change.

While discussing about the social aspect of vegetable farming among the migrant and local farmers of Kirtipur, the issue of new generation turn significant. They highlighted that the new generation is no-more attracted to cultivation and farming. Similarly, among the local farmers either they have the tendency to be away from the cultivation or if it exists it becomes a responsibility of women members. They consider that there is no prestige in farming and selling vegetables in the recent years. The community members consider that only unqualified persons get involve in farming.

A community leader (Newar*)* agreed that:

> Farming in general and vegetables for selling is one of the least attractive profession for Newars in the last two decades. It is not liked or praised as other salaried job or high profit business by their neighbors and relatives. Instead doing business, monthly salaried jobs and foreign migration get more prestige and recognition among them. Those who are involved in farming consider themselves as 'inferior' or 'failed'. They even do not like to call it a profession.

The studies have also revealed that vegetable farmers of the study area are not so much unhappy as there is constant threat of high cost of production and threat of not getting right price of the crops. In the same line with the Newar leader, a discussion with the local women farmers of Kirtipur in Machhegaun has also revealed the complex of the social threats embedded in the vegetable farming.In that community in Kirtipur, women farmers are the ones who take care of the farming work. Mrs. Basnet (47) explained about the group and the community as follows:

> We are housewives, but when it comes to the land, we are the main people working on it and making all the decisions. Our families have lived here for so long that we feel a deep connection to this land. We own our land and houses, and we do everything ourselves. For us, farming has always been a way of life, but it’s not without challenges.

Vegetable farming in that community has traditionally been done by women. "Most of the farming work is done by women. The men are busy with office work or business, and their participation is less," says Mrs. B Karki (45 yrs.). This feminization of agriculture and vegetable farming in the case of Kirtipur is due to the absence of young generation and declining their interest in conventional farming. The new generation do not have any interest and no motivation to work in the farmland. They have a impression that the whole social context of Kirtipur and the country has this pattern. While the new generation seems to have little interest in farming, with many young people focused on their studies or busy with new digital platforms, farming remains essential for job of elder generations in the family and particularly for women members. In the words of a woman leader farmer in Machhagaunagain:

> The younger ones don’t show much interest in farming anymore. They’re too busy with their studies, phones, and computers. Some help out occasionally, but it’s mostly

> the older generation, like us, who keep things going. The younger generation is selling land to build houses or pay for education. So, our family land sizes are shrinking rapidly.

Despite these challenges, the elder generation is continue farming, but it's not because they find it's profitable but because it is a part of their way of life. Mrs. Karki, again, said, "we keep farming because it's what we've always done. It's our traditional occupation, and it's a crucial part of our livelihoods. But, when you count all the costs of farming, we are always in debt." This must be a serious concern for the authorities who prepare various plans and policies on agriculture and invest huge amount of financial resources for the benefits of farmers and increase productivity. Mrs. Karki's expression also shows the limited economic significance of her work which is not paid nor it is profitable. This financial condition of the work women involved makes their role secondary because men has to find work out of home for cash income consequently limiting the role of women members in household decision making process.

While asking about the role of government authorities to support their agriculture works, she said there is no encouragement and appropriate support that farmers get on time. Mrs. Karki further explained about the rising cost of production:

> The costs keep going up. Fertilizers, pesticides, seeds and others need to be bought at high prices from the market. It's cheaper to buy vegetables from the market than to grow them ourselves. And without sufficient water for irrigation facilities and government support for balancing the price, it's becoming harder to sustain ourselves from farming alone.

A discussion with the local Newar farmers in Bhagvairabin Kirtipur revealed that the various segments of local people; particularly the new generations, do not prefer to work in farmland. They consider that the working in farmland or for vegetable production is an 'inferior profession'. Among the local Newar families which are farming for household consumption is mostly carried out by the women members though it is not the case in the migrant farmers.

In the last three decades and particularly since 2000 AD a new threat of farming in the Valley has surfaced. This threat is the shortage of farm labors. Due to various reasons, local people are going away from farming. They have chosen other fields of employment such as trade, business, services and foreign migration. So the working on the farmland has shifted to

the farm labors migrated from various other adjoining districts whose wage is very high compare to local or traditional farm labors. The vegetable farming is highly labor intensive practice which has ultimately contributed to rise the cost of production in the valley. Discussions with the local farmers in Kirtipur revealed that the main reason that the local land owners do not want to cultivate their land by themselves is due to the shortage of farm labors in the recent years.

While the condition of the vegetable farming in the Valley is that it is not that much of mechanized farming. Farmers use very simple machines for farm purpose such as hand tractors and water pump in a limited scope. Major agriculture works are done by hand. It is all based on the hands of the farmers and the labors. So the production is limited and so as the profit is. Local people are de-motivated in agriculture because of this reason. There is no local labor to work on field and it costs very high to hire the labor. In a discussion with farmers in Bhutkhel revealed this situation:

> There is no young person of local landowners to work from the farm land. And if there is no person to get work in farmland, there is hardly possible to cover the cost of production. So it is also a reason that the migrated families which includes members with working rent the land and establish vegetable farm. So the size of the vegetable farm is associated with the members to work in the farmland.

The erosion of dignity within the profession is particularly visible in the declining interest among younger generations and the disproportionate involvement of women in low-paid or unpaid farm work. As one former farmer-turned-university professor reflected, the very ideals of modern education and development have dis-incentivized farming, contributing to the growing insecurity and marginalization of smallholder agriculture in Kirtipur. This insight points to deeper systemic contradictions which I will examinfurther in the next Chapter, that explore how smallholders navigate uncertainty and imagine their futures amid shifting social and institutional landscapes of Kirtipur in the Valley.

My discussions with a local informant (45 yrs. M.) of Kirtipur also reflect this scenario of the economic insecurity and adoption of vegetable farming:

> Since 2006, Kirtipur has experienced a significant influx of families from hill districts and the far-western regions of Nepal, seeking affordable housing and livelihood opportunities. As many of these new arrivals were farmers back in hills, they found an appealing option in renting farmland from our fellow landlords, who were grappling

with labor shortages in agriculture due to increased emigration of local youth to foreign countries for work or opting trade and other jobs.

In the end, this presentation and discussion shows that that the major human security threats of the smallholders of Kirtipur are; economic, legal and political, environmental and socio-cultural. The major economic threats are the rising production costs and risk of loosing price, including high land rents (NPR 20,000 per ropani annually), expensive imported (hybrid) seeds, volatile and exploitative trade structures, market manipulation by various interest groups, and threat of indebtedness. The legal and political threats include insecure land tenure due to short-term rental agreements, political dissociation, and exclusion from the decision making process in the Municipality. The political insecurity becomes further complicated as they remain in the Valley for the long period for the vegetable farming and absent to take part in the local democratic processes back in their home districts in the hills.

The ecological threats of the smallholders contend with soil degradation from intensive practices (e.g., plastic-covered farmland, over use of chemical content in soil), climate change impacts like changes in rainfall pattern and reduction in the water table of the Valley and challenges of irrigation, rising health risks from pesticide use and chemical fertilizers and others. Key socio-cultural threats embedded in the vegetable farming of the smallholders are the erosion of traditional practices, compounded by youth out-migration and the feminization of agriculture(Tamang et al., 2014). Involvement in farming is considered as an indication in the failure in other jobs and economic sectors. As one leader noted, the cultural narrative that farming is “dirty and poor” disconnects the younger generation from the land. This is a serious crisis on the value of farming and threat on smallholders' dignity which unleashed the distraction of the new generation and pushed responsibility to the female members of the family who needs to take care of the household activities.

As I already mentioned in previous chapter, there is a widely shared, public perception, reinforced by popular media, that vegetable farming is a lucrative alternative to traditional cereal crops. In contrast to this perception, the examination of the human security threats that the smallholders are confronting in the urban farming reveal a starkly different reality of the smallholders. The risks and threats like high initial investment, intensive labor, and volatile market condition rarely yield returns sufficient to cover production costs which is goes extremely high if added the non-monetary investment of the farming families. This creates a paradox where farmers are unable to abandon their ventures due to sunk financial commitments, yet they struggle to sustain operations amidst mounting pressures. While,

examination of these threats has also shown that the threats of the smallholders are structural rooted in neoliberal market policies, commodification of land, weak governance and others.

6.2 Mitigating the Human Security Threats: Navigating the Edge

Drawing on the empirical data generated during my fieldwork which included life histories, interviews, and focus group discussions, here I examine the everyday practices, adaptive tactics, and informal support systems that farmers mobilize to sustain their livelihoods and cultivate a sense of stability and hope**,** even in contexts of deep uncertainty. This analysis seeks to foreground the resilience and creativity of smallholdersas they navigate the structural constraints of urban agriculture in Kirtipur.

6.2.1 Technological Strategies

As part of my ethnographic work in Kirtipur, I observed various technological strategies that farmers have adopted to enhance their production, minimize the crop loss, and thus minimize various socio-economic and environmental threats. Some of the major technological strategies are; greenhouse construction (i.e. also called as 'plastic-house') which is widely practice all over the Valley, improvement of farm boundaries, rain water harvesting, selecting proper varieties of seed, and improvement in manure production. Here I examine how each of these strategies are applied in some specific context in Kirtipur. I have also included some cases and examples from other areas of the Valley to side the debates.

Green house construction is a significant shift in farming practices for vegetable cultivation. This innovation has emerged as a vital strategy for ensuring farm productivity and minimize the loss of the crops, particularly in response to growing environmental, economic, and market-related pressures. A key informant from Bhutkehl, aged 45, highlighted the benefits of green-house for crops such as soybeans, eggplants (brinjal), cucumbers, cabbages, and various leafy greens. Farmers take the technology of green house (plastic house for vegetable farming) as a protective barriershielding crops from environmental threats like heavy rains, fluctuating temperatures, and even pollution or contamination from nearby urban areas. They consider that this ability to create a secure micro-environment ensures not only consistent yields but also higher-quality produce, which is crucial for maintaining market competitiveness.

Another local farmer from Dhalpa reflected on the community's journey with greenhouse farming:

> The local people didn’t know about the idea of tunnel farming; we learned it from outsiders. While tunnel farming may not be a fully sustainable alternative, it works well for now. It’s currently the most important technology for vegetable farming. Demand for this method is high because it increases production significantly. Farmers are eager to grow vegetables in plastic greenhouses because this technology has made farming more productive and secure.

Vegetable production within plastic houses has proven to be more effective and reliable compared to traditional open-field farming. The controlled environment provided by greenhouses enables farmers to regulate temperature, moisture, and pest management, thereby mitigating many challenges of open-field cultivation. For instance, potato farmers noted that greenhouses stabilize temperature and moisture levels, both of which are critical for optimal growth. This practice not only boosts yields but also minimizes losses caused by pests and diseases, which are notoriously difficult to manage in open fields.

The adoption of greenhouses also addresses broader concerns about land security and the financial sustainability of small-scale farming. Farmers frequently described the investment in plastic houses as a strategic measure to safeguard their livelihoods in an unpredictable agricultural landscape. A vegetable farmer from western Nepal, now cultivating in Kirtipur's Bista Gaun, shared his perspective, "once you build the greenhouses and define the land boundaries, it gives me a clear sense of ownership over the land I cultivate. It’s like the land becomes mine in a way. And without the greenhouse, producing vegetables wouldn’t even be possible."

This sentiment highlights how greenhouses not only optimize production but also instill a sense of control and stability, which is especially valuable in uncertain environmental and socio-economic conditions. By adopting this technology, farmers secure more reliable production and enhance their resilience against the diverse environmental, social, and market challenges they face.

Overall, the transition to greenhouse farming is not merely a response to environmental and economic risks but also a reflection of farmers’ adaptability and innovation. Farmers are aware that greenhouses minimize the risk of low production while improving yields and quality. This practice represents a broader trend in which farmers

leverage modern technologies to ensure their economic and environmental security. In Kirtipur and other municipalities of the Valley, greenhouses have become indispensable for sustaining small-scale commercial vegetable farming, marking a significant departure from traditional methods while paving the way for a more secure agricultural future.

Following the greenhouse construction, I observed several methods that farmers in Kirtipur have adopted to improve the farm boundaries. Improving the boundary has multiple benefits including maintaining the flow of water in the farmland and increase production. It also help to reduce the boundary related conflicts thus leading to minimize the ecological and legal threats to some extent in addition to economic benefits. Farmers who rent land has to face various boundary related issues with the neighboring owner even though it is the issue needs to resolve between the land owners.

A farmer (36, F) responded the boundary issue in following way;

> It just the first year, all the drain from the upside of my farm entered into my plots and damaged the crops. Next year I build the wall. The owner even not paid anything. Basically it is to be done by the owner. But he did not do. Even I talked the land owner of the upside and invested myself about 60 thousand rupees. While I have not deducted it from his rent. I am paying the regularly rent as usual.

This is the issue to be resolved by the owners but they don not pay attention. As the cultivators will lose the crops with the problem of drainage, they have to take action. At that moment there is frequent dispute with another owners or cultivator. To increase productivity and minimize the boundary conflicts with the adjoining owners. A common practice is the construction of boundaries, particularly in vegetable farms. In recent years, many farmers have opted for permanent or semi-permanent boundaries made from stone-mortar structures, marking a clear shift from traditional practices.

Historically, farm boundaries were less formal. The natural terraces of the land, made from compacted mud, would naturally separate one plot from another. In some cases, farmers would enhance these separations by planting shrubs or using wooden posts and tree branches to delineate their fields. These informal and organic methods were sufficient in the past when land ownership was stable, and farming was primarily a family or community-based practice.

However, the landscape has changed significantly with the rise of leased farming and the increasing value of land. Many landowners have stopped cultivating their own plots, instead leasing them to migrant farmers. This shift in land use has necessitated more formal

and durable boundaries. The construction of permanent or semi-permanent walls helps to clearly demarcate ownership and prevent disputes between neighboring landowners and tenants, something that was less of a concern when the land was farmed by local owners themselves.

Additionally, these new structures serve practical agricultural purposes. In the context of vegetable farming, proper drainage is crucial, and the masonry walls help manage water flow, preventing soil erosion and retaining moisture in the fields. These boundaries also offer a foundation for greenhouse structures, which many farmers now use to protect their crops from adverse weather conditions and extend the growing season.

It is the concern for the vegetable farmers to reduce social tension and minimize the crop loss. It also help to control the nutrient flow and keeps the productivity of land though it is not that much supportive in the larger context. The transformation in farm boundaries reflects broader social and economic changes in Kirtipur. With the increased leasing of land, rising property values, and the shift to more intensive forms of farming like vegetable cultivation, farmers have adapted their practices. The introduction of permanent boundaries is not just about marking property lines but also about optimizing farm management, reducing conflicts, and improving agricultural productivity leading to minimize multiple security threats including socio-economic, legal and environmental.

Second technological response farmers in Kirtipur have adopted is rain water collection. During my ethnographic fieldwork in the Kathmandu Valley, I observed rainwater harvesting technologies emerging as a vital strategy to address water scarcity and environmental pressures (Figure 6.2). In Kirtipur, a hillside community with a strong tradition of small-scale vegetable farming, farmers are increasingly adopting rainwater collection methods to secure a reliable water supply, especially during the dry season.

The water harvesting method that I observed in Machhagaun, Kirtipur, is one example of how farmers are tackling water shortages. Similar methods were observed in Bhaktapur and other municipalities, including the use of plastic-lined ponds designed to collect and store rainwater during the monsoon for use in the dry season. This technology of mitigating the water scarcity provide an accessible solution for water retention and have become a key part of farmers' strategies in dozens of local families in Kirtipur. But such practice is not common among the migrant farmers.

In more extreme cases, some farmers, particularly those cultivating their own land, have invested substantial sums (ranging from 500,000 to 1,000,000 NPR) to construct

advanced rainwater harvesting systems. One farmer in Kirtipur built a reinforced concrete (RCC) water storage tank with a capacity of 20 cubic meters, a considerable financial commitment aimed at ensuring year-round water availability. This tank collects and stores rainwater, offering a critical buffer against the Valley's increasingly strained water resources.

Others smallholders have adopted alternative techniques, such as installing plastic tanks underground to minimize evaporation and optimize space use and increase the life of the tank. One farmer highlighted that the municipality provided these tanks at a subsidized rate, making them a more cost-effective and accessible option. As the farmer explained that the plastic tank is the easiest and cheapest technology to collect rainwater. They can collect rain water for the dry season without worrying about evaporation. Likewise, smallholders are using hand tractors for plough the field to mitigate the challenge of labor shortage. There is also a demand of deep boring to met the challenges of water scarcity in dry season is also going among the smallholders. Government has already installed such plant for drinking water. But for irrigation in smallholders capacity seems not possible at present (Box 6.1).

Figure 6.2

Rainwater Collection Tank in Kirtipur

Photo: Researcher (2021).

About other technologies, while discussing with the farmers individually and in group as well, I found the meticulous selection of high-quality seeds is another technological strategy as a response to threat of crop loss and low income from farm income. Farmers in Kirtipur understand that the success of their crops largely depends on the variety and quality of seeds they plant. To ensure the best possible yield, farmers constantly seek updates and advice on seed varieties from multiple sources. They consult local agricultural specialists and

government officials, who provide valuable insights into the latest seed varieties and their suitability for the local environment. Additionally, social media platforms and news reports serve as crucial channels of information, keeping farmers informed about recent developments in agriculture and varieties of crops. Being update about the seed variety has become important as they come in the different brand name from different suppliers in the market.

Box 6.1

Deep Boring for Irrigation

In the context of Kathmandu Valley, water scarcity during the dry season poses a significant challenge to vegetable farmers, particularly in peri-urban communities like Kirtipur. Adding to this challenge is the steady decline of seasonal river discharge and the depletion of groundwater levels. Farmers have observed that many traditional water wells have dried up in recent decades, further limiting access to water for irrigation. This decline in water availability is likely linked to broader environmental changes, such as urban expansion, over-extraction of groundwater, and climate change. These environmental pressures exacerbate the existing vulnerabilities faced by smallholder farmers, whose livelihoods depend on securing a stable water supply.

This situation of shortage of irrigation water has prompted some farmers to explore alternative strategies, such as the installation of deep-boring systems. However, these systems are primarily intended for drinking water, and the high costs of installation, and fulfilling legal obligations make them inaccessible to many smallholder farmers. Discussions with the smallholders in the study area revealed about their efforts for installing deep-boring systems. They consider that such a system could provide a longer-term solution to water shortages, while its implementation is beyond their capacity. Without adequate support for government agencies this can not be undertaken by the smallholders. Instead they need to abandon vegetable farming altogether if they suffer water shortage for longtime.

Farmers also benefit from informal knowledge-sharing networks that extend beyond their immediate community. This flow of information allows farmers to experiment with new seed varieties and adopt those that have proven successful in similar contexts, reflecting a broader trend of knowledge circulation in the agricultural sector. In an interview with a key informant (Kamala, 45, F.) shared her experiences about getting idea about the new varieties of seed being assured about its quality and productivity. She expressed:

> We get information about new varieties of crops from agro-vet and government officials. We also know much about it when we have farmers' visit in other districts and provinces. When we receive visitors or relatives from other districts or regions these interactions provide opportunities to exchange insights on seed quality and farming practices.

Farmers' attention to seed quality reflects their growing awareness of the risks posed by climate variability, pest outbreaks, and fluctuating market demands. By carefully selecting seed varieties that are pest-resistant and adaptable to changing weather conditions, they aim to ensure consistent yields and protect their livelihoods. This practice demonstrates their adaptive capacity in a rapidly transforming context that characterized with a weakening of the conventional kinship networks and close social ties, once central to the transmission of local farming knowledge. As these traditional structures erode, new patterns of networking and communication are emerging, illustrating how traditional agricultural knowledge is increasingly intersecting with modern innovations and techniques.

A critical technological strategy observed among farmers in Kirtipur revolves around manure production and the use of fertilizers. In the past, farmers relied predominantly on organic manure produced from their livestock, such as cattle and buffalo. This manure, derived from animal waste and farmyard residues, was an integral part of the traditional farming system and contributed to the overall sustainability of agriculture. However, as farming practices evolved and livestock ownership declined, many farmers have had to shift to purchasing chemical fertilizers and, in some cases, even organic manure.

The field study has also revealed that rising production costs, particularly due to the reliance on chemical fertilizers, have become a major concern for the farmers in the study area. While chemical fertilizers offer a quick solution to nutrient needs, they also impose a financial burden and reduces the productivity capacity of soil. A farmer (aged 51) from Salyandistrict cultivating vegetables in Kirtipur explained the reasons of starting the production of organic manure in this way:

> I knew about the problem in the soil of my farmland. When I had first time vegetable farming in Kirtipur, the soil did not have that much problem. But now the soil has lost its capacity to produce good crops. I had also used chemical fertilizer in huge quantity for vegetable production. In the last couple of years I have reduced the size of the land

and shifted from the place. Now I have kept livestock to produce my own organic and compost manure.

Recognizing the financial strain, there are other large numbers of vegetable farmers have started to reintroduce organic manure production into their farming practices. These farmers are now either keeping livestock again or sourcing organic materials from their farmland and surrounding areas to produce manure. This return to organic farming practices is not only a cost-saving measure but also an environmentally conscious response to the negative effects of chemical fertilizers, such as soil degradation and loss of biodiversity. A case of such return can be understood from the beginning of warm farming in the Valley (Box 6.2).

Box 6. 2

Worm Farming by a Leader Farmer

A leader farmer in Lalitpur (former in Kirtipur) has already begun experimenting with worm farming (its called *gadaula* in Nepali). Although her production is limited, and primarily for her own farm's use, she has also started selling organic manure to other farmers. There are smallholders come to her showing interest and buying the worm, also from Kirtipur.

This shift towards organic practices, though small in scale, reflects a growing awareness and willingness among some farmers to move towards more sustainable methods, even as the debate about the feasibility of entirely organic farming continues.

Umesh underscored the importance of sustainable practices, including the preparation of compost manure, which takes 2 to3 months to produce the manure. He stresses the need for farmers to reduce reliance on imported fertilizers and instead focus on creating manure pits locally. Umesh’s farm produces diverse crops across seasons, including tomatoes, soybeans, and cucumbers in summer and garlic, potatoes, and mushrooms in winter. Despite these efforts to diversify and mitigate risks, he remains cautious about the unpredictable nature of farming:

If some extreme cases happen, there is no one to support me. I am in the safe zone because I cultivate on my own land, but others might not be so lucky. I have seen

many farmers who have suffered severely after crop failure due to disaster or failing prices.

Umesh's experience reflected both the potential and pitfalls of vegetable farming in Kirtipur. While he benefits from owning his land and adopting diversified farming practices, he recognizes the systemic challenges that make farming a precarious livelihood for many. As a part of tackling this challenge, he has observed that farmers' renewed interest in organic manure is an important security strategy for their personal health and long-term sustainability of their farming systems. By producing organic manure locally, they reduce their dependency on external inputs and lower the production costs and reduce the economic threats. But to expand it into a larger scale with large numbers of farmers is a challenge.

Finally, in response to mounting ecological and economic pressures, smallholders in Kirtipur have adopted a range of technological strategies that reflect both adaptation and resilience in the face of uncertainty. Alongside the greenhouse construction, rain water harvesting, organic manure production and other– examined before, smallholders have introduced hybrid seeds and pest control techniques to combat emerging economic threats due to crop loss. These innovations are not merely technical fixes; they represent deliberate strategies of human security grounded in local knowledge and necessity that enable smallholders to mitigate risks, reduce dependency on volatile external inputs, and reassert control over their agricultural practices amid growing environmental, economic, and infrastructural insecurities.

6.2.2 Institutional and Empowerment Strategies

Vegetable farmers in Kirtipur have employed a diverse range of strategies to address the challenges of farming, enhance their incomes, and mitigate the socio-economic and environmental threats they face. These strategies include direct selling of vegetables to avoid intermediary costs, diversification of farming to reduce dependency on single crops, forming farmer groups to build collective resilience, and participating in micro-credit programs to access financial resources. Additionally, farmers have actively engaged in training programs and exposure visits to improve their technical knowledge and farming practices.

One of the notable strategies adopted by the vegetable farmers in Kirtipur is the direct selling of their produce to consumers. My discussion with the farmers of Lalitpur and Bhaktapur have also reveled the importance of this strategy to ensure the right price of the crops and minimize the threats of loss of the production cost of the vegetables. Through

interviews and observations, I discovered that direct selling is particularly popular among the smallholders who wish to maintain control over their profits and reduce the dependency on middlemen.

In Kirtipur, I observed various events of direct selling of the vegetables by the farmers in the local markets in Nayabazaar, Panga, Bhaktepati and Machhegaun where farmers bring their produce directly from their field to the local market (Figure 6.3). Farmers also employ door-to-door selling as part of this strategy. In Kirtipur, for instance, during lockdown, smallholding farmers visit households and local markets, ensuring that they reach consumers without the need for intermediary services. This not only secures a better price for the farmers but also builds relationships with consumers who often prefer purchasing directly from the producers for fresher and locally-grown products.

Figure 6.3

A Vegetable Selling Spotin Kirtipur

Photo: Researcher (2022).

In the context of urban agriculture in the Valley, particularly among migrant farmers, diversification of incomehas emerged as a critical survival strategy. The farmers who rely solely on vegetable farming find themselves facing numerous uncertainties, ranging from ecological threats like unpredictable weather patterns to political instability that can disrupt market access or increase production costs. These factors create a precarious environment in

which vegetable farming alone is insufficient to ensure the long-term livelihood and security of many farming households. The leader farmer also remarked:

> This reality has led farmers, especially those who are landless or leaseholders, to seek alternative sources of income as a way to mitigate risk and reduce dependence on farming. There is a widespread sentiment among migrant farmers that vegetable farming, while essential for immediate survival, is not a sustainable long-term option due to the lack of support systems, safety nets, and institutional assistance.

Another key informant (Umesh, also an ex-chairman of a farmer group) started vegetable cultivation in 2009 on his own land, transitioning to commercial farming in 2015 with the establishment of plastic tunnels for controlled cultivation. Reflecting on his experience,Umesh remarked the importance of having multiple crops in the field and integrating poultry and livestock in farming. He asserted that ″mix farming, poultry and livestock is better as it has less risk of losing the crop and getting low price for the products."He has also highlighted how diversification, which includes both vegetable and chicken farming, reduces vulnerability.

One of the key insights from my discussions with farmers in Kirtipur is the significant role of migration in the diversification of household income. Many of the migrant farming families come from rural districts in the western regions of Nepal. These families migrated to indicate that farming is perceived as a stopgap measure rather than a long-term livelihood strategy. Moreover, it demonstrates a household level individual response against the rising security threats of the smallholders.

The formation of farmer groups and the implementation of micro-credit schemes in Kirtipur illustrate how smallholders, particularly migrants, address the insecurities they face in an uncertain political ecology of the Valley. Nearly all farmers in the community are part of one or more such groups including cooperatives, vegetable farming associations, or organic farming collectives. These groups play a crucial role in fostering economic security and creating a platform for shared knowledge. A 36-year-old woman farmer from Kirtipur highlighted the significance of these groups, stating that "there are 35 members in my vegetable farming group from all different social and economic backgrounds and we are all migrant families in Kirtipur." She further explained that these groups not only provide financial security through small-scale micro-credit schemes but also create opportunities for

farmers to meet, exchange ideas, and discuss farming techniques, including information on seeds, varieties of rice, and agricultural inputs.

Micro-credit initiatives are at the core of these farmer groups' activities, allowing members to pool financial resources and access low-interest loans. Farmers deposit monthly contributions ranging from 50 to 500 rupees, a practice widely adopted across farming communities in the Valley. The pooled funds are then used to finance essential farming needs, such as seeds, fertilizers, and tools. Speaking about the importance of micro-credit, the woman farmer explained,"the major activity of these farmer groups is the facilitation of micro-credit project and the fund we get from the project allows us to purchase necessary inputs and sustain our farming operations." This financial support is especially valuable for smallholding farmers, who often lack access to formal credit systems operated as the Saving Co-operatives and banks in the Valley.

Beyond financial aid, farmer groups also invest in capacity building. They organize training sessions and occasional exposure visits to other regions, funded by the profits generated from their micro-credit schemes. These initiatives help farmers acquire new skills and gain insights into diverse farming practices, enabling them to innovate and adapt. Additionally, the sense of community fostered by these groups plays a vital role in empowering farmers. The social connections established through these organizations provide emotional support and a shared sense of purpose, which is particularly significant for the migrant farming population.

As it has already been presented in the previous chapter, there are 58 registered farmer groups in Kirtipur Municipality which includes about 1500 members. However, the total number of vegetable farmer groups in Kirtipur far exceeds official records, largely because groups formed by migrant farmers promoted by various NGOs and other stakeholders often remain unregistered due various reasons. Despite their exclusion in the local government bodies, these informal groups operate effectively and address many of the farmers' pressing needs.

The ethnographic findings from Kirtipur reveal that the collective effort of the farmer groups is an essential strategy for mitigating some of their security threats. By pooling resources (financial, through micro-credit), sharing knowledge, and fostering collaboration, these groups empower farmers to navigate challenges such as fluctuating market conditions, availability of new inputs and technology, and changing government policies. As one farmer,

in an informal discussion, rightly noted that 'these groups are not just about money, they are about helping each other so that they couldsurvive and thrive in farming.' So these observations shows that the farmers of Kirtipur demonstrate resilience and determination in sustaining their livelihoods in their own capacity amidst an increasingly unpredictable agricultural landscape.

The participation of farmers in training sessions and site visits organized by the Municipality and other organizations also emerges as a vital strategy for enhancing the sense of 'belongingness' and security among the vegetable farmers of Kirtipur. These initiatives go beyond education, serving as a platform for skill development, identity affirmation, and community building. Farmers shared that such events not only improve their technical knowledge but also elevate their confidence and prestige as essential contributors to agriculture and food security. As a farmer noted, "these programs make us realize that we are not just small farmers, we are food producers who sustain the economy and feed the cities."

The educational aspect of these programs is invaluable. Farmers who participate learn new techniques and strategies to adapt to changing market demands and agricultural challenges. For instance, they gain insights into sustainable practices, improved crop management, and emerging technologies, which help them stay competitive. By sharing these skills with their respective groups, the trained farmers contribute to the collective growth and resilience of their communities. One farmer explained, "when I return from these trainings, I feel more confident and capable. I share what I learn with my group, and together we try to improve our practices."

However, the impact of these programs extends beyond knowledge transfer. Farmers emphasized that training sessions and visits provide a unique opportunity for them to connect with peers, trainers, and experts from diverse regions. These gatherings foster a sense of companionship and mutual support among participants. Another farmer expressed, "meeting other farmers and experts during these visits reminds me that I am part of a larger community. We share our challenges and find solutions together, which makes me feel less alone."

The recognition of farmers' contributions during these events plays a crucial role in reinforcing their social and existential security. Workshops often highlight the indispensable role of farmers in sustaining not only their families but also entire communities and urban populations. Farmers find themselves and their job important as they hear from the experts and other high level people that their work is essential, not just for food, but for the entire

economy, it gives them a sense of pride in what they do.This affirmation of their identity as caretakers of the land and providers of sustenance strengthens their determination to continue farming despite numerous challenges.

In conclusion, these institutional and empowerment strategies adopted by smallholders in Kirtipur represent a vital pillar of their broader human security efforts. Training programs, exposure visits, and farmer-to-farmer interactions have become important mechanisms not only for technical skill-building but also for fostering solidarity and psychological resilience. These initiatives cultivate a sense of dignity and recognition among farmers, affirming their role as active agents rather than passive recipients in the agricultural system. The empowerment fostered through such programs extends beyond individual gains, strengthening community bonds, enabling knowledge exchange, and reinforcing a culture of mutual support. Farmers repeatedly emphasized that only fellow farmers truly understand their hardships, and that these shared platforms, such as social gatherings, workshops, and collective learning spaces, are crucial for cultivating trust and practical cooperation. These strategies are further reinforced through innovative practices like direct selling to avoid exploitative intermediaries, crop diversification to spread risk, participation in micro-credit schemes to improve financial stability, and the formation of farmer groups to build collective bargaining power. Together, these efforts reflect a dynamic and community-centered approach to resilience, one that enables farmers to navigate the uncertainties of urban agriculture with greater confidence, autonomy, and preparedness.

6.2.3 Political Strategies: A Case of "Farmers' Protest in 2018"

In their efforts to address the security threats they face, vegetable farmers have come to understand that their insecurities and challenges are deeply tied to the broader political landscape of the country as well. One of their primary concerns is the unregulated market environment, which permits unrestricted entry of suppliers from other districts and even across international borders, creating significant competition. During my discussions with smallholders of Kirtipur and other areas in the Valley and other stakeholders, they highlighted three critical issues that have left them in a vulnerable and defensive position: market imbalances, the dominance of middlemen in vegetable sales, and the challenges of exporting vegetables from the valley.

The issue of market imbalances is important because many farmers reported that vegetables were rotting in the fields due to insufficient demand and low prices, which did not even cover production costs. Another issue farmers expressed was the frustration with the

existing middleman system in vegetable trading, which they believe undermines their ability to earn a fair price. They strongly demanded the elimination of intermediaries, advocating instead for a system where they could set prices for their produce. Likewise they said that barriers to exporting their products to India, noting that customs issues frequently hindered their access to broader markets. They argued that if Nepal faced such obstacles, as a strategy of retaliation, it should also discourage vegetable imports from India to protect local farmers.

This defensive situation of the farmers of the Valley evolved into the level of protest on July 25, 2018, a leader farmer (Mr. Kamal) of Kirtipur recalled. The farmer was one of the key person to organize the protest. The main reason behind the protest was the oversupply of tomato from Indian and forcing local farmers of the Valley to sell in cheap price. The leader farmer is a foreign returnee which I have mentioned in Chapter Five while discussing about smallholders of Kirtipur. While talking about background of the protest the leader farmer reminded:

> I had realized the political situation of the vegetable farming and the condition of market soon after he started to produce the first crop from his farm in the early month of 2016. Soon after I began to coordinate with farmers fellows, conducted meetings and begun to advocate for the security of the farmers. I also coordinated with the farmers in other districts which supply highest quantity of vegetables in Kathmandu.

The protest was organized with series of other events by the smallholders. They threw tomatoes onto the streets of Kalimati, Kathmandu, symbolizing the waste and undervaluation of their hard work."During the peak of our protest, we made clear demands to the government: fair pricing for our produce, restrictions on imports, and support for exports," he recounted. These demands stemmed from Nepal's agricultural imbalance, highlighted by government data showing Rs 72 billion worth of imports compared to just Rs 12.5 billion in exports during the 2017-18 fiscal year (MoALD, 2022).

Vegetable farmers in the Kathmandu Valley, many of whom were migrants farming on rented land, organized a street protest to advocate for their rights and draw attention to their precarious situation. Faced with insecurity with sudden fall in the vegetable price due to excessive supply of tomato from India and limited government support for the farmers, a leader farmer from Kirtipur, who had been cultivating rented plots for eight years, spearheaded this movement. Reflecting on his journey, he explained, "itwas evident that

farmers were struggling individually, and no one had the time or platform to collectively fight for their rights. I felt compelled to bridge this gap."

The protest gained attention, with officials from the Kalimati Fruits and Vegetable Market Development Committee (KFVMDC) acknowledging the farmers' grievances. The then Minister for Agriculture, Land Management, and Co-operatives pledged to end exploitative middlemen practices and ensure fair compensation. Despite these assurances, the leader farmer is frustrated with the political leadership as he had several round of dialogues and discussions and no such discussions had turned into a concrete decision and plan of action.

While discussing the security threats faced by vegetable farmers in the Valley, Mrs. Sudha, the woman leader farmer, recalled the protest in Kalimati in 2018 that was significant for the farming community of the Valley. Reflecting on the event, she explained that the protest was extremely fierce. It created huge pressure on the authorities and became big news in the media. But the heat and pressure they created didn't last long. She added, "wecouldn't continue protesting for several days. We're farmers, not political leaders or cadres. We have to return to our farmland every day."

She also expressed a sense of frustration and inevitability, noting that while the protest had initially brought attention of the concerned authorities to their grievances, it failed to bring long-term change. Mrs. Sudha further remarked on the lack of sustained collective action among the smallholders:

> There hasn't been any similar protest since then. Farmers in other parts of the country are protesting for the price of sugarcane, milk, and other products, but not us vegetable farmers in the Valley. We've been having various meetings and discussions about the threats of losing fair prices for our crops, but we haven't been able to organize such a movement again.

Mrs. Sudha's reflections capture the complex dynamics of resistance and vulnerability among farmers. Both of the leader farmers (Mr. Kamal and Mrs. Sudha) highlight the unique challenges faced by vegetable farmers, who often lack the time, resources, and institutional support necessary to sustain prolonged protests. Mrs. Sudha's account also underscores the broader political and economic environment that limits farmers' capacity to collectively advocate for their rights and interests.

While evaluating the outcomes of the protest, both of the leader farmers agreed that though it did not yield immediate policy changes, highlighted the farmers' resilience and commitment to their livelihoods. The farmers' protest of 2018 underscores the potential of collective action as a strategy for enhancing farmers' sense of security. By mobilizing and demanding better policies, the farmers not only highlighted their grievances but also laid the groundwork for future advocacy and change. This event serves as a powerful reminder of the importance of political engagement in addressing systemic challenges and fostering resilience among highly insecure farming communities of Kirtipur and the entire the Valley.

6.2.4 Spiritual Strategies: A Case of "Blessing Farming"

Following the protest in Kirtipur, a significant transformation occurred in the perspective of Mr. Kamal, the same key informant (who is also the coordinator of the farmers' movement) and some of his fellow smallholders. Reflecting on his transition from farming, political activism to spiritual journey, he described it as a sureme level of personal awakening ('spiritual' in his terms) and understanding about the situation of the vegetable farmers in the Valley. Once a migrant worker abroad, the leader farmer returned to Nepal to dedicate himself to farming and the advocacy of farmers' rights. And, finally he has understood his profession differently. Now he consider farming not as an economic profession but as a 'divine job', a means to sustain the human lives on earth. In a conversation, he shared his transformative experience in this way:

> I began to see farming not just as a profession, but as a way to transform society and the nation. My advocacy, though met with limited success, gave me a deeper understanding of our collective struggles. Farming became more than profit, it became a divine responsibility.

This new perspective led him to embrace the concept of "blessing farming," an approach he first learned about from an Indian scientist through a Nepali agronomist in Kathmandu. Rooted in ancient Himalayan traditions and reinterpreted within modern scientific paradigms, blessing farming represents a holistic approach to agriculture. Mr. Kamal described the practice as one that integrates physical and spiritual well-being simultaneously. She further said, ″I see farming as a medium of spiritual awakening. It's not just about growing crops; it's about cultivating life itself. Through blessing farming, I feel a deeper connection to the earth and a greater sense of purpose in what I do."This practice transforms farming into a vocation that nurtures the body, mind, and spirit. For Mr. Kamal in

this transformative phase of his life, farming is no longer just about survival or profit, it is a way to find meaning and harmony in life.

The concept of 'blessing farming' integrates mindfulness and spirituality into daily farming routines. According to Dr. Subramanian Letchoumanane, an Indian scientist who had researched this approach for over 40 years, blessing farming involves farmers visiting their fields daily to connect with their crops through acts of blessing. During a workshop held in Kirtipur, Dr. Letchoumanane explained,"crops blessed for five minutes daily, even under reduced water supply, consistently outperformed those grown with optimal irrigation but without blessings."This method highlights the impact of spiritual practices on crop health, promoting resilience against modern agricultural challenges. In a workshop organized in Kirtipur, Dr. Letchoumanane remarked:

> By embracing blessing farming, farmers are not only improving crop health but also cultivating their own spiritual well-being. This holistic approach fosters resilience, sustainability, and a renewed sense of security, ensuring that farming remains a source of nourishment for both the land and the human spirit.

An important concern at this juncture is the farmers' interest to the scientist's experiments and his lessons on spiritual aspects of farming. To understand this phenomena of incorporating spiritual practices in farming we need to understand the farmers' culture and traditions and the values attached to the farmland and farming practices throughout the centuries in the Himalayas.

One explanation of the adoption of this practice is that theconcept of farming as a spiritual practiceis not a new to the farmers of the Valley including migrant farmers. Traditional festivals, such as the famous Machhindranath Jatra, and rituals like avoiding the use of bulls for plowing, emphasize the sacred nature of agriculture in local cultures. The Vedic texts have also viewed farming as a divine act, promoting harmony within society and the ecosystem (Pokharel & Sharma, 2017; Tripathi & Kaini, 2023). Blessing farming builds on these traditions but adapts them to modern contexts, blending ancient wisdom with scientific insights.

The practice of 'blessing farming' is not confined to Himalayan cultures too.There is a news report which highlights the similar practice among the American farmers. There is a news that reports an American community in US about the participation in blessing farms by not just farmers but also businessmen, showcasing the universal appeal of integrating

spirituality into agricultural and professional activities (Cannady, 2023). The practicenor farmers consider that blessing farming offers a multidimensional response to the insecurities faced by farmers. By fostering a spiritual connection to their crops, farmers develop a sense of purpose and resilience that extends beyond economic measures.

The practice of "blessing farming" in Kirtipur illustrates how spirituality can serve as a powerful tool for navigating the uncertainties of modern agriculture. This approach aligns farming practices with deeper values of connection and meaning, drawing upon ancient traditions while addressing contemporary challenges. For Mr. Kamal, blessing farming emerged as a response to the limitations of protests and policy advocacy in addressing the vulnerabilities of farmers. After years of mobilizing for farmers' rights and witnessing the system's failure to deliver meaningful change, he turned inward, linking his personal spiritual awakening with a communal vision for resilience and security in agriculture.Moreover, in my observations, the act of blessing fields strengthens community bonds. Workshops and collective practices around blessing farming provide platforms for farmers to share experiences, support each other, and build networks of mutual trust and collaboration.

In a theoretical context, the shift in the lead farmer’s perspective and the adoption of "blessing farming" by others in Kirtipur transcend a mere personal philosophy. This approach represents a transformative framework for addressing the uncertainties of modern agriculture. Rooted in traditional Himalayan practices, this reemergence of responsive farming embodies values of respect and reciprocity toward nature, providing a sustainable solution to the environmental and health risks threatening farmers’ livelihoods (Poudel, 2024). By integrating ecological awareness, this innovative yet tradition-based method enhances food security and resilience in rural communities. Moreover, by combining traditional knowledge with scientific approaches, "blessing farming" addresses not only the ecological and economic challenges of agriculture but also the spiritual, emotional, and existential dimensions of farmers’ lives (Box 6.3).

However, the human security strategies undertaken by the farmers were not limited within these four strategies discussed here. Neither, these strategies were highly effective to minimize the risks and uncertainties embedded in the vegetable farming of the study area. So the concern is that how do the smallholders evaluate the effectiveness of these strategies to minimize the risks and uncertainties of the vegetable farming and what about the overall human security situation for the long run. While closely observing the farmers situation and examining their perspectives on the rising risks and uncertainties in the transforming urban

context, they are certain that their profession is not going to ensure the security for the long run. Therefore, most of the smallholders interviewed and discussed as the informants of this study have taken their profession of farming as a stoppage strategy which is reflected in the experiences and expressions of the smallholders of Kirtipur. Here are few cases mentioned. Here is an example, a migrant farmer from Okhaldhunga, a eastern hill district remarked, "I am doing farming until I could do it. If I could not work in the farmland, I have to stop it and rely on my children. Now they are growing and getting better education. Once they start to have better income, I would not continue this profession."

Box 6.3

Blessing Farming Workshop

In the first part of the 3 hrs long workshop Dr. Letchoumanane, the scientist, shared his experimentation of 'blessing farming' in South India which resulted more than 100% increase of the products in some cases. There was presentation of his results. It followed with the filed visit of going into the farmland of the leader farmers nearby and finally, summing up with the questions and answers with the participants. They were very much attentive to the thoughts and experiences that the senior scientist was sharing. They did not just listen him they followed him to the field and observed how he communicated with the plants. They also tried to follow his 'chants'. He was chanting with raising his hands to the vegetable plants and reciting the chants '…you all plants in the field be blessed and grow well, grow healthy... and food us healthy food'. He moved around the field and continued to recite the chants. He was followed by all the participants. Coming back from the field Dr. Letchoumanane again sat in front of the farmers and explained that if a farmer wishes a good health and growth of crops his/her blessing could have a very high impact on the plants health and the products.

Similarly, a woman farmer (46) who migrated from Kavre 10 years ago shared her perspective:

> I grow vegetables to earn cash to support my children's education and earn for the household expenses. My husband also supports me. While m children were studying in school level they were also supporting. But now children are grown up doing university education. So they have already stopped to support in the field. Only I and

my husband need to work on the field. We will continue farming until we can work on field. But our children have already shifted their interest.

Finally, in this chapter, I have examined the human security threats of the smallholders in the context of ecological and socio-economic transformations of Nepal's agrarian landscape in Kathmandu Valley. It underscores the fact that smallholders are cultivating vegetables being situated in the social and economic margin of the capital city of the country and confronting multi-layered human security threats. However, the study shows that the smallholders are not responding these threats and insecurities being passive and waiting for any sort of miracle to happen and sudden change in their standards of living but they are constantly seeking alternatives and adopting different strategies to avoid the insecure situation sooner or later. In response to these risks and human security challenges, smallholders of Kirtipur have exhibited remarkable agency through everyday strategies. They have adopted range of technological, institutional, political and even spiritual strategies to minimize risks and the threats embedded in vegetable farming in Kirtipur in the Valley and enhance their sense of security.

Some of their major strategies include diversifying crops, negotiate collective sales with intermediaries, and seek microfinance to manage costs, institutional and empowerment strategies, maintaining social linkages with the relatives in home districts and so on. In addition, they have also adopted political strategies of advocating for their rights and giving pressures to the authorities. Furthermore, as the exemplary cases, few of the smallholders in Kirtipur have also adopted a so called "blessing farming", a model of spiritual farming which is deeply connected with the strategy to revive the cultural value of farming and the existential relevance of the smallholders who play critical role in sustaining the humanity by producing and serving food. Beside these, most of the families are spending for the better education of their children, constantly exploring opportunities for other jobs (salaried) at home and abroad and expecting to switch farming so to evade the risks and uncertainties they are facing in this profession.

Though the categories and list of the strategies that the smallholders of Kirtipur have adopted to enhance their security encompasses wide rage, there is question about their sufficiency and efficiency to minimize the risks and uncertainties. It is due to because, one the one hand these strategies remain fragmented and individualized, on the other they are constrained by a lack of systemic supporting mechanisms in place. Therefore, the findings of this chapter underscore that Kirtipur's smallholder farmers operate "on the edge" of their

livelihoods, navigating a precarious landscape where human security threats intersect across economic, political, ecological, and socio-cultural domains.

In conclusion, the smallholders of Kirtipur are not merely passive victims of structural constraints; rather, they emerge as flexible and dynamic actors who continuously explore alternative strategies to secure their livelihoods and income. Much like the Brazilian gold miners in Surinam (De Theije & Bal, 2010), who confront multiple insecurities yet convert risks into opportunities for mobility, ambition, and survival, the farmers of Kirtipur also navigate their precarious circumstances with creativity and resilience. Their engagement in vegetable farming, despite its uncertainties, reflects not only a response to immediate risks and uncertainties but also a deliberate strategy to keep open future possibilities whether through education, migration, or other forms of livelihood. Seen through the human security lens, their risk-taking is not simply a marker of insecurity but also a pathway toward security itself: a dynamic process of negotiating threats, creating opportunities, and striving for better futures amidst the shifting landscapes of urban transformation and globalized agriculture.

CHAPTER 7

TRUST ON GOVERNANCE AND HUMAN SECURITY

This chapter discusses the agrarian governance of Nepal instituted following the promulgation of the New Constitution in 2015 which was popularly charted as a manifesto of the 'New Nepal' by the ruling elites of the country. A key concern of this discussion is to examine the condition of the trust of the smallholders of Kirtipur on the governance and evaluate its influence on their human security situation which is also a part of the third objective outlined in the first chapter of this dissertation. Drawing on ethnographic insights, it foregrounds the lived experiences and perspectives of both leader farmers and other smallholders in the Municipality. It begins with an overview of Nepal's agricultural governance framework; its policies and practices across all three tiers of government, focusing on the institutional capacities and limits. Finally, it examines how much people trust on the government policies and practices and what implications do they have on smallholder's sense of security with the help of selected cases and farmers' experiences before concluding the chapter.

7.1 Agrarian Governance: In Policy

Agricultural governance of Nepal is the complex of institutions, policies, actors, and practices through which agricultural production, distribution, and rural livelihoods are regulated and shaped. It is crucial to mediate the relationships between the state, markets, nature, and farming communities. The question of agrarian governance intersects with the issues of who gains access to land, inputs, markets, and knowledge, and who bears the risks and insecurities generated by agrarian transformation. Prior to 1950, agricultural governance in Nepal was embedded within feudal land tenure systems such as Birta*,* Jagir*,* Guthi, and Kipat. Farming practices were regulated through customary norms, caste-based labor relations, and local power structures, with limited intervention from a centralized state. Agriculture during this period was socially and culturally embedded, and production was primarily oriented toward subsistence and local exchange rather than market accumulation (Regmi, 1976; Dahal, 1981).

Following the political change of 1950, Nepal adopted a planned development model in which agriculture became a central pillar of national development. The state expanded its role through land reform policies, agricultural extension services, irrigation development, cooperatives, and state-controlled input and output markets. The Land Reform Act of 1964

sought to address inequality and improve productivity, but its implementation remained partial and politically constrained. Nevertheless, this period reflected a developmentalist vision in which the state assumed responsibility for increasing agriculture production, food security and farmer welfare (Blaikie et al., 2002).

A decisive shift occurred after 1990 with the adoption of neoliberal reforms under structural adjustment programs. Agricultural governance increasingly prioritized market efficiency, privatization, and trade liberalization. The state gradually withdrew from price regulation, input supply, and marketing, creating space for private traders, agro-vets, and corporate actors. While these reforms aimed to modernize agriculture, they also exposed small-scale farmers to heightened market volatility and reduced institutional protection (Sugden et al., 2016; Adhikari, 2008).

The 2015 Constitution introduced a federal governance system, restructuring agricultural responsibilities across federal, provincial, and local governments and endorsed the specific agrarian policies in its article 51 'e'. The policies are as follows:

> (i) Introducing scientific land reform by ending dual ownership of land for the benefit of farmers. (ii) Increasing produce and productivity through land plotting and by discouraging absentee land ownership. (iii) Protecting and promoting rights and interests of peasants and utilizing the land use policy for increasing production and productivity of agriculture and for commercialization, industrialization, diversification and modernization of agriculture; (iv) Making proper utilization of land through proper regulation and management on the basis of productivity of land, its nature, and also by maintaining environmental balance, and. (v) Making arrangements for agricultural tools and an access to market with appropriate price for the produce for the farmers. CAS (2015)

Based on this new setup of the federal governance and the new constitution, the Ministry of Agriculture and Livestock Development (MoALD) formulates national policies and strategies. Provincial governments oversee implementation and coordination, while local governments are designated as frontline service providers responsible for extension, subsidies, and local agricultural planning. Despite ongoing urbanization and economic diversification, one of the key reasons to prioritize the agriculture sector in the constitution is because it plays a significant role in Nepal’s economy, employing over 50% of the population as a means of livelihoods and a major source of cash income as well as contributing approximately 24.1%

to the GDP (IBN, 2024). This dual importance, both as a livelihood and as an economic driver, places agriculture at the center of Nepal's development policies and programs.

Currently, the Agriculture Development Strategy (ADS) 2015–2035is the flagship policy and programs of Nepal's agricultural sector at the federal level. Building upon the earlier Agriculture Perspective Plan (1995-2015)**,** the ADS seeks to promote a shift from subsistence to commercial farming by emphasizing productivity, commercialization, and value chain integration. It proposes a holistic approach that encompasses not only production, but also post-harvest processing, storage, transportation, financing, and marketing, essentially acknowledging agriculture as a system embedded in broader economic and social structures. Notably, the ADS underscores the importance of research, education, and extension services (the so-called "knowledge triangle")as key levers for transformation. It also calls for increased investment, recommending NPR 50 billion annually for a decade, with active participation from the private sector and international development partners.

A common criticism to the overall governance of the Nepali state is applicable in the agriculture sector as well. The overall agriculture governance of Nepal that constitutes formal structures, policies and institutional arrangements are highly standard on papers and academic and policy debates. But, how far these arrangements are for the smallholders and country's agriculture growth and its sustainability is crucial. In this regard, to understand the governance in its actual sense needs to engage with the actors in the frontline and examine how such arrangements are experienced, negotiated, and contested in everyday practice**.** The following section of this chapter is focused on this aspect of agriculture governance in the context of the study area of this research project.

7.2 Agrarian Governance: In Praxis

The extent of the agrarian governance of Kirtipur, does not limit with the jurisdiction of Kirtipur Municipality. Therefore, I also inquired about the national level programs and projects and discussed with the officials and stakeholders both in federal and provincial levels as well. To examine how agricultural governance operates in relation to smallholders of Kirtipur, I had also consulted local government representatives, agricultural extension officials at municipal, provincial, and federal levels, researchers, policymakers, and NGO practitioners engaged in the agricultural sector to understand the extent of the governance and its impacts on the smallholders of the study area.

7.2.1 Federal Level

My consultation to understand the agriculture policies started in the beginning of the year 2022 from Singha Durbar, the administrative center of the government of Nepal. I went to the Ministry of Agriculture and Livestock Development (MoALD) and introduced myself as a researcher with an agriculture officer at the Ministry who was working in the planning section. In my semi-formal interview, the informant highlighted about the operation of the agriculture programs and projects in the country and role of the state bodies within the agriculture sector.

He explained, federal government formulate policies; for e.g., some of the latest policies are agriculture insurance, minimum fixed price of the crops, collaborating to import chemical fertilizers, agriculture research and others. Likewise, it also prioritizes to implement large scale projects such as supporting agriculture modernization project, building road (i.e. agriculture road), large scale irrigation projects, and others. While other small projects are handed to implement by the provincial and local level governments. He explained that the ministry primarily acts as a coordinating body, rather than as an implementing or enforcing agency between various stakeholders; government, non-government agencies, private sector and market. Among them, he added the private agro-suppliers and traders have turned as detrimental as the government policies are more focused on trade and business.

In the discussion, the officer also revealed that the other players of the agriculture sectors are research institutions, political leaders and the farmers' associations while the government authorities can influencewith little regulatory oversight to ensure accountability or to ensure farmer protection. At that moment, I also inquired about the controversial case of *Garima* paddy, a seed variety that failed to bear grain in 2019 (the case I have also mentioned in the first Chapter of this dissertation), resulting in major losses for many farmers. The officer candidly responded that there had been no official follow-up on the seed suppliers and no compensation provided to affected farmers until that date.

He further reflected that decisions in the agriculture sector of the country are rarely made with farmer security as a central concern**.** Rather, discussions in the central level were dominated by budget constraints and the logistical challenges of importing essential inputs such as chemical fertilizers and seeds. While the ministry did play a leading role in policy formation**,** he admitted that when it was to have actual implementation, especially in

enhancing local production, protecting smallholders, or advancing sustainable farming practices, the government lacks sufficient institutional capacity and political will.

I had a similar reflection from an agriculture consultant working in a private group that experiments the innovative models in Nepal's agriculture in collaboration with ADB and other international research groups. He shared that he had went to the government agencies with a plan to have self sufficiency on a vegetable crop for the country. Having consultations with large numbers of high level officials in the agriculture ministry, finally he got an opportunity to share his idea to the Prime-Minister. Following his presentation, the Prime-minister appreciated his idea and directed to see the possibilities to execute it. While, after ending the meeting the high-level officials said to that they could not undertake that project because that would reduce the country revenues generated from importing from the other country. He worried:

> Look this is the condition of our bureaucrats. In the following meeting, I reminded to the Prime-minister. At this time also he praised the idea but indicated to the bureaucracy who does not like to undertake this project. So, see what our leaders and the bureaucracy is doing and for whom they are working. I know when they got my idea there were parties who were not happy and they could easily manipulate the officials in the power. So I do not see we could make a big difference in the present setup of governance.

Another notable event that I participated was a national Seminar in NARC, Lalitpur during my field work in the Valley. It turned immensely helped me to shape my understanding about country's agriculture governance and it implications on the farmers' security and increasing agriculture production of the country. There were over 40 scientists gathered working on various government bodies over the country and also scientists from agriculture colleges and professors in the seminar. It was two days event and I attended the event as a participant observer for the first day only taking part in technical presentations and panel discussions, primarily focused on the genetic and morphological improvements in crop varieties, pest and disease control strategies, and the required inputs for maximizing yields.

The early presentations of the conference could sense a heavy emphasis ontechnical fixes**:** high-yielding varieties to counter drought, hybrid seeds to resist disease, and new irrigation models to improve output. Branding of newly "invented" varieties, discussions of productivity comparisons with traditional cultivars, and optimal manure usage were recurrent

themes. Other researchers showcased technological innovations such as value addition methods, from producing potato chips to packaging aromatic rice, to appeal to market demands.

A more grounded intervention came from a field scientist from Lamjung, whose decade-long observations exposed deeper contradictions. Despite increased productivity in some hill villages, local food cultures were deteriorating, and imported factory-made foods (sfor e.g., noodles, processed rice and others) had replaced homegrown staples. His plea among the participants was less about research and more about political will and institutional courage. He further stated:

> We are focused in increasing the quantity and quality of production. But these are not only the issues we need to focus. We should focus on how the food culture in society and among the new generation of the country has changed. People are eating more and more factory processed and imported food. They have less attraction to the foods that we focus in our research. Our solutions prescribed based on our results from the farmers' field and experimental plots or lab are not sufficient to tackle the emerging new situation; the transformation in food culture, nor we are able to minimize the food import. How the institutions like NARC could play a policy advocacy role, especially to regulate excessive imports and preserve the integrity of the local food system.

The panel also opened up discussion on land fragmentation, a topic that stirred emotional and critical responses. Senior scientist Prof. Dr. Durgamani Gautam stressed:

> Land is now less an agricultural asset and more a real estate commodity. People buy land at outrageous prices without any plan for cultivation. Profit is made in transactions, not in production. We have minimum role to play in this issue. The right agency is the provincial and local governments in designing effective implementation of the land use policies. Without strong policy frameworks and local enforcement, the commodification of land can not be halted.

The discussion on the limitations of the research institution like NARC and poor performance of the agriculture governance was discussed by citing the case of the farmers' protest in Terai for the fair price of sugarcane. “If the government cannot guarantee timely payment, why would any young person return to agriculture?” Dr. Gautam asked. One striking admission came toward the end by a key speaker that NARC was doing piecemeal

research, it was all they could do then. This somber reflection captured the institutional limitations which includes underfunding, lack of coordination with local farmers and governments, and the absence of a clear farmer-centered research agenda. The seminar underscored that scientific research without a strong policy interface and farmer inclusion risks becoming irrelevant.

7.2.2 Provincial Level

In the agricultural sector, each province now operates its own institutions to design and implement development programs. In Bagmati Province, for instance, which includes the Kathmandu Valley, the KGK in Lalitpur serves as the key provincial agency under the Ministry of Agriculture. The KGK oversees agricultural programs across the three districts of the Valley (Kathmandu, Lalitpur, and Bhaktapur) and coordinates its efforts with local municipal governments. It also monitors selected federal agricultural initiatives operating within the province. I visited the KGK, Lalitpur and conducted in-depth interviews and group discussions to understand the situation the translation of policies into the programs and actions in the farm plots of the smallholders.

As a default process, agricultural planning in the provincial government begins at the ward level within each municipality which is also a part of the planning process of the both other tires of governments. Stakeholders including farmers, elected representatives, and technical staff, participate in consultations to identify local priorities. Based on these consultations, municipalities prepare annual and periodic plans, which are then submitted to the provincial authorities for support, particularly for larger-scale projects. In theory, the KGK also integrates insights from previous experiences, political consultations, and research findings to formulate its broader agricultural programs.

A discussion with the officials of KGK reveals that there is very limited impact of the formal programs and support for the smallholders and "genuine" farmers in the Valley. The officials reflected in an informal discussion that the formal process that farmer has to follow to get any government support is too much complicated. They require large numbers of document and follow a long process which is beyond the understanding and access of the majority of the smallholders of the Valley in general and of Kirtipur in Specific.

Most of the vegetable farmers of the study site sell vegetables to the collectors and only very few of them sell in local market and go to Kathmandu downtown (in Balkhu) on their own. While getting involved both in production and selling takes most of their time and

they consider to follow government is the total waste of time, the officials added. There is a common understand among the farmers of the Valley that that the government support is only for the local *tathabatha*[3] and politically motivated 'fake'[4] farmers which the local smallholders often mentioned as *jhole* farmers as well.

A retired agriculture officer recalled the process of getting support from the agencies by the smallholders. In his experience the process of supporting the farmers by the agencies extremely complex, process oriented and painful from their perspectives. He explained;

> For instance if such real farmer has to approach for the government subsidies of 50,000 to construct well, a government official estimated that the farmer has to visit office at least 7 times. He may have to give at least 14 working days which is hardly possible for him. And the amount finally they receive will not be hundred percent as there are tax deduction and on the other hand the subsidy is only a small portion of the total cost require to construct well.

Despite the intent to decentralize and improve service delivery through institutions like the KGK, the smallholders often find it more difficult to access support. Rather than experiencing improved services, these farmers who are mostly migrants and tenants, face increasing bureaucratic hurdles. The KGK requires detailed paperwork and formal proposals from farmers seeking project support, making the process burdensome for those with limited administrative capacity. Moreover, the technical and financial capacity of KGK appears not significantly different from that of the former district-level agricultural offices.

My interviews and observations with the staffs of KGK Lalitpur revealed that due to high demand for limited resources, project selection undergoes multiple layers of evaluation. However, as noted by both agriculture officials and smallholder farmers, local political figures and NGO-affiliated leaders are increasingly dominating the project landscape. An official explained:

> Either they introduce themselves as the leader of a political party at the local level or they come with the phone call from a leader of their constituencies. It puts us in a difficult position. We can not ignore when the leader give pressure to our chief of the

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[3] *Tathabatha* is a Nepali vernacular word meaning a cleaver person in community who could make people in power in his favour to ensure economic and political benefits.

[4] The smallholders in the study area identify some of the people as *'jhole'* farmers that means the smart to produce documents for government authorities to draw subsidies and soft loan and no directly involve in farming.

office. This often causes to steer programs to align with their interests, sidelining the needs of genuine smallholders.

This has led to the emergence of what many described as a new class of fake farmers or pseudo-farmers. These so-called farmers are those individuals who may or may not be actively engaged in cultivation but are skilled at navigating the system and handling the paper works to access government subsidies, loans, and other benefits allocated by the authorities in the name of farmers. On the contrary, this rampant practice and domination of the "fake" farmers in the government offices have heavily discouraged the spirit and motivation of the smallholders who are grounded on the field and caring of the crops.

7.2.3 Local Level

To understand how agricultural governance operates at the grassroots, I consulted with officials from the local municipality, including those working in agriculture-related departments and sectors. In Kirtipur Municipality, as in other local governments, there is a dedicated Agriculture Section within the municipal structure, staffed by agronomists and other support personnel. This office is responsible for formulating and executing the municipality's annual agricultural plans.

As mentioned before, the planning process begins with the preparation of the annual agricultural program, drafted by technical officers. As a part of the formal process of planning, the officials calls several rounds of meetings with the leader farmers and other stakeholders working in agriculture sector in the Municipality. Based on the farmers' demand and stakeholders suggestions, they finalize the draft and submitted first to the executive board of the municipality. Upon review, the proposal (including associated budgets) is forwarded to the municipality council for final approval. Notably, this process is intended to be participatory. Each ward office, composed of five elected members led by a ward chairperson and supported by administrative staff, plays an instrumental role in this process. These ward offices function as the closest and most immediate interface between the local government and the smallholder farmers, particularly those engaged in vegetable farming.

One distinctive feature of the local governance model is its closeness to the community and farming families. Because of this reason, agricultural officials at the municipal level tend to have an intimate understanding of local land use patterns, production systems, market access issues, and pricing dynamics. This proximity allows for more frequent and informal encounters between officials and farmers, unlike at the provincial or

federal levels, where geographic differences and bureaucratic distance often limits such interactions.

Following the discussion with an agriculture officer of Kirtipur Municipality, I knew that the latest meeting of the Kirtipur Municipality Council, the apex body of the municipality that formulates policies and programs, held in the early quarter of 2020 which outlined a series of strategic policies and programs aimed at enhancing agricultural development, with particular focus on modernizing vegetable farming practices[5]. These initiatives reflect the local government's priorities and offer a window into the socio-economic landscape of vegetable farming in Kirtipur, especially in light of the challenges posed by urbanization, migration, and environmental risks.

One of the key objectives set by the council was the modernization and efficient management of irrigation systems to support agriculture. This initiative addresses a critical need for vegetable farmers in Kirtipur, where access to reliable water sources is essential for sustaining year-round cultivation. By implementing better irrigation systems (though deep-boring and improvement in the traditional ponds and water sources) the municipality aimed to optimize water use and increase productivity for local farmers, helping them maintain stable yields despite the changing climate. The municipality had also prioritized reclaiming fallow land and expanding agricultural areas, signaling an effort to make more land available for cultivation. For vegetable farmers, this expansion was vital as it opens up new opportunities to grow diverse crops, allowing them to meet the increasing demands of the urban market and enhance their livelihoods. With more arable land available, farmers could diversify their production and adopt new farming practices that align with modern agricultural trends.

Post-harvest management and food security were also high on the agenda. The municipality recognized the importance of addressing post-harvest losses, which was a common challenge for vegetable farmers, especially during peak production seasons. By providing support for storage facilities and encouraging better post-harvest practices, Kirtipur aimed to reduce food waste and ensure that farmers could capitalize on surplus production, ultimately improving their income. In addition to these practical measures, the council emphasized the promotion of local agricultural products. Soil and water conservation programs were another crucial component of the municipality’s policy framework. Moreover,

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[5] Source website: https://kirtipurmun.gov.np/ne/node/3

the council had also prioritized on disaster risk management, farmers' training and awareness program aimed at improving their knowledge of modern agricultural practices. Support for farmer cooperatives was another significant feature of the 2020 policy agenda of the municipality. By promoting cooperative farming, the municipality hoped to foster a sense of collective effort among farmers, enabling them to share resources and knowledge.

A discussion with a Ward Chairman of study site shared his experiences about the process that his municipality followed to execute the agriculture/vegetable farming projects. He said there was a agriculture committee in municipality that finalize the support to the specific farmer/farmers for specific project. According to the Chairman:

> Following the policies and annual plan of the municipality the ward office of each municipality monitors the situation of the agriculture in the ward and the agriculture project going on in its jurisdiction. Ward office recommend farmer groups for the new projects and it monitors the project performance. It monitors the project supported by Municipality and other governments. There are only three agriculture technicians in the Municipality. But they are doing good job even though the number of staff is limited.

The Chairman also shared his experiences about limitation of the municipality not just his own but in general. He indicated various limitations and challenges to allocate sufficient amount of budget in agriculture and vegetable farming. He further shared his experiences:

> The priorities of each of the municipality of Kathmandu are not similar. Most of them have high priority on infrastructural development while others have on sanitation and traffic control. Most of the municipalities in the valley -except Kathmandu and Lalitpur Metropolitan Cities- still have high priority on road and culvert construction, drainage and flood control to ensure the personal security of the people and other construction projects and charitable activities. Few of them have priorities on agricultural development but most of them suffer from the lack of the sufficient budget and proper implementation of the prioritized projects. Major support of the municipalities are on subsidies on purchasing farm inputs, providing trainings and workshops to the farmers and to some extent financial support in case of emergencies. But all the municipalities suffer limited numbers of technicians as well.

At the recent years, there was high demand of plastic tunnel, so the local municipality was providing plastic for off-season vegetable production. In some other Municipalities of

the Valley, they were supporting plastic for water harvesting pond construction. In a community under study, the Municipality had conducted programs such as soil improvement training, *goth*(cowshed) improvement, and various trainings on farming and group mobilization in these three years between 2018 to 2021. It had also distributed sprier (85% subsidy) and tractor (70-100% subsidy) to the farmer groups in Kirtipur.

However, while discussing with the local farmers, it is revealed that they are not much concern about what their political leaders in the Municipality do in paper. For them, it is important to translate such decisions and policies in their everyday situation. A leader farmer reflected about policies that:

> I am not much optimistic about these decisions and policies. The policies are always good, ...they have well-structured policies and programs, but when the question of implementation comes on the ground often they face substantial challenges. My experiences over a decade with central and local government authorities and other non-government agencies suggest there is a huge gap between policy and practice.

In a key informant interview with another leader farmer expressed that had been connected to peer farmers across Municipality and often attend planning meetings, relay field-level concerns, and negotiate for support such as subsidies or compensation during crop loss. While, in his experiences such engagements were important in bringing farmers' voices to local authorities, but there was no such strategies with the authorities to address the farmers' genuine concerns. He had observed that much of the government's programming was rigidly bound to pre-scheduled annual calendars, leaving little room for flexible or adaptive responses to urgent needs or seasonal uncertainties that further increases the insecurities of the farmers.

Overall, the Kirtipur Municipality Council's policies from 2020 reflect a comprehensive approach to addressing the challenges and opportunities faced by vegetable farmers in the region. By focusing on infrastructure improvement, market access, risk management, and capacity building, the municipality laid the groundwork for a more resilient and productive agricultural sector. These initiatives demonstrate the local government's commitment to supporting the farming community amidst broader socio-political and environmental changes, highlighting the importance of vegetable farming in Kirtipur's economic and cultural fabric. However, while indicating towards the implementation of such plans and programs, the officials of the municipality shared a common experience that there

was always high demand from the farmers and low budget allocated by the municipalities. So they were not able to meet the farmers' demands.

The ethnographic materials presented in this section do not claim to capture the full scope of the limitations and structural weaknesses embedded within Nepal's agrarian governance system, nor do they seek to provide a comprehensive assessment of smallholders' experiences across all contexts. However, these cases are analytically sufficient to reveal the central tendencies, recurring gaps, and systemic shortcomings in the governance framework as encountered by small-scale vegetable farmers in Kirtipur. Through farmers' everyday interactions with state institutions and market actors, the ethnography highlights how governance is unevenly implemented, selectively responsive, and often misaligned with the lived realities and security concerns of smallholders.

My observation of the national seminar shows that there are genuine scientific engagements at some level and in some sector in the country's agriculture, while there is also a glaring disconnectionfrom the everyday struggles of smallholder farmers. There was minimal reference to how these innovations intersect with changing ground realities—tenure insecurity, fluctuating markets, lack of access to subsidies, or the structural limitations posed by fragmented landholdings and market domination by intermediaries. Likewise, the insight form the KII with the officer in Singha Durbar pointed to a critical disjuncture between policy intentions and on-the-ground realities, leaving smallholders vulnerable as the priorities are not directed to minimize the risks and uncertainties associated with the smallholders.

It is similar in the case of the national policies. As an example, although the ADS promises integration of small-scale farmers into competitive value chains, on-the-ground realities often show the opposite. Smallholders, who constitute the majority of Nepal's farming population, continue to face significant barriers: insecure land tenure, limited access to irrigation and credit, and weak linkages to market infrastructures (Sunam & McCarthy, 2015). Additionally, policy support tends to favor larger, more visible agro-enterprises, often bypassing the very smallholders and other farmers that policies claim to empower (Roka, 2017). The land use dynamics further complicate governance. With only about 21% of Nepal's land classified as cultivated and just 58% of that irrigated, effective land use policies are essential for enhancing agricultural productivity (NIB, 2024). The Constitution of Nepal has mandated efficient land utilization, yet rapid urban expansion, coupled with weak enforcement of land use regulations, has led to the conversion of fertile farmland into urban infrastructure, particularly in peri-urban areas like the Kathmandu Valley.

Likewise, the discussion on the agriculture governance at the local level in Kirtipur Municipality shows that there is a clear gap between the priority on policies and decisions of the local authorities. The most important point to note is that the Municipality has disdain itself to identify the area of farmland within the municipality boundary itself. That means all the land within the municipality is settlement area. This does not mean to stop farming but to have less focus on farming and producing crops in the conventional farmland as well. But, the smallholders of the municipality still keeps to ask economic and administrative support for the farming and other agricultural projects. This is a clear gap in the policy and practice and de-prioritization of the farming. The main reason of having no or less priority is because municipality could raise more direct revenue from the construction of building and renting the houses than from farming. This has created a new tension between the municipal official itself and causing to fail the agriculture projects targeted to the smallholders.

It also shows that the local leadership is shifting priorities from agriculture to various other construction project which require high budget and driven by the short term popularity. Furthermore, examination of the process of selection and approval of the projects in agriculture sector shows that the selected projects are highly superficial and symbolic rather to bring any transformation in the existing farming system. Ultimately what it appears is that the leadership and the officials shoulder everything on market and just do not want to intervene whatever goes between smallholders and private agencies in agriculture. They do not want to risk their position and favor smallholders take any risk on agriculture and the consequences are that the risks of the smallholders are rising.

This examination has also shown that governance frameworks like the Agriculture Development Strategy (ADS) and Government's annual policy and programs present a comprehensive vision and a long list of commitments on paper and in the political talks of the leaders. There are various institutions beside the government bodies; such as research institutions, private stakeholders and other stakeholders to watch the rights and demands of the smallholders. Various research on this farming sectors are also going on in various levels. The planning process itself is very clear and followed the bottom-up approach at least until preparing the plans and policies. While the findings on this aspect from the perspective of smallholders and others exposes various shortcomings on the institutional performance of the agriculture governance of the country and particularly in the case of Kirtipur as well which I have presented and discussed in the following section.

7.3. Agrarian Governance on Human Security: Farmers' Perceptions

In the preceding section, I examined agrarian governance primarily through policy frameworks, institutional arrangements, and the perspectives of government officials, political leaders, and development actors. While these accounts reveal how agricultural governance is designed and justified at the institutional level, they offer only a partial view of how governance operates in practice. In this section, I shift the analytical focus to farmers' encounters with the state, presenting ethnographic cases drawn from smallholders' lived experiences and everyday interactions with government agencies. These narratives serve as testimonies of farmers' subjective perceptions of agricultural governance, highlighting how policies and programs, such as capacity-building trainings, agricultural insurance schemes, and market interventions, are received, negotiated, and often contested on the ground. Through these accounts, the section reveals a shared set of concerns among smallholding vegetable farmers of Kirtipur regarding the limited effectiveness of state interventions, the declining social recognition of farming as a profession, and the ways in which existing policies contribute to, rather than alleviate, their sense of insecurity.

7.3.1 Smallholders View on Authorities

There are various stories in relation to failure of the agriculture governance I have noted from my informants during the fieldwork in Kirtipur. My discussion with a key informant (42/M), a leader of the farmer group, was even clearer picture about the threats of economic loss of the vegetable farmers in the Valley. After the first round of discussion I talked to him about my interest to understand the situation from other farmers' perspectives. I asked him to provide me details of other farmers to who I could discusses on the issues. Based on his recommendation I followed two other farmers and conducted total four round of discussions with them.

While discussion about the failure of government projects, a key informant expressed his evaluation of the conventional training events organized for the farmers in Kirtipur. He expressed the uselessness of some of the government programs and just a total water of resources. As a case of he explained:

> Training sessions are useless. The agriculture training currently running for farmers are no more necessary because they are not really meant to transfer any knowledge and new technology. They are just to show the government's progress on trained farmers number. It is a means to expense state's resources. A fair and sincere effort has not been done to revise the training content. If something has to do it must be

> done on field not in paper but the farmers are taken to training halls and given copies and pens. It is just useless. It is just to show progress on paper. It is also another model of showing progress in paper.

A similar experience and observation shared by another informant cultivating vegetables in Kirtipur since last one decades migrated from Nuwakot. He shared as follows:

> Government policies on subsidizing and providing support to the farmers are not such effective. They are just benefiting the agriculture brokers and jhole members of the political parties who are pseudo-farmers. The agriculture brokers are those who are clustered around the various organizations/NGOs and other policy related organizations in relation to agriculture. They know how to write proposals and prepare financial reports but do not do any agriculture activities and operate firm. Instead they take benefits from the government by showing other's firm as their own. I believe that what government do is based on the suggestion and advice of those pseudo-farmers. It maybe a reason that in most cases they produces shallow policies and programs and fake reports.

There are different support packages from the government of different tires to the vegetable farmers in the study area. The federal government programs that supported few of the farmers in the district are *Yuva Swarojgar Karekram* (Youth Self-employment Program) and *Pradhanmantri Krishi Aadhunikikaran Pariyojana* (Prime Minister Agro-modernization Project). Another debated policy provision of the federal government was insurance policy of vegetable crops.

The discussion revealed that these supports and projects are mainly targeted for large scale vegetable producers, having several tunnels or green houses who can produce large quantity of off-season vegetables. There is also a problem in the government support as it is mostly drives to party cadres or *tathabatha*. And the irony is that most of these *tathabatha* farmers are not real farmers. They are smarter to prepare business plan of vegetable farming that is essential for getting government support but in many cases they do not involve directly in farming. They do have group or a network which they utilize to drive the government support.

The FGD with local farmers has also revealed about this issue. In their experiences only the *tathabatha* farmers could get such support from the government agencies. The farmers who do not have enough political network could not influence the government

personnel and fulfill the required process. The interviews and discussion with the government personnel in KGK also accepted this condition that the most of the government sponsored projects and supports from the Center and other government agencies are diverted to the *tathabatha* leader farmers or community leaders.

There is a similar experience of the execution of the insurance policy. Farmers could hardly get the insurance amount even if that is mentioned and announced by the government:

> I had taken a insurance policy of 2 ropani land. There was another farmer who had taken a policy of 10 ropani land. In the year, there was lockdown all of a sudden. So, we could not sell vegetables properly. I had planted different varieties of vegetables. I did manage to sell and covered the part of my cost for the production. But one of my friend who had produced mushroom could not sell. He lost almost 1.7 million rupees on the year. We went to the company to claim for the insurance. In the beginning they were not ready to pay. We gave pressure from different political and administrative agencies. Then the agency gave only 27 thousand for each of us. It was quite small amount. I did not follow later. But my friend did. Later, the agency paid him only 2 lakhs which is only the 20% of his total cost of production.

Another interview with a leader farmer who had worked in vegetable farm in Kirtipur few years before shared her experiences. In her observation the government subsidies do not go to the real or needy farmer yet. The officials mostly concentrate on paper work. They like to see good documentation to provide subsidies and support for the farmers which could only be done by the politically motivatedfarmers. No real farmers in the present context dear to prepare such documents. Farming is not a paper work for the farmers. Doing paper work is mostly no work for them in relation to the smallholding cultivation.

They consider vegetable farming is highly sensitive to micro climate and various other factors. Farmers are highly sensitive to such issues likewise the issue of seed quality, pest and diseases are on the farmers' priority. But preparing a better proposal with 'fake details' and drawing money from authorities and donors is something unethical for them. While government agencies do not consider farmers experiences, their ethical commitments and knowledge about local context. Due to this reason the subsidies and support are going to the fake farmers.

Agriculture official must be in every ward. They must visit the farm and keep record. In this ways the subsidies should be provided to the real farmers. She shared her experience about the fake farmers in this way:

> There are different farmers groups and registered firm that I know which are only on paper. They have various objectives about vegetable production, marketing and so on. But they are just to show. In behind, all of them are formed just grab subsidies or services provided the government. Once they get the government facilities they just forget what they have to accomplish.

The impression and experience of ineffectiveness is not only the experience migrant farmers. It is equally relevant in the case of the local Newar farmers of the valley who cultivate vegetables in their own farmlands.

Farmers see it is necessary to have regular visit of the government agriculture workers. They are not fully aware and educated about the proper use of chemical fertilizer and pesticides and techniques of planting new/hybrid varieties of crops. A discussion with a farmer group in the study area revealed that farmers expect to have agriculture extension workers whenever there is new pests or any new disease on their farmlands. There must be an expert while using such inputs. They consider this is the proper way and time to deliver right information and skills to the farmers. But no such practices are in existence.

The government bodies have their annual plan and based on the plan they support farmers/farmer groups. Local bodies are busy to execute their annual plan rather to see the new changes and demands from the farmers. By the end of the year, famers listen or know about the progress of the annual plan of the municipality but they do not see any progress and visible support and impact in their farmland. For them this practice is just a 'paper work' which alone they do not consider has any real effect on the farmland and farmers' security.

Farmers are also aware about the three tires of government formed after the promulgation of the new constitution of 2015; local, provincial and federal. There are various projects and programs from each of the government. However, there is a lack of serious effort to enhance the land productivity and capacity of the small holding farmers who produces the largest proportion of the vegetables and other crops in the country.

Discussions with local agricultural staffs in the municipalities revealed significant changes in approaches and mechanisms to support local farmers following the new constitution of 2015, which federalized the country and divided government roles and

responsibilities among different tiers. They expressed skepticism about the provincial and federal governments, noting that their programs often were duplicated those of the local government without providing additional support. They also highlighted that no government had implemented an effective insurance policy for vegetable farmers to cover losses due to climatic or technical threats. Meanwhile, the number of farmers seeking government subsidies on various agricultural inputs and security from threats continued to rise. They reflected the governance practice:

> There was an initiative by farmers to supply vegetables from the communities to the market, supported by the Market Service Department, which provided 100,000 rupees, digital crates, a bicycle, a tractor (50% subsidy), and a pump set (50% subsidy). While the tools and equipment were helpful, the supply chain for vegetable products to the market remained unchanged. For farmers, this support from the department was beneficial for immediate gains, but their long-term concern was focused on market infrastructure and access. The department failed to play an effective role in addressing these strategic demands.

Discussions with farmers reveal that they do not receive timely information about government support. Many are unaware of how the government can assist them. Some assume that to receive support from provincial and federal governments, they must register their farm with the tax office and pay annual taxes. This requirement is seen as discouraging due to the difficulties in maintaining farm records, consulting auditors for audit reports, and regularly visiting the tax office. Sharing his experience and observations on the implementation of the Prime Minister Agriculture project, a leader farmer said:

> The PM agriculture project has not had a good impact. It has become a medium to channel government money to local political leaders. Government work with farmers is extremely frustrating and impractical. Government agencies ask individual farmers to submit proposals, but how can a general farmer develop a standard proposal and submit it to government authorities? It should be the government's responsibility to visit every farm and household and provide detailed prescriptions on what needs to be done. This oversight represents disconnect between the state and the farmers. Farmers have to approach the government, which is extremely difficult for vegetable farmers in Kathmandu.

Another informal discussion with an agronomist who worked for three decades in government revealed several lacking in agriculture policies of the country. He assumed that the local context and the international both have changed but policies are not compatible and country is importing more and more food every year. His expression in his own words:In his words:

> There is change in the definition of farmer, the farming practices and the whole distribution pattern has gone disruption. Now the agronomists are no more working closely with farmers. They do not know personally who is farmer. They just engage with groups, cooperatives and leader farmers. And their responsibilities are limited for much more paper work. Such as to evaluate the farmers' proposal, prepare agreement papers, filling the monitoring form and preparing final reports based on the records available from local government authorities and farmers networks. The consequence is that there is no support for the real farmers and we are not able to produce the food we need.

He was talking about the changing policies following the new governance structure instituted with the federalization of the country. He consider that this approach is not taking the agriculture to the right direction. It will ultimately end the true farmers and the whole country's food dependency will even go up. This is a very serious political concern as well.

The increasing import and the policy level debates time and again prove that the contemporary trend of infrastructure development and government priorities are directly related to promote import rather than to produce our own goods and export in the international markets (MoALD, 2022). The development priorities that the government has placed on road and electricity has failed to give result in agriculture production and increasing our access to the markets (Jha et al., 2021). This lesson should be considered seriously in agriculture planning of the country. There was expectation that with decade long war and the changes the country' politics the situation would change and the future of the farmer would be secure. But farmers are very desperate that it does not happen. All parties and leaders are just saying in words about agriculture promotion and transformation. They prepare policies and plans just to show to the foreigners to draw loans and assistance. There is no such vision for the long-term and sustainable development of the agriculture development of the country. And they also lack strong political will. The leaders are like fake and futile. A leader farmer, a former Maoist leader shared her experience:

> We had expectation and optimism with the Maoist leadership they were in war. They had full trust to their leaders but with the ending of the war when the leaders just attracted to the power they forget what they had promised. Farmers have a strong belief that the country has to prioritize agriculture on the top and it produce food it requires one or other day. There is no better alternative for Nepal than agriculture.

He further elaborated and gave an example how a government project of agriculture modernization failed:

> We must have land use plan. Along this, we need land capability and land suitability plan then only we could formulate a wider level polices on agriculture production. It is the consequence of this lacking that these called prime-minister agriculture modernization project has also gone failed. A reason of the failure of the project is the preoccupied mind the agronomist who do not know the ground reality. There was a case that under the project government had supported for Banana plantation while it was the paddy land and it was giving best yield. This is the situation of our country and the government policies and execution. How come this be successful by replacing best rice field by banana?

The farmers in Nepal are very much influenced by and inclined to political parties. They put party on the top instead of their farming profession. They are not equally concern to the farming policies. This is a huge challenge to organize the farmers. Farmers' role is to just produce crop after there should be government strategies and mechanism to on work. While farmers are not able to bring this issue jointly to the government on table. But we do not have any system in operation. It's all up to farmers from production to collection and selling.

These expressions and stories of smallholders of Kirtipur reflect the pervasive sense of uncertainty in the future of vegetable farming in the Valley. While there have been efforts to modernize and commercialize agriculture, the lack of a coherent government plan leaves farmers vulnerable to both market forces and natural threats like pests and unpredictable weather conditions. The farmer’s concern about Nepal’s reliance on imports from India points to a broader uncertainty regarding the nation's agricultural self-sufficiency (Lama, 2019).

7.3.2 Agriculture Insurance Project on the Ground

During my fieldwork in Kirtipur between in 2022, I encountered two compelling cases of farmers attempting to claim agricultural insurance, one case of the termination of

vegetable market established by the smallholders in Kirtipur, and a life history of an ex-farmer who is a university professor then by profession. These cases further illuminated not only the challenges of accessing insurance but also the distrust that farmers felt toward the policies and agencies meant to support them. In the following sections I have presented these cases.

A prominent woman leader farmer shared her personal experience about agricultural insurance. There is a program for agricultural insurance to secure financially in case of losses. Farmers have to insure their crops before planting and it goes with a long administrative procedures and paper works. She had insured my agro farm, which included vegetables and goats. The policy promised coverage of up to 75% of the cost of losses, with 80% of the insurance premium subsidized by the government.

However, the reality of claiming insurance was far from straightforward. She described the tedious process of evaluation as she lost her crops which was insured:

> The insurance company made every effort to delay and escape their responsibilities. Even after months of back-and-forth, they deducted 2-5% of the insured amount for reasons I still don’t understand. Ultimately, I received around 70% of the promised amount, which hardly covered my losses.

The frustration in her voice underscored a broader sentiment among the farmersthat these programs, while theoretically supportive, often failed to deliver on their promises due to bureaucratic hurdles and lack of accountability.

Another incident involved the plight of 17 mushroom farmers in Kirtipur during the COVID-19 lockdown. Mushroom farming is an intensive process, costing approximately NPR 180 per 'ball' (per plant) to cultivate. With transportation halted and consumers absent during the nationwide lockdown in 2020 and 2021, these farmers faced devastating losses.

One farmer, who had insured crops planted in two ropanis of land, explained his predicament:

> I had an insurance policy, and so did another farmer who had insured ten ropanis. When we claimed compensation, the company initially gave both of us only NPR 27,000, regardless of the size of our farms. It wasn’t until persistent follow-ups that the other farmer received NPR 2 lakhs, but the process was exhausting and disheartening.

This case exemplifies the systemic failures in ensuring fair and timely compensation to the farmers of the study area. The arbitrary nature of the payouts and the grueling process of claiming insurance deepened the farmers' mistrust in the very system designed to protect them. These cases are the stark examples of the program's structural inefficiencies and barriers.

7.3.3 Failure of Local Vegetable Market

Another critical event revolved around a vegetable market established by a farmers' network in Hanuman Ghat, Kirtipur. This network, consisting of 35 farmer groups at that time, registered in the Municipality in 2075 B. S. and sought official approval to open a market for locally produced vegetables. The Municipality granted permission as it was a public land. Taking a partial financial support form an NGO and raising funds from the farmers, they built a local market (Figure 7.1, p. 193).

The deputy mayor inaugurated the market with much fanfare, and for a brief period, it thrived. A farmer (M/36) who was part of the 11-member operating committee of the market recalled that the project was expected to be a game-changer for the smallholders of the municipality. Farmers could sell their produce directly to consumers, and during the lockdown, they had managed to secure permission from the municipality office to continue selling on the streets. However, the success was short-lived. As the market grew, some farmers began sourcing vegetables from outside and selling them at the market, turning from producers to middlemen. This shift altered the market dynamics, and the municipality eventually leased the space to a private entity. In my discussion with a member, a farmer of Kirtipur, of the market management committee, he replied my question about the reason how did the market close. He answered:

> One day, we found out that the ward office had signed a five-year lease agreement with a private party. They turned our market into a supermarket, leaving us with only a small section to sell our produce. Most farmers were pushed back to the streets.

The farmer's frustration was palpable:

> We organized meetings to retaliate the agreement done by the ward office, but even with over 100 farmers present, we couldn't overturn the agreement. It felt like we were being systematically excluded. The municipality only prioritizes those who are on the voter list, and many of us don't even qualify.

Figure 7.1

Farmer Initiated Local Vegetable Market in Kirtipur

This case of failure of the smallholders' vegetable market in Kirtipur was a serious issue and exposes various underlying insecurities in the farming sector at the local level. I got some indication about the local retailers and middlemen's role in the termination of the farmers' market. That is why I tried to explore more the question of who controls the vegetable market. Seeking answers, I raised this question with farmers, traders (also called *bichaulias*), government officials, and market authorities. What became evident was the absence of any clear institution responsible for price determination or regulation. Government authorities themselves were unable to explain who ultimately decides prices or how they might be controlled and how to ensure the right price of the crops produced by the smallholders.

In practice, vegetable pricing operates through an open-market logic, leaving farmers largely unaware of and excluded from the processes that determine the value of their produce. Traders and collectors possess greater knowledge of supply-and-demand conditions, yet even their calculations often fail when sudden imports from India or simultaneous local overproduction flood the market. Demand-side fluctuations, such as festival seasons or changes in urban consumption patterns, further intensify price volatility. While some costs

remain fixed, transportation, market rent, and daily operating expenses farmers bear the greatest share of uncertainty.

Viewed through the lens of risk society, this system illustrates how market risks are systematically shifted downward onto smallholder farmers. In contrast to core capitalist countries, where farmers receive subsidies, insurance, and price protection, Nepali vegetable farmers are left to absorb market shocks individually. The result is a deeply uneven exposure to risk: a fully liberalized market operates alongside an informal, smallholding agricultural system.

This condition generates acute economic and livelihood insecurity for farmers in the Kathmandu Valley. Agriculture here is not merely an economic activity but an existential practice tied to survival, dignity, and social reproduction. By failing to recognize and mitigate these risks, the state effectively normalizes farmer insecurity, reinforcing the structural vulnerabilities of smallholders within Nepal's emerging risk society.

7.3.4 Indignity of Smallholders

It was a late afternoon in the mid-August, 2022 in Kirtipur when I met with a university professor, a man in his mid-fifties who had once started commercial vegetable farming in Kirtipur. As we sat in a farm house and had an informal discussion. He asked me about my research project and I found him excited to share his experience. In the discussion he narrated his story of the experiment of vegetable farming in the same locality about one and half decades ago in Bhutkhel.

He explained the reason why he started vegetable farming, 'I tried my hand at vegetable farming here about fifteen years ago,' he began, his voice tinged with both nostalgia and frustration. 'I wanted to see for myself if educated individuals like me could make a decent living from farming. But what I learned was disheartening.'

As he recounted his experiences, his tone grew heavier. "The way our education system has evolved since the mid-19th century has distanced us from the land" he remarked. "We have been conditioned to think of farming as something for the uneducated, something beneath us. This mindset is deeply ingrained, even among policymakers" he paused. After a while, he added, "I have spoken with scientists from the Nepal Agricultural Research Council (NARC), and many of them share this concern. They see firsthand how education has alienated us from the very foundation of our economy; agriculture."

His critique of Nepal's modern education system was sharp and direct. He explained:

> What do we teach our children?" We tell them to pursue degrees, to seek office jobs, to become bureaucrats. Nowhere in our curriculum do we present farming as a dignified, inspirational profession. So, it's no surprise that our brightest minds want to leave the fields and move to the cities, or worse, go abroad. Farming has become something to escape from rather than embrace.

The professor's concern was not only about education but also about the broader political landscape that influences farming. He moved further and added that the biggest problem in the agrarian governance was that the sector has been politicized. When it comes the question of support from the government, he added, "farmersare no longer guided by agricultural needs but by political affiliations." At this point what the professor says aligns with the experiences of the smallholders and the leader farmers I talked with. He explained his experiences even in strong voice, "political parties exploit them, drawing them into their agendas instead of focusing on their real struggles; production, marketing, sustainability. And what has the government done? Nothing substantial. Policies are made for show, not for real impact."

He shook his head as he recalled the lack of strategic land-use planning in Nepal. He added:

> If we had a responsible government, they would first conduct land capability assessments, scientific studies to determine what kind of farming suits which land. But look at what's happening! Take the Prime Minister's Agriculture Modernization Project as an example. It's supposed to enhance productivity, yet it financed banana plantations on land that is more suited for rice cultivation. This is not modernization; it's carelessness. They make these decisions from air-conditioned offices in Kathmandu without stepping foot in the fields.

His frustrations built up as he continued as follows:

> Farmers know these policies don't work. That's why they don't trust government programs. They see projects come and go, each one promising support, yet none delivering real change. How can you trust a system that keeps failing you? Farmers want security. Not just financial security, but social recognition, a sense of stability. And that comes from policies that are designed with their real needs in mind, not just to look good in reports.

Despite his criticisms, he held onto hope. "We need a cultural shift," he said. "We need to restore respect for farming, integrate it meaningfully into our education system, and above allhold the government accountable for real agricultural reforms" he further added.

But how its possible to integrate our education system and agriculture which is already pushed as a marginal, household job? Responding my question, his gaze drifted toward the fields and explained that with proper planning, genuine governmental support, and a shift in mindset, we can bridge the gap. And, education is a key for it. Only then, we can make government accountable and bring back agriculture in priority and farmers trust on institutions become inevitable.

As I left Bhutkhel saying goodbye to the professor, I did reflect his intent and words in his voice. His story was not just an individual experience; it was a testimony to the widespread disillusionment among farmers in Nepal. It echoed a deeper truth, without meaningful engagement, well-designed policies, and a revaluation of farming in society and a concrete plans to bring change and ensure the sustainable farming system, trust in agricultural governance would continue to erode. At the same time, there is no possibility to revive the country's economy in near future without bringing agriculture on priority.

These examples reflects various structural complexities rooted in the agriculture system of the country and smallholders rising destruct with the authorities. When there is lack of trust in the authorities, consequently the sense of insecurity also rises (UNDP, 2022b). The lack of trust of the smallholders in authorities stems from a profound lack of trust in state institutions, rooted in repeated failures to provide meaningful support, ensure fair pricing, secure land tenure, or offer effective responses to crop failures, environmental degradation, and volatile markets. It has series of implications. As discussed in the previous section as well, many farmers have already begun preparing for futures that lie outside of agriculture, and often outside the country. They view farming not as a long-term livelihood but as a transitional survival strategy, a way to support their families until more secure or alternative income sources become available.

Finally, this discussion on the smallholding farming from the perspective of governance in Kirtipur shows that smallholders operate within a system marked by bureaucratic complexity, weak accountability, and political interference, which often limits their access to timely support, subsidies, or compensation. The discussion highlights a pervasive crisis of trust between farmers and state institutions, a theme that emerged

consistently across interviews and case studies. For instance, the abrupt closure of the Hanuman Ghat vegetable market and the poorly managed agricultural insurance schemes have intensified farmers' skepticism about the state's commitment to safeguarding their livelihoods.

Discussions on the various aspects of agriculture governance and the farmers bitter experiences with the agencies also reflects a broader structural issue in agricultural governance where progressive frameworks exist on paper but are undermined by inadequate institutional mechanisms, political interference, and resource misallocation. Without a clear and enforceable land use policy that protects agricultural zones and supports long-term planning, the vision of sustainable agricultural transformation remains elusive. Discussions in this chapters also illustrates that agricultural governance in Nepal cannot succeed through isolated interventions. It must be multi-scalar, inclusive, and politically grounded, integrating farmers' voices not as beneficiaries but as co-authors of the policy and scientific agendas.

In the end, at the core of this weaknesses in governance and people's rising distrust lies a deeper structural issue that Beck (2009) theorizes in his concept of the "risk society." He argues that the challenges facing contemporary societies are no longer confined to the modern risks for which the state apparatus was originally designed, such as war, territorial defense, or natural calamities. Instead, today's threats are postmodern, transnational, and highly interconnected with each other, emerging from globalized systems of production, trade, and ecological transformation. In the context of Nepal, the liberalization of agricultural markets, the influx of foreign seeds and chemical fertilizers, climate volatility, and the urban expansion into farmland are examples of such globalized risks. Yet the state remains equipped with outdated governance tools, ill-suited to protect people and communities from these new insecurities. Thus, the crisis of agricultural governance in Kirtipur is not just about policy failure, it is emblematic of the broader institutional lag in recognizing and responding to the postmodern risks and uncertainties.

CHAPTER 8
SUMMARY AND CONCLUSIONS

8.1 Summary

The main objective of the research is to understand the human security situation of the smallholders engaged in commercial vegetable farming in Kirtipur Municipality in Kathmandu. The concept of human security in development discourse is taken as more than security from violence and crime to people's economic, food, environment, and health and other social, cultural and psychological securities. While approaching the human security, a threat and a group of threats and how they affect particular groups of people has become central concern. In the social sciences, the concept has become important in the context of complex transnational dimension of contemporary humanity. Moreover, it is often assumed that insecurity is more pronounced in the current era, but no society and people was immune in the history. So, the concept can fulfill important job of reorienting theories and bridging the gap between the social sciences by seeking the ways in which people under different circumstances strive for security, and conversely identifying the factors that render them insecure (Erikson, 2010). Therefore, we can utilize this concept of human security in varying contexts and not as a fixed and rigid but as dynamic and a flexible one to understand the various aspects of any human groups and communities.

I have adopted an ethnographic research design grounded in anthropological traditions, relying primarily on qualitative methods such as participant observation, in-depth interviews, and informal discussions, focus group discussions, complemented by quantitative data from both primary and secondary sources. The fieldwork for this study was conducted in in 2022. I purposively selected Kirtipur Municipality, one among twenty local government units in Kathmandu Valley, as the study site. Historically a Newar-dominated agrarian town, Kirtipur has undergone rapid urban transformation since the 1990s, marked by exponential population growth due to migration, conversion of agricultural land into built-up areas, declining involvement of local Newars in farming, and the increasing dominance of migrant smallholders in vegetable production. The population of Kirtipur increased more than two times in the last two decades (from 40,835 in 2001to81,578 in 2021). Currently, more than twenty four thousand households are accommodated within the very small are of 14.76 sq. km. turning it one of the densely populated municipalities in the country.

If we examine the statistics at global and in national scales, the contribution of smallholders is significant. Globally, agriculture accounts for 26.1 percent of global employment, and small-scale family farms produce more than half of the world's food. In developing countries, around 1.5 billion people engaged in agriculture are smallholders. In Nepal, national statistics reveal a paradoxical agrarian transition: while the number of agricultural households increased from 3.36 million in FY 2011/12 to 4.13 million in FY 2021/22, the total area of agricultural land declined from 2.52 million hectares to 2.22 million hectares, with average parcel sizes shrinking further (NSO, 2023). This intensification of smallholder fragmentation has minimized not just the productive capacity of land but also the continuity of the profession in the long run.

The distribution of smallholding farming across the country is not symmetrical either. In the hills, the farmers are gradually disembedded from their land over the decades and migrating to Terai, Kathmandu or abroad in search of better economic opportunities. While the migrant smallholders who have settled and re-engaged in vegetable farming which commercially important in Kathmandu under highly adverse conditions. Rather than exiting agriculture altogether after disembedding from subsistence farming in the hills, these farmers re-enter agriculture in urban and peri-urban spaces through leased land arrangements characterized by insecure tenure, high input costs, volatile markets, and minimal institutional support. This paradox of leaving rural agriculture and to re-engage in risk-intensive urban farming which is already filled with risks and uncertainties motivated the core research questions of this study.

To approach the human security situation of the smallholders in Kirtipur, I have situated their experiences and perceptions within the broader processes of urban transformation, ecological uncertainty, and political-economic restructuring of the country over the past three decades since 1990s. A central concern of this research is to understand why smallholders continue to pursue farming in an increasingly precarious environment marked by rising risks and uncertainties. Based the examination of the field data from the perspective of the political ecology of human security with specific emphasis on 'global risk society', I have outlined the findings of this research in the following section.

8.2 Findings

There are three major findings of this research. The first finding of the study is about the major political and ecological factors shaping the smallholding vegetable farming, a new

mode of urban agriculture in Kirtipur. This new mode of farming has evolved during the last three decades. The major factors shaped this farming are turbulent political transitions, socio-cultural shifts, increasing migration, rapid population growth, urban expansion, and infrastructural development, including roads, housing, government buildings,shops and commercial complexes. These changes have been further intensified by the introduction of liberal economic policies in agriculture following Nepal's political transition of the 1990s, which fundamentally reshaped agricultural markets, production processes, and the social meanings attached to farming. As a result of these combined transformations in land use, farming practices, and social and political structures as a part of the Kathmandu Valley, the country's political and economic center, a new agrarian phenomenon has emerged which we call commercial vegetable farming carried out predominantly by migrant smallholders. This form of farming has become a major livelihood strategy for the majority of migrant families navigating the rapidly urbanizing geo-cultural margins of the Kathmandu Valley in Kirtipur.

Specifically, the smallholders in Kathmandu are cultivating vegetables for income and employments under a complex situation. They often lease the farmland from the local owner of 0.25 ha. to 1.00 ha. in size for 5 to 10 year and utilize family labor for cultivation. The continuation of the cultivation throughout the leased period is not certain. As the landholdings in the Valley are extremely fragmented and land values are high the owner can break the lease at anytime forcing the smallholders to leave the land with heavy loss of establishment cost of the farm plot and production cost of the crops. However, in any condition of the loss of the cost and price of the crops, there is no credible institutional backups to compensate the smallholders. On the one hand, with the increasing rural to urban migration and rise of urban population the importance of urban farming and smallholders' involvement in vegetable production has become inevitable. But, on the other, the condition under which the smallholders are operating and their human security situation is not properly understood by the authorities and further deteriorating their human security situation.

The second finding of this study is about the human security threats of the smallholders and their strategies to respond the threats. The study shows that traditional Newar farmers have disengaged from direct agricultural production, while migrant families from hill districts have increasingly taken up small-scale commercial vegetable farming, primarily on leased land. The smallholder farming model in Kirtipur is thus characterized by insecure land tenure, small and fragmented plots, and a strong reliance on household labor, with women playing a central role in farming activities. Over the period, vegetable farming

has evolved as a means of livelihoods and a source of cash incomefor migrant households, enabling them to survive and establish themselves in the urban periphery. However, despite its economic significance, this study reveals that vegetable farming does not provide a secure livelihood for the migrant families. Instead, they are facing multiple and overlapping human security threats including economic, legal and political, environmental, and socio-cultural that collectively undermine their strategic situation and push them into a persistently defensive position against the large number of human security threats.

In response to this situation of insecurity and the threats, smallholders have adopted a diverse range of strategies in their everyday lives. These include technological strategies such as adopting new farming techniques, improving irrigation systems, and using organic or hybrid seeds to increase productivity and reduce economic risks. Institutional and empowerment-based strategies involve forming and participating in farmers' groups and cooperatives, enhancing skills through training, and organizing collective mobilization to strengthen social and political bargaining power. Politically, overlapped with the institutional strategies, farmers engage in local advocacy to demand policy support and recognition by the local authorities. Additionally, they have also adopted spiritual and cultural practices that includes the subjective position or perception they uphold about the farming itself. They consider vegetable farming as a source of moral, existential, and cultural security by identifying it as a service to the 'mother earth' and producing crops as feeding the humanity. In practice, farmers often combine multiple strategies simultaneously to cope with rising production costs, crop failures, price volatility, market uncertainty and social indignity. Nevertheless, the study demonstrates that neither individual strategies nor their combined application have been sufficient to substantially reduce risks or generate a sustained sense of security among smallholders of Kirtipur.

Finally, the third finding of this study is about the smallholders' trust on agrarian governance. It shows that for the farmers of Kirtipur, this governance framework encompasses a complex web of policies and programs executed by authorities across Nepal's federal, provincial, and local levels. This institutional architecture and the degree to which it is perceived as accessible or supportive, directly dictates how smallholders navigate risk. When the micro dynamics of governance at the implementation level within these local and federal institutions fails to align with the lived realities of the peri-urban landscape, the resulting trust deficit becomes a primary driver of human insecurity.One of the major findings of this research is that smallholders consider that the existing agricultural policies

and programs do not prioritize their needs and demands and offer limited direct benefits. They express deep skepticism toward government policy implementation, agricultural support mechanisms, and political leadership's commitment to addressing their concerns. Instead, they perceive that state agencies tend to favor politically connected 'pseudo-farmers', agro-input suppliers, and private companies over the smallholders. This perception has contributed to growing disillusionment, de-motivation, and a severe erosion of trust in state institutions.

Empirical evidence from Kirtipur reveals an alarmingly low level of institutional trust among smallholders, further intensifying their sense of vulnerability and insecurity in the context of rising global risk and insecurities which are even acute in the urban context.These findings underscore the critical intersection of new mode of urban farming (small-scale commercial vegetable farming), human security threats of the smallholders and their trust on agrarian governance, highlighting the need for inclusive policies, participatory governance, and structural reforms to bridge the gap between smallholders and state institutions. They also indicate that building trust between the smallholders and the government is essential to fostering a secure, resilient, and sustainable agricultural system in urban farming.

8.3 Conclusion

This study set out to examine the human security of smallholders in Kirtipur. It applied a range of research strategies from theoretical to methodological to understand the situation. It has shown that the smallholding vegetable production in Kirtipur driven by the migrant farmers (mostly from western part of the country) is both a survival strategy and a site of risks and uncertainties. The migration of the hill farmers in the urban centers and in Terai has already fostered a phenomena of de-agrarianization of the rural agriculture back in the hill districts of Nepal. While, the model of smallholding they have adopted in the urban context is a new form of re-agrarianization for the limited purpose of livelihoods and cash income in the context of rapidly urbanizing Kathmandu Valley in Kirtipur.

The overall transformations unfolding in Kirtipur over the past three decades are not merely physical or spatial; they are profoundly socio-cultural, economic, and political in nature (Pigg, 1992). Urban expansion, demographic change, and liberal economic reforms have collectively reshaped land use, farming practices, and the meanings attached to agriculture itself. Within this shifting landscape, smallholder vegetable farming has emerged as a critical yet precarious livelihood strategy, practiced largely by migrant households

navigating the margins of an urbanizing Kathmandu Valley. I have also shown that smallholders in Kirtipur face complex, layered, and interconnected human security threats which has placed smallholders in a persistently defensive position, where survival depends less on institutional protection and more on individual and collective coping strategies.

Therefore, I conclude with the argument that the insecure situation of the smallholders in Kirtipur is determined by the new mode of urban farming itself that is undertaken within the large numbers of threats and uncertainities, and the limited capacity of the modern state functioning within the global 'risk society'. In a sense, the modern agrarian governance of the country has faild to grasp the situation and ensure the security of the smallholders. If smallholder vegetable farming continues to be treated as marginal or transitional, without serious institutional recognition and support, both farmers' livelihoods and the long-term sustainability of urban food provisioning will remain at risk.

8.4 Contributions to Knowledge

This study contributes to anthropological theory of the political ecology of human security by extending it into the field of urban farming, with a specific focus on the commercial vegetable farming by the smallholder in Kirtipur. It was the human security paradigm which was first articulated by Haq (1995) and brought into global discourse through an UNDP's Report, shifted the focus of security studies from the protection of state borders to the wellbeing and dignity of individuals. Withinthe anthropological domain of social sciences, Eriksen (2010) was the first to systematically theorize human security, proposing a framework that examines how people under varying conditions strive for security and, conversely, how specific socio-political and ecological configurations generate insecurity. This approach encourages attention to local practices, lived experiences, and culturally meaningful strategies for navigating threats, while situating these within broader structures of governance, market forces, and environmental change.

This study extends the anthropological theorization of human security of Erikson (2010) by demonstrating how security is not a static condition provided by the structural condition, but a dynamic process negotiated in everyday life through adaptive strategies, calculated risks, and forward-looking decisions. In line with Eriksen's political ecology of human security, this case of smallholders of Kirtipurreveals that security emerges at the intersection of structural transformations such as migration, urbanization, market liberalization, and policy gaps and local agency. The findings challenge conventional state-

centered security models, which often assume that institutional frameworks can comprehensively address threats. By showing the case of a urban community of Nepal, this study uncovers how the modern state are poorly equipped governance systems to tackle the postmodern, trans-boundary, and interconnected risks of the global risk society (Beck, 2009). Here, smallholders' stoppage strategies and transitional livelihoods highlight a form of security-seeking mechanism that is fluid, contingent, and embedded in both local and global political and economic processes. Thus, this research contributes to human security theory by foregrounding how marginalized actors enhance the sense of security under conditions where the state's capacity to address contemporary risks is limited, and where resilience is sustained primarily through self-organized, locally meaningful practices.

Another implication of this study lies in its contribution to the theoretical framework of agricultural anthropology. As Cleveland (1998) notes in his discussion of Robert Netting's work, a central concern of 21st-century agricultural anthropology is understanding how smallholders navigate constraints by making use of available technologies and opportunities. This study advances that agenda by situating smallholder vegetable farming in Kirtipur within the broader intersections of migration, urban transformation, and globalized agricultural markets. In the Nepalese context, contemporary agricultural transformations exhibit multiple, and sometimes contrasting, trends. As Upreti (2021) observes, hill districts have experienced processes of disembeddedness and deagrarianisation, whereby traditional farming systems are being abandoned. However, this is not the complete picture and this study present another part of the story that unfolds following the migration and leaving the agriculture land fallow back in the hills.

The findings of this study suggest that the migrant smallholdersare actively engaged in a form of "re-agrarianisation" within the urban context of Kirtipur. By re-establishing farming practices in the Valley, they are not only sustaining their livelihoods but also reshaping the agrarian landscape of the town, thereby challenging the narrative of an inevitable decline of smallholder agriculture at least in the urban context. Therefore, this study contributes to the agriculture anthropology by bringing smallholders decisions of urban farming in the changing context of global risk society of 21st century.

Methodologically, this research aligns with the integrative approach proposed by Cleveland (1998), which calls on agricultural anthropologists to engage with agricultural science not as detached critics or mere cultural intermediaries, but as active participants. This participatory stance requires the epistemological flexibility, empathy, and contextual

sensitivity that define anthropological inquiry, while also fostering genuine dialogue between local knowledge systems and formal scientific discourses. Such an approach draws on insights from the humanities, social sciences, and natural sciences to explore how farmers' lived realities intersect with the larger global contexts, and how they navigate the tensions between tradition and innovation, sustainability and market logic, survival and policy neglect.

In this vision, I have adopted a qualitative, ethnographic foundation centered on the lived experiences of smallholders, while also incorporating a range of complementary methods rarely employed in traditional anthropological fieldwork. Beyond in-depth interviews, participant observation, and case studies, I integrated data generated from tools such as GIS mapping, satellite imagery analysis, and photography. These methods provided spatial and visual dimensions to the ethnographic narrative, allowing for a more precise understanding of land-use changes, urban expansion, and environmental pressures shaping smallholder farming in Kirtipur.

The key methodological lesson from this research is that in the contemporary epochmarked by rapid socio-ecological transformation and complex, multi-scalar challengesno single method is sufficient. Interdisciplinary research, combining the strengths of ethnography with technological and scientific tools, is essential for capturing the full complexity of agrarian change in urban context and smallholders decisions and practices in the 21st century.

8.5 Agendas for Future Research

In terms of policy research and planning, the findings call for urgent attention to the structural roots of insecurity of smallholders in urban agriculture. Land tenure reform, legal recognition of tenant farmers, targeted support for inputs and infrastructure, and the revival of cooperative institutions are essential for protecting their livelihoods and enhancing food security in Nepal's urbanizing regions. Empowering marginalized farmers, re-centering the dignity of the farmers and particularly women, should be a central focus of policy formulation. Given the feminization of agricultural labor and the disinterest of younger generations in farming, policies must also aim to revitalize agriculture as a viable and life sustaining profession. This could involve integrating traditional knowledge with modern agricultural practices, promoting youth engagement through incentives and education, and supporting alternative livelihood options that complement farming.

Based on this study on the human security situation of the smallholders of Kirtipur, following agendas for future research on the following areas are recommended;

i. Comparative urban agrarian studies across multiple municipalities within Kathmandu Valley and other rapidly urbanizing regions of Nepal (e.g., Pokhara, Bharatpur) to identify common patterns and local variations in smallholder vegetable farming, governance, and market relations.
ii. Longitudinal and intergenerational analysis to examine whether urban vegetable farming represents a temporary "stoppage strategy" or a more durable agrarian transformation.
iii. Political economy of markets and intermediaries to examine value chains ethnographically, focusing on wholesalers, traders, agro-input suppliers, and emerging market platforms.
iv. Trust, governance, and state–farmer interfaces to investigate how trust in agrarian governance is built, eroded, or restored.
v. Comparative global perspectives by situating Nepal's urban re-agrarianization within broader South Asian, African, and global contexts to contribute to comparative debates on risk society, political ecology, and urban agriculture.

APPENDIXES

Appendix 1

Glimpses of Smallholders' Vegetable Plots and Urbanization in Kirtipur

Photo 1.1: A View of Kirtipur Chovar in 1960s
(Source: Kirtipur Tourism Center)

Photo 1.2: Blessing Farming Workshop in Kirtipur, 2022

Photo 1.3: Research Informants, Kirtipur (2022)

Photo 1.4: A View of Farmland in Kirtipur (2021)

Photo 1.5: 2022, Kirtipur, Kathmandu

Photo 1.6: 2022, Kirtipur, Kathmandu

Appendix 2

Details of Registered Farmer Groups in Kirtipur Municipality (until the Jun, 2024)

S. N.	Group Name	Ward No.	No. of Members
1	Machha N. Mahila K S	4	16
2	Prince Agri Farm Pvt. Ltd.	4	NA
3	Hatemalo K S	5	31
4	Mechi Mahakali K S	5	38
5	Sirjansil Mahila K S	6	27
6	Kamalpokharai Mahila K S	6	15
7	Nagaun Krishi tatha Pashupalan Samuha	9	20
8	Jalbinayak Mahila K S.	6	15
9	Tusal Krishi Utpadan Samuha	4	20
10	Pariwartan Krishi M S	5	15
11	Mahatgaun Krishi Utpadan Samuha	6	23
12	Chundevi Krishi Utpadan Samuha	5	19
13	Ujjalow K S	5	15
14	Sikali Krishi tatha Pashupalan Samuha	6	32
15	Salyan Sthan Krishi Utadan Samuha	4	0
16	Sahara Krishi tatha Pashupalan samuha	4	15
17	Manakamana K S	6	20
18	Parijat Mahila Krishi Mult. Samuha	6	50
19	Hariyali K S	4	16
20	Ramdevi Mahila K S	6	21
21	Setidevi Utpadan Samuha	6	22
22	Karkotak Krishak Samuha	6	23

23	Karkoteshwor Mahadev Mahila K S	6	34
24	Jhigu Krishi Utpadan Jyapy Samuha	3	15
25	Kirtipur Chyau Utpadan K S	2	17
26	Chhetrapal Bh. M S	6	40
27	Vharibot Mahila K S	6	26
28	Suvakamana Mahila K S	4	27
29	Jalpadevi Mahila K S	6	15
30	Trikot Krishi tatha Pashupalan Samuha	4	17
31	Ujjalow Mahila K S	6	15
32	Ramilo K S	3	15
33	Jalandharpith Krishi tatha Pashupalan Samuha	6	15
34	Vhutkhel Krishi M S	6	77
35	Jaya Badimalika Krishi tatha Pashupalan Samuha	6	23
36	Sarbounnati K S	5	19
37	Batuk Bhairab Mahila K S	6	15
38	Bagh Bhairab K S	2	15
39	Brihat Charghare K S	6	15
40	Thapa Gaun Mahila K S	4	25
41	Dharpa Kausi Kheti K S	3	20
42	Janjagaran Krishi Utpadan Samuha	5	15
43	Sirjansil Mahila K S	6	NA
44	Naya Bihani Krisak M S	6	NA
45	Khatrichhap Basuki Mahila K S	6	NA
46	Nawa Durga K S	4	15

47	Laligurans K S	5	17
48	Urjasil K S	5	20
49	Mehenati K S	6	NA
50	Bhakti Khel K S	6	21
51	Jalewashwor Krishi Uddhami M S	4	15
52	Budhanilkantha Krishi Utpadan Samuha	4	15
53	Sudhar IPM Kausi Kheti Samuha	9	NA
54	Manedanda Krishi M S	4	NA
55	Mahakal Krishi M S	4	18
56	Safal K S	6	NA
57	Organic Krishi Utpadan Samuha	4	NA
58	Jagriti K S	6	NA

*NA: Not Applicable/Not Available, *K S/M S*: Krishi Samuha/ Mahila Samuha

Source: Kirtipur Municipality, Agriculture Section (2024)

Appendix 3

Spatial Division and no. of Traders Involved in Kalimati Market in Kathmandu.

Type of trader/Space	No.
Whilesellers (total 464 no.)	
1. Fresh vegetables	299
2. Potato/Onion	89
3. Fish	28
4. Fruits	11
5.Cooperative/Organizations/Farmer groups	37
Retailers (total 67 no.)	
1. Fresh Vegetables	48
2. Potato/Onion	12
3. Spicies	7
Shutters (total 16 nos.)	
1. Seeds	2
2. Dairy products	1
3. Mushroom	2
4. Fruits	5
5. Spicies	6

Source: KFVMDC (2024)

Appendix 4

Fresh Vegetables Produced in Kathmandu Valley by District (Area in ha. & Prodn./Yield in MT), F/Y 2078/79.

Commodity/ vegetables	Bhaktapur			Lalitpur			Kathmandu		
	Area	Prodn.	Yield	Area	Prodn.	Yield	Area	Prodn.	Yield
Cauliflower	236	4923	20.6	623	7141	11.46	214	5524	25.81
Cabbage	222	5291.4	23.8	724	8140.6	11.3	178.9	4278.4	23.9
Broccoli	51.5	514.1	10	10	121	12.10	25	328	13.12
Tomato	177.5	4615	26.0	181	4666.2	25.8	213	20575	96.9
Radish	189	5275	27.91	256	6161	24.07	70	1994	28.49
Broad Leaf Mustard	256	5068	19.80	261	3939	15.09	226	5181	22.92
Carrot	240	4504	18.77	125	1250	10.00	49	811	16.55
Turnip	0	0	0.00	11	303	27.55	18	190	10.56
Capsicum	0	0	0.00	62	1190	19.19	2	25	12.50
Peas	55	804	14.62	87	1318	15.15	55	725	13.18
French Beans	0	0	0.00	75	1515	20.20	8	150	18.75
French Beans - Pole Type	141	1731	12.28	84	1700	20.24	8	160	20.00
French Beans - Bush Type	0	0	0.00	67	992	14.81	8	139	17.38
Asparagus	39	539	13.82	7	113	16.14	12	121	10.08
Tree tomato	0	0	0.00	1	10	10.00	8	65	8.13
Chilly Akabare	0	0	0.00	1	4	4.00	15	129	8.60
Chilly	54	721	13.35	37	740	20.00	25	328	13.12
Okra	0	0	0.00	13	230	17.69	15	130	8.67
Brinjal	69	1347	19.52	15	242	16.13	15	209	13.93

Onion	0	45	0.00	95	1400	14.74	35	580	16.57
Cucumber	174	3514	20.20	95	1400	14.74	205	4642	22.64
Pumpkin	261	4748	18.19	72	1454	20.19	103	1973	19.16
Squash	0	0	0.00	10	202	20.20	10	152	15.20
Bitter Gourd	79	986	12.48	85	1588	18.68	25	678	27.12
Sponge Gourd	86	1397	16.24	21	364	17.33	44	998	22.68
Ridge Gourd	0	0	0.00	5	106	21.20	43	778	18.09
Snake Gourd	19	295	15.53	5	101	20.20	6	110	18.33
Bottle Gourd	20	241	12.05	13	190	14.62	25	350	14.00
Ash Gourd	0	0	0.00	0	0	0.00	2	24	12.00
Balsam Gourd	0	0	0.00	0	14	0.00	0	0	0.00
Chayote	12	224	18.67	13	263	20.23	23	429	18.65
Other (Cucurbits)	0	0	0.00	0	0	0.00	18	227	12.61
Lettuce	72	941	0.00	4	62	15.50	4	61	15.25
Fennel Leaf	0	0	0.00	0	0	0.00	2	25	12.50
Coriander Leaf	55	365	6.64	4	62	15.50	10	140	14.00
Spinach	72	941	13.07	6	73	12.17	55	410	7.45
Cress	68	881	12.96	10	150	15.00	80	848	10.60
Total	**3252**	**59111**		**2230**	**41376**		**1989**	**35347**	

Source: KGK (2021)

Appendix 5

Checklist to Collect Primary Data from Smallholders in Kirtipur, Kathmandu

Farmer's Background

- Background of the participants/reason to migrate undertake vegetable farming
- Details of the smallholders (HHs/percentage/caste and ethnic background in a given community/unit)
- Details of the land holdings/ownership of the smallholders
- Starting of commercial vegetable farming take momentum and changing patterns over the years
- Major agriculture practices/varieties of vegetable produced in the community (Crop Produced/HHs)

Changes in Ecological and Socio-Economic Condition of Vegetable Farming

- Trend of migration and urban transformation
- Gender and age dynamics of vegetable farming.
- Farmers association/community groups

Issues Related to Land Tenure/ownership

- Duration of lease period of the vegetable plots.
- Type of agreement; written/verbal or others and conditions
- Annual rent charge
- Other issues related to land

Marketing of Vegetables and Purchasing Agro-inputs

- Buying agro inputs and selling vegetables
- Cost benefit ratio (experiences/evaluation)
- Marketing of vegetables; process and persons involved, timing, means
- Changes in the land use and land cover over the years

Challenges and Opportunities in Vegetable Farming

- Major economic, environmental, social and political challenges/opportunities in vegetable farming.
- What are the strategies or back up plans in case of crop loss/price failing.
- Reasons smallholders are undertaking the profession and farmers are continuing the vegetable farming for decades

Relation with the State Authorities

- Major support received from the government/other agencies
- The quality of the services received from the agencies
- Impact of the government support to increase farm production/selling crops or empowering farmers
- Trust with the government policies and authorities
- Future prospects/suggestions to the authorities to empower the smallholders and enhance trust with the agencies.

Appendix 6

Constitution of Kirtipur Municipality in 2053 (B.S.) & in 2074 (B.S.)

For the first time Kirtipur Municipality was formed in 2053 Chaitra 14 (B.S.) by including the existing Village Development Committes (VDCs) as follows:

New Ward No.	Existing VDCs	Existing Wards
1	Layaku	1, 2, 3, 4, 8 & 9
2	Layaku	3, 5, 6, & 7
3	Chithu Vihar	1, 2, 3 & 4
4	Chithu Vihar	5, 6, 7, 8, & 9
5	Paliphal	1, 3, 6, 7 & 8
6	Paliphal	2, 4, 5 & 9
7	Champadevi	1, 6, 7, 8 & 9
	Machhagaun	2, 3, 4, 5, 6 & 7
8	Champa Devi	2, 3, 4 & 5
9	Bishnu Devi	1, 2, 3, 4 & 5
10	Bishnu Devi	6, 7, 8 & 9
11	Balkumari	1, 2, 3, 4 & 5
12	Balkumari	6, 7, 8 & 9
13	Chovar Bhutkhel	2, & 3
14	Chovar Bhutkhel	1, 4 & 5
15	Chovar Bhutkhel	6, 7, 8 & 9
16	Bahiri Gaun	1 & 2
17	Bahiri Gaun	3 & 4
18	Bahiri Gaun	5, 6 & 7
19	Bahiri Gaun	8 & 9

For second time in 2074 (B.S.) as a local Government Kirtipur was reconstituted by restrucuturing the existing wards as follows:

New Ward No.	Existing Wards of Kirtipur Municipality
1	1
2	2
3	3 & 4
4	5 & 6
5	7, 8 & 19
6	11 & 12
7	13, 14 & 15
8	18
9	9 & 10
10	16 & 17

Source: Kirtipur Municipality (2023)

Appendix 7

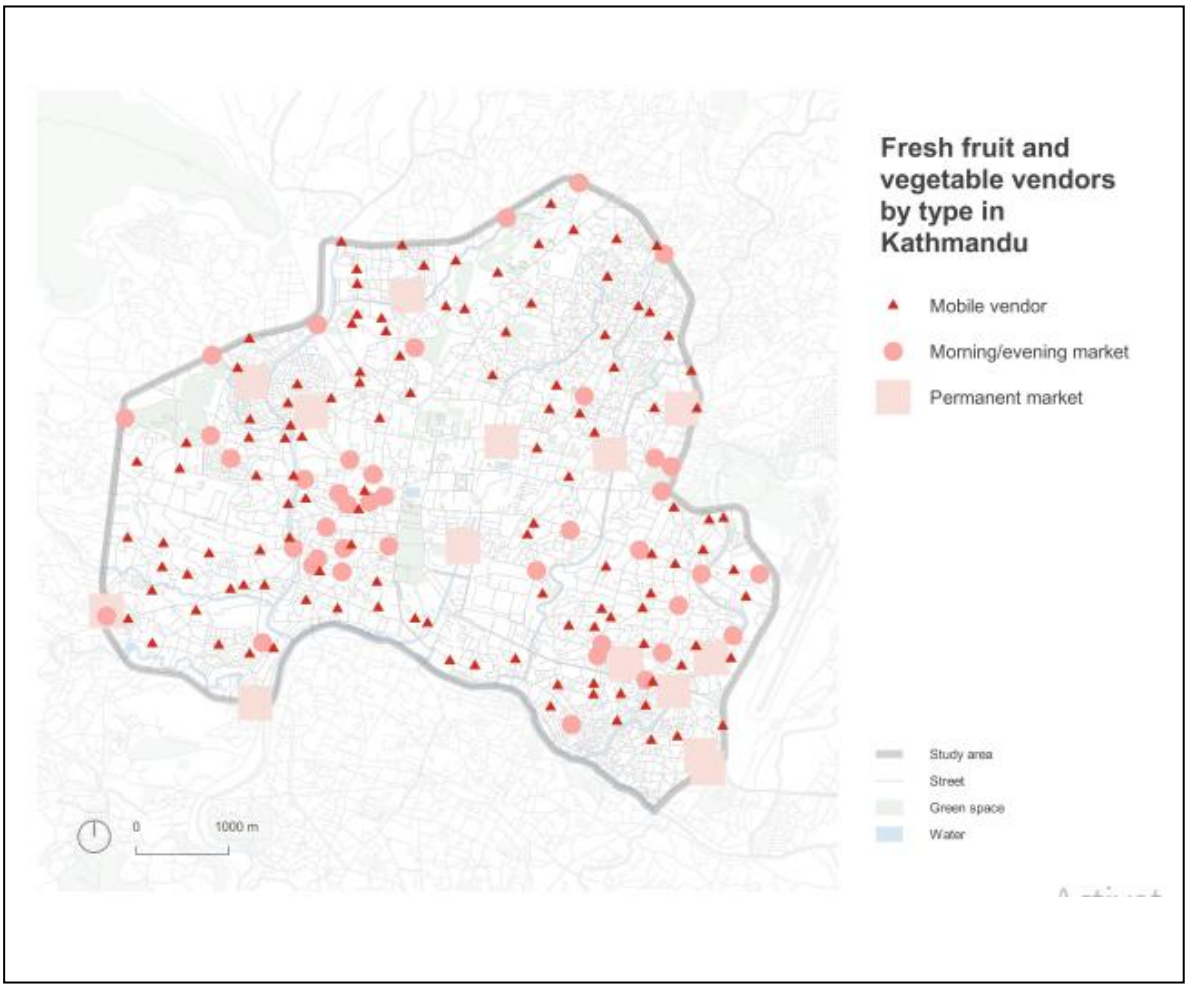
Fresh Fruits and Vegetable Vendors by Type in Kathmandu Metropolitian City

Name or type of Vendor	No.	Description
Permanent markets	15	Permanent markets have fixed locations and include many vendors under one roof. Vendors are required to pay rental fees for the area they occupy. These markets are owned and managed by Kathmandu Metropolitan City and Ward offices. They have hoarding boards, or formal signs, that identify the name of the market. Permanent markets are typically open throughout the day.
Semi-permanent (morning/evening)	39	Semi-permanent (morning/evening) markets have no specified area or permanent structure. They typically occupy parts of rights-of-way or spaces adjacent to temples. Most vendors are not required to pay rent. Semipermanent markets are generally open in either the morning or evening. In some cases they may be open in both the morning and evening.
Mobile vendors	124	Mobile vendors use a bicycle, four-wheel cart, or baskets to carry their goods. They typically sell vegetables along a specified route, or in a relatively fixed location on a right-of-way. Mobile vendors tend to operate in narrow streets and residential areas.

Source: RECPHEC (2016)

Appendix 8

Location of Markets by Types in Kathmandu Metropolitian City



Source: RECPHEC (2016)

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