

TRANSFORMING AGRICULTURAL LAND AND LIVELIHOOD IN RURAL-
URBAN FRINGE: A SURVEY OF KIRTIPUR MUNICIPALITY

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AN ABSTRACT

of the dissertation of *Keyur Pradhan* for the degree of *Master in Sustainable Development* entitled *Transforming Agricultural Land and Livelihood in Rural-Urban Fringe: A Survey of Kirtipur Municipality*, presented on 23 November 2023.

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Kathmandu along with its fringes has undergone rapid urbanization in recent decades due to its economic importance and availability of adequate facilities. With it, Kirtipur, Kathmandu's fringe, has been subjected to substantial urban growth too. The migrants from rural parts of Nepal have been settling here due to low land cost, better climatic conditions, and availability of resources, gradually changing agricultural land use patterns. The purpose of the research is to understand the contextual reality of land-use change and its effect on native dwellers of Kirtipur along with perception. In this quantitative research, I applied a post-positivist approach to investigate the transforming agricultural land use pattern and the changing livelihood pattern of native dwellers of Kirtipur. I have employed the structured questionnaire with close-ended questions to collect household data from wards 1,2,3,9, and 10 of Kirtipur.

The study suggests that there has been a significant transformation in the socio-economic condition of native dwellers in the past three decades. Most of the native dwellers have abandoned agriculture and are engaged in business/ trade or private job or house rent suggesting that Kirtipur is gradually transforming into small industry hubs. But few people are still dependent on agriculture indicating its role as a zone of interaction between rural and urban areas. The research concludes that although the urbanization in Kathmandu urban core has been transforming Kirtipur physically, the benefits of urbanization has not been grabbed by the natives rather their traditional livelihood along with tradition, culture and values has been negatively affected.

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DECLARATIONS

I hereby declare that this dissertation has not been submitted or published as a part of any other degree candidacy.

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LIST OF ACRONYMS

©	Copyright
ANOVA	Analysis of Variance
Assoc.	Associate
Asst.	Assistant
CBS	Central Bureau of Statistics
Dr.	Doctor
Et. al.	et alia (And Others)
KU	Kathmandu University
Prof.	Professor
t-test	Student's t-test
TU	Tribhuvan University

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CHAPTER I

INTRODUCTION

This chapter sets the context of transforming agricultural land use patterns and changing socio-economic aspects and livelihood of native dwellers of Kirtipur in the face of urbanization. This chapter also includes the statement of problem with justification, purpose of study, research questions, hypothesis and structure of the dissertation. It begins by presenting a background to the study of urbanization and changing land use patterns and illustrates the changing livelihood patterns of native dwellers due to urbanization and land use change in the rural-urban fringe, the rationale and the problem statement. The research is important to provide insights on the effects of urbanization of urban core on the fringes and the native dwellers of the fringe. The insights from this research would further help in developing policies and controlling land use patterns and consequently provide insights for the environmental and social sustainability of the fringe areas of rapidly developing urban cores.

Background of the Study

Urbanization is a phenomenon where people from the rural areas migrate to urban centers. It is driven by presence of more developed public infrastructure like roads, drinking water, sanitation facilities, better job opportunities and improved living condition along with better health facilities (Andrews, 1942; McGee, 1982). It has become a major trend worldwide in recent years where the urban population that contributed to only 33% of total population in 1960 has increased to 56.47% of total population in 2022 (Ritchie & Roser, 2018). As the people migrate from rural areas to urban centers, the demand for more lands to develop infrastructure, housing, industries and commercial areas increases. This need for more land for urban use is fulfilled by changing agricultural lands into urban plots in the rural-urban fringes (Pradhan,2003). In the western countries, the notion of rural urban fringe started post World War II. After World War II, there was widespread inner-city development but there was lack of development of housing units for all those needed inside the city which led to growth of houses on the edge of towns and cities which thus led to development of small industries and business in those fringe areas (Andrews, 1942).

Due to the continuous migration from rural to urban areas in, rapid urbanization too has become a significant trend in Nepal (Thapa & Murayama, 2008).

Since the 1980s, the Kathmandu Valley, Nepal's most populated metropolitan region, has been rapidly urbanizing. However, the rapid growth had led to several challenges like rapid in-migration, increase in unplanned, air, water, and noise pollution, energy consumption, loss of agricultural land, reduction in biodiversity in the valley, and altered land use pattern over time in the valley (Thapa, 2009).

Kathmandu Valley has undergone through a rapid urbanization in recent decades with a population estimated at 2.54 million (CBS, 2012), has been experiencing a significant growth rate of 4.3% per year over the past decade (KVDA, 2016). The 2011 census recorded the population of Kathmandu Metropolitan City alone at nearly one million, which has been estimated to double by 2030 (CBS, 2011). The population of Kathmandu Metropolitan city alone has increased to approximately 3.1 million as per census 2021 (CBS, 2021). The rapid urbanization has been driven by its economic importance and availability of adequate facilities. As an area of booming industries and business center with adequate infrastructural facilities, Kathmandu has been a favorable place for in migrants to settle in. The trend of migration into the valley was increased rapidly due to the Maoist insurgency in rural areas resulting in rapid decline in number of people living in rural parts and immigration in the valley, the safe haven for both living and investing (Thapa, 2009; Timsina et al., 2020).

Rapid and continuous migration has played a major role in rapid urbanization and rapid land use change in the Valley. As a city grows, there is more demand for land that would be developed for public infrastructure like road, sanitation, drinking water, public space, housing and industries to cater the needs of the rapidly growing population which results in change in traditional land use patterns. The built-up area in the valley has been increased from 38 sq. km (1990) to 119 sq. km (2012) and the agricultural land has been rapidly declining since the past three decades (KVDA, 2016). As per Rimal et al (2017), the cultivated land has decreased from 83% to 63% from 1950s to 1970s. The urban land use increased from 20.19 sq. km (1976) to 39.47 sq km (1989) to 78.96 sq km (2002) to 139.57 sq km (2015) with an annual population growth rate of 7.34%, 7.70% and 5.90% in the respective intervals (Rimal et al, 2017). This growth in urban population, and change in utilization and composition of land has not only affected the environment but has also affected the livelihood of the people relying on the resources available (Manandhar & Shrestha, 1989).

Along with the Kathmandu urban core, its fringes are subjected to rapid urbanization and rapidly changing land-use patterns. With the development of roadways and the construction of Tribhuvan University, Kirtipur Municipality has been subjected to substantial urban growth since the 1950s. The migrants from rural parts of Nepal have been settling in Kirtipur due to its low land cost, better climatic conditions, and availability of resources. The lands that used to be valued for their agricultural value are now sought for their speculative value (Shah, 2013). This shift in land value is driven by a variety of factors including urbanization and land use change. The rapid rise in land required for construction and rise in the value of land has compelled the native farmers to sell their land to new migrants and change their primary profession as a farmer to other non-farming activities like a builder, carpenters, government officials, and business and trades (Nelson, 2015). The change of land use patterns from agricultural use to non-agricultural land is a common and inevitable way to cater for the need of space for infrastructure and industry development in the face of urbanization (Tan et al., 2009).

To effectively manage the environmental and social sustainability of any growing area, it is necessary to understand its spatial growth pattern along with the impacts it has on the livelihood of the native communities.

Problem Statement

Rapid urbanization and increase in development activities have increased the rate of in-migrants in the valley. More people require more basic infrastructure facilities- opportunities for higher education, primary healthcare, more residential buildings, more roads, and more industries. This rising demand of a rapidly increasing population can only be fulfilled by converting agricultural land into urban use hence forcing the people to settle on agricultural land for residential purposes resulting in decrease in agricultural land, impacts in socio-economic aspects of the native dwellers along with its environmental impacts.

As the urban core of Kathmandu grew, demand for more land grew in the peri-urban areas. As the core grew to be commercialized, rural-urban fringes like Kirtipur, Tokha, and Bhisipati became favorable places for people to live in. The buildup area of Kirtipur has increased by about 177.17 ha from 1996 to 2012 while the cultivation area has decreased by about 324,68 ha and the fallow land in the municipality has increased by 65.03 ha in the interval (Shrestha, 1019). Similarly, the built-up area in Lalitpur's fringe, Khokana, has increased by approximately 6% from 2000 to 2010

(Pokhrel, 2018). This trend of rapid urbanization of fringe areas has subjected the agricultural land of the areas to change into urban built-up areas and has forced the native farmers out of their primary profession (Timsina et al., 2020). The haphazard and unplanned sprawl of urban areas has taken over the existing agricultural land of the fringes. Additionally it has also threatened the sustainability of the native community and the environment (Patra et al., 2018; Peng et al., 2021) and had led to a rapid population growth in the area along with an increase in roadways, highways, environmental pollution, and increase in residential area. This phenomenon of urbanization at the cost of agricultural land over the past few decades has permanently changed the land use pattern in the valley (Haack & Rafter, 2006; Thapa et al., 2007; Thapa & Murayama, 2008). By 1990s, only one-third of households had land holding of less than 4 *ropani*, which is relatively smaller land holding size while only 20% of the population had large land holding size of more than 10 *ropani*. By 2011, the average land holding size in the valley had decreased to 5 *ropani*, which is less than the average of what people owned in the 1990s (CBS, 2011). This change in land holding size has impacted not only the land size, farm size and land use patterns, it has significantly affected the livelihood of the native farmers. Although it is important to monitor the land use land cover change in urban areas and track the physical changes that happen due to increase in residential area and population, it is equally important to consider and study the impact of urbanization and land use change on the livelihood of the native dwellers.

Morphological development and spatial expansion of Kathmandu Valley has been studied by many scholars (Haack & Rafter, 2006; Muzzini & Aparicio, 2013; Thapa, 2009) and some studies have been focused on impact of urbanization and land use on water resources, climate change, biodiversity and disaster preparedness of the valley (Maharjan, 2014; Pradhan-Salike & Pokharel, 2017; Pradhan et al., 2020), no studies which directly deal with changing pattern of land use and its native's livelihood in the city fringe has been attempted. Therefore, this study will attempt to explore the change in livelihood of native dwellers along with the change in agricultural land use pattern in one of the fringe area- Kirtipur.

The update on socio-economic change in native's livelihood with long with the change in land use will be helpful for the government, policy makers and urban planners to better contemplate social, economic and participatory approaches in the

urban planning process so that urban planning is not only concerned with physical infrastructure but also well-being and sustainability of the native dwellers.

Rationale

With rapid urbanization and industrialization taking place in Kathmandu's core, its fringes like Kirtipur, Bhaisipati, Tokha, and Khokana are being equally affected. The fringes are experiencing rapid and widespread expansion due to an overspill of economic activities from the core areas.

The trend of land use in the Kathmandu valley reveals a rapid decline of agricultural land, which was 64% of total land in 1984, and less than 42% by 2000. Conversely, the nonagricultural land has been rapidly increasing in this period from 5.6% in 1984 to 27.6% in 2000. This rapid loss of agricultural land is happening mostly in the fringes which were agriculture-dominated land.

Due to rapid urbanization and an increase in non-agricultural areas, mostly the residential and industrial area in the stake of agricultural land, the land available for native farmers is decreasing and landowners of the developing area are facing changes in their living standards. New residential development and real estate boom has also exerted pressure on farmers to abandon their traditional livelihood- agriculture, or to sell their land for better price than that received from agriculture. These changes in land use and livelihood also have profound implication on social and economic aspects. The transition from traditional livelihood also affects the cultural and economic fabric of the communities as most of the cultural and traditional practices and economy used to be dependent on agriculture. This has led to a change in the way of life, income disparities and lack of harmony among residents.

This scenario provides me with an interest in the subject as it is a pertinent issue to be addressed. Addressing the challenges posed by urbanization and change in land use pattern in the fringe areas to find sustainable solutions that would support both the physical development and economic sustainability of native dwellers.

Purpose of the Study

This study aims to assess the contextual reality of land-use change and its effect on native dwellers of Kirtipur, the fringe area of urban core Kathmandu. The main purpose of the study is to assess the changes in socio-economic aspects of natives of rural-urban fringe, to assess the trend of change in land use pattern due to urbanization, and to assess how natives of rural-urban fringe currently respond to urbanization and associated land use change.

Research Questions

1. What are the socio-economic changes experienced by native dwellers in the face of urbanization?
2. What are the effects of land use changes on the livelihood of native dwellers?
3. What are the responses of rural-urban fringe's native dwellers in regard to urbanization and associated land use change?

Hypothesis

Alternate Hypothesis: There is significant difference in average value of the reason for selling land between different demographic and socio-economic attributes (age range of respondents, occupation of respondents, number of members in the respondent's family, ownership of house, main source of income of respondent's family, agricultural continuity by respondent's family)

Significance of the Study

Constitution of Nepal, 2015, has defined the numbers and area of designated urban areas without considering their urbanization, actual economic growth, and development (Constitution of Nepal 2015). This has been bringing rapid and haphazard changes in pattern of land use in the fringe areas that have been trying to keep up with the industrial and technological development of their urban cores while trying to adjust their rural economic patterns. This redefinition of urban and rural areas has resulted in chaotic and haphazard expansion of urban areas and sprawl of residential houses and unplanned infrastructure into the agricultural land. The growing love for urban centers has also resulted in decrease of already scarce agricultural land, natural endowment, and skyrocketing land value on the fringes. Uncontrolled land-use change and rise in land value has created chaos among the people and the Government of Nepal.

As this study aims at studying the impacts of rapid urbanization on agricultural land and its effects on the livelihood of native dwellers in the rural-urban fringe of Kathmandu, it will be a valuable insight to all concerning bodies and growing fringes of the country. The present study will provide insights on socio-economic consequences of urbanization on native dwellers which can be useful to make informed decisions while planning for urban expansion and support affected communities. Since the study is based on socio-economic condition of native dwellers, it can provide insights for urban planners, local government and policy makers to make informed decision about land use planning and land zoning to

incorporate both growing need of urban infrastructure and traditional land use pattern and traditional livelihood. This understanding will also enable implementation of sustainable development strategies to ensure sustainable livelihood of the native dwellers and preservation of traditional communities and traditional knowledge. The study will also provide valuable insights for future researchers interested in rural-urban dynamics and help them understand the complex interplay between urbanization, land use change and livelihood of native dwellers. The findings from this study will be helpful for future researchers to further explore the dynamics of urbanization and land use change in other fringe areas of Kathmandu or other urban cores. Furthermore, this study could be a starting point for researchers interested in studying the impact of urbanization and land use change in culture and tradition of certain ethnic groups and the transition of their livelihood pattern.

Delimitations of the Study

The term agriculture is generally understood as practices like cultivation, animal husbandry, fishery, horticulture, arboriculture, floriculture and many more (Harris & Fuller, 2014). However, the study delimits its concern to the practice of crops and vegetables cultivation.

CHAPTER II

LITERATURE REVIEW

The first chapter briefly introduced the patterns of land use change and change in socio-economic aspects induced by urbanization. It also defined the purpose, and some research questions to pursue those purposes of the study along with the significance and rationale of the study. Now, the second chapter is all about what the available literature mentioned about the phenomenon of urbanization, rural-urban fringe and land use change along with change in native dweller's livelihood patterns. Along with some empirical studies, the chapter also looks upon some theories to understand how socio-economic condition and land use patterns have changed around the globe. Is it a normal process in development history? Or has it been the case only in Nepal? Such issues have been explored and elaborated on in this chapter. Finally, from the understanding gained after reviewing some available literature and theories, I have constructed a conceptual frame for supporting and summarizing this study in brief.

Urbanization

With the rapid migration of people from rural to urban and developed areas of the world, urbanization has become a major global trend in recent decades. In 1960s, the population in urban areas was 1.02 billion which totaled to 33% of the total population, and reached 46% (2.87 billion) by 2000. By 2010, more than 50% (3.59 billion) of the world population lived in urban areas increasing to 4.52 billion (56.47%) in 2022 (Ritchie & Roser, 2018). Nepal has one of the highest and fastest urbanization rates in Asia and the Pacific (ADB/ICIMOD, 2006 in Pradhan & Sharma, 2016). Between 1952 and 2001, Nepal's urban population increased from 0.2 million to 3.2 million, and the country's number of urban centers increased from 10 to 58. 14% of the nation's population lived in cities in 2001 which today has almost doubled to 21.45% (Sharma, 2003; CBS 2021). This trend has been started but to the continuous shift of people from rural to urban areas of Nepal

Urbanization as defined by Basyal & Khanal (2001) is the term used to define the growing number of people who live in small areas, work in non-anticultural areas and are dependent on infrastructural development of the area, and its fringes.

Urbanization has a different meaning to different sectors. Demographers view

urbanization as the increase in population in urban areas and relate of the percentage of total population of a country living in urban periphery, while economists define urbanization as the increase in use of industry and technology, and growth of economic activities in the area. Geographers relate urbanization with the physical and spatial change to land use patterns, such as change of agricultural land to built up area or change of forest land to agricultural land or change of rural land use pattern to urban land use pattern (Thapa, 2009). In Nepal, as per strategy prepared by the National Planning Commission in 2015 all municipalities are de facto urban areas even though they do not show any urban characteristics except a few small core areas (Shrestha 2011). Hence, the definition of urban area and urbanization may differ from discipline to discipline or author to author or country to country but for this study, I have defined urbanization as the socioeconomic process resulting in land use pattern change due to rapidly increasing population.

Global population growth and trends of urbanization started due to the Industrial Revolution and economic development in developed countries while in developing countries, trends of urbanization have increased rapidly in the past four decades (ADB/ICIMOD, 2006 in Pradhan & Sharma, 2016). The cities established by colonial powers were mainly for business and security, and they still portray the then needs of colonizers rather than the natives (Attwairi, 2015). As per Simon in Attwairi (2015) colonization had different impacts on different regions of urban development, which changed the cities in developing regions and helped shape their current forms. although Nepal was not directly colonized, the colonization of neighboring country, India has great effects in Nepal too. Due to good friendship between King Mahendra and India and Ranas and India, there has been large amount of development activities that are similar in Nepal and India. Like creating urban centers that functioned as administrative, economic, cultural and recreation center.

Like the definition of Urbanization, definition of urban sprawl is also vague (Johnson, 2001). It mostly described as scattered, uncontrolled, uneven and unplanned horizontal growth characterized with poor physical development that lacks of basic facilities (Bhatta & Doppler, 2010). Hence urban sprawl is the spatial and horizontal growth of settlements from the urban core to its rural peripheries. Urban sprawl is mostly driven by increase in transportation and road ways, development of infrastructure and development of basic facilities like education, health care, and communication (Bhatta & Doppler, 2010). The research work carried out by Alvarez

(2017), gives the idea that urban sprawl is likely to intensify problems of urban cores into the fringe areas. The impacts sprawl creates in fringes are unmanaged and conflicting land uses, pressures on agricultural and open space to transform into build up areas, high infrastructure costs, underdeveloped traffic system and public transport, social heterogeneity and lack of harmony among people living there (Bhatta & Doppler, 2010).

Rural-urban Fringe

Andrews (1942) defined rural-urban fringe as, “the adjacent peripheral zone of the urban core which acts as the area of intermingling between characteristically agricultural and characteristically urban land use structure”. In the western countries, after the World War II, there was high level development in the core city areas. The industries and businesses were set up in those areas leaving less space for the low class and middle-class workers. This resulted in dispersion of those people into the low cost areas near the urbanized core areas, increasing the conversion of agricultural land into residential area and growing the basic infrastructural facilities in those areas. As the residential areas grew many shopping centers, schools, offices and factories also move to the periphery of urban area targeting the cheap and large area of land. With the traffic congestion less and the environment more pleasant in such newly developed areas, such areas started to be much preferred to live in than the congested urban cores resulting in them being developed as small towns and business hubs. But instead of spreading in a planned manner, the areas are developed haphazardly with the need of the people living there and businesses existing there resulting in haphazard land use pattern, rapid expansion of residential units and industries, inadequate infrastructure facilities, poor roadways and public transportation services (Andrews, 1942).

Drivers of Change

As per Kivell (1993), conversion of rural land to urban use has drivers at various scales ranging from micro to macro scales. He pointed that social, political and economic aspects are the macro scales of drivers of change while housing and land market, government’s planning decisions, land ownership patterns, land’s soil characteristics and its distance from the urban core, infrastructure and transportation facilities lie within the meso and micro scales of the drivers of change. According to Alvarez (2017), developers deciding on buying the land from natives at lower price to parcel and plot them into smaller pieces, developing necessary infrastructure like road

and electricity and constructing houses to be sold to in-migrants directly affect the land-use decisions of natives at the rural-urban fringe. Subba (2003) in his paper claims that the natives who are anticipating development and rise in land value tend to leave the land fallow to sell it at better price than agricultural products would have provided or tend to leave the land fallow for a few months to self-construct house and rent it out to in-migrants in the area. Bryant et al. (1982) pointed that construction of roadways in the fringe areas increases the people's ability to commute from the newly developed fringe to their workplace at urban cores which result in population growth of fringe areas.

This transformation of rural areas at the periphery of the urban core usually comes with unrecognizable change in the physical environment which includes decrease in agricultural activities, haphazard land-use pattern and increase in fallow land (Afriyie et al., 2020). The migration of people from rural areas with low income, looking for affordable accommodation also equally affects the land use patterns and social structure in the fringe area (Abbass, 2012). As Méndez-Lemus & Vieyra in Afriyie et al. (2020) noted, extension of settlements into rural-urban fringe means the division of society, conversion of homogenous society into a heterogenous one and division of available resources, which results in hindered and limited access to available natural resources needed for traditional livelihood. In some cases, there may be displacement of the native dwellers due to urbanizing pressure leading to loss of social networks, loss of tradition and culture of the native dwellers due to formation of new network with different interests, needs and social background (Subba, 2003). The development of fringe areas along with the development of urban core without proper planning can lead to not only physical transformation of the area but can also lead to change in social structure which consequently changes the livelihood structure of the native communities.

On the other hand, with urbanization and growth in industries, the rural-urban fringes that used to be mostly dependent on agricultural activities are provided both more non-agricultural livelihood options which provide better income and lifestyle to the native communities (Afriyie et al., 2020). It also depends on the native community themselves on how they utilize this opportunity to enhance their livelihood (Allen, 2003). As per Allen (2003), it has been noted that this transformation of fringe areas has also led natives to adopt multiple occupations with non-agriculture activities as their main occupation and agriculture as their tertiary occupation.

A study in the Three Gorges region of China by Zhang et al. (2012) has noted that the major driver of change in land use pattern from agricultural use to other use was the urban expansion of the area. Similar change and decline in agricultural area has been studied by Rimal et al., (2019) in Nepal. According to Paudel et al. (2019), in China, urbanization including industrialization increase in related job opportunities were the key drivers of change of rural-urban fringe while they concluded that in case of Nepal, the key drivers were not limited to urbanization, rather the drivers of change also include climate change, natural and human induced disaster, migration from rural areas, change in government policies, and government instability (Paudel et al., 2019). The socio-economic factors that induced the change in land use pattern are migration to foreign countries, limited availability of labor for agriculture, high labor cost in comparison to income from agriculture, easy and affordable access to food and vegetables and high education level of the farming family members. In case of Nepal, the transformation of land is driven by interplay of various factors from population structure to accessibility to market and good, from livelihood strategies to labor availability and out migration. Additionally, industrialization, urbanization, availability of non-agricultural job opportunities, income level and education level also influence how land is used (Khanal and Watanabe, 2006). These factors highlight the complex relationship of urbanization, migration, industrialization and their resulting impact on the agricultural land and its value.

Various research in different countries have identified that the economic aspects due to urbanization and industrialization play a key role in transformation of agricultural land use pattern. These factors include using agricultural land for residential and commercial purpose, industrial development, infrastructure development, high profit from selling land, hike in land price and not making enough money from farming (Li et al., 2019, Zhang et al., 2012). As per the study conducted by Movahedi et al. (2021) it was found that the high cost of living and low income through agricultural production, and higher income from selling land than by agriculture produce were the key economic drivers of transformation of agricultural land. In similar research by Ahmadpour and Alavi (2014), it was identified that the change in soil condition, lack of access to affordable resources required for agriculture, and high price of available agricultural resources were the reason farmers choosing to transform agricultural land into other uses. Overall, these studies

show the significant impact economic drives have on changing the agricultural land use pattern.

Das & Ganesh-Kumar (2018) found that several factors influence a farmer's decision to change the land use pattern, some of which are the farmers' family size, size of agricultural land and numbers of agricultural land available, their income, and their and their children's education level. On the other hand, Barati et al. (2015) further identified social factors that influence farmer's decision of land use change which are low interest of new generation to work in fields and the discrimination against the people who still work in field as it is views as a low profile job in comparison to other industries or sector. Furthermore Movahedi et al. (2021) found that the demographic change such as unwillingness of young generation to involve in agricultural activities, changing lifestyle, and growth in adoption to trends of urbanization are some of the major drivers of change of agricultural land.

Impact of Urbanization on Rural-Urban Fringe

Physical Transformation

Agricultural development affects urbanization but the effects of urbanization on agriculture and agricultural land use is also equally notable. The effects of urbanization on agriculture can be categorized as direct and indirect where the direct impact is the change of land use from agriculture to other uses. The indirect impact refers to the interaction between urban development and the continuing agricultural structure which may result in change in the agricultural system (Bryant et. al., 1982). These indirect impacts may be positive or negative for agriculture based on the location of the urban area in relation to the agricultural area. The nearer the agricultural area, the more its demand would be for residential and commercial purpose, pushing the farmers more out of their own land (Bryant et. al., 1982).

The fact that the agricultural land around old settlements is rich in quality has never deterred the growth of cities into the fringe areas. The expansion of Paris, France was into some of the most fertile agricultural land of Western Europe. Similar case can be seen in Canada where agriculture is very difficult due to severe climatic condition (Bryant et. al., 1982). When the land is built over, the change is irreversible leading to loss in quality of soil and ground water quality of the area which further results in change in socio economic system based on the production from the land (Manna, 2021).

The transformation caused by urbanization in the fringe area is clearly visible in the physical form. A greater number of land use patterns start increasing in the fringe area. Cities spread outwards into the countryside with buildings mushrooming and commercial areas and buildings sprouting here and there. In many cases ribbon development or linear development takes place along the transportation links (Bryant et. al., 1982). This development phenomenon is usually seen in the early days of fringe development. After the second world war, similar ribbon development was observed in North America (Bryant et. al., 1982). This development reflected that the land owners had freedom to use the land as their wish and the metropolitan city, they were governed by, had least concern or were unprepared for the rapid growth emanating from the nearby cities.

Social Transformation

Rural-urban fringe is the bridge between rural and urban area with no physical demarcation of spaces. The diffusion of urban culture to rural is very notable the area. The availability of urban infrastructures like transportation, communication networks, education accessibility, commercial facilities in the rural area changes the attitude, and outlook of the native people.

Rural area, mostly characterized by social homogeneity, dominance of primary relationships, informal social control, predominant agricultural occupation, and strong neighborhood while the urban area is characterized by social heterogeneity, secondary relations, secondary control, large scale division of labor and specialization, social mobility, individualization, spatial segregation and unstable family.

Economic Transformation

As mentioned above, urbanization has both positive and negative impacts on native dwellers. Urbanization creates market for the agricultural products while also attracting natives into non-agricultural job opportunities (Bryant et. al., 1982). In the fringe areas, transformation of agricultural land into non-agricultural land use results in significant change in livelihood strategies of the natives relying on natural resource for agriculture (Kamwi et al., 2015). But alongside urbanization has also presented better opportunities which would enhance access to basic facilities and diversify the available livelihood strategies in the fringe areas (Cobinnah et al., 2015). As the city grows, the increased population requires food and other agricultural commodities. The farmers who used to produce primarily for themselves can now sell their products in

nearby market, thus commercializing the agriculture. Again, with commercialization, the impact on agriculture grows. The farmers previously producing for themselves would start growing for the market and would concentrate on cash crops and vegetables, changing the traditional practice (Bryant et al., 1982).

Thus, in overall urbanization has both the capacity to improve or deteriorate the livelihood and economic status of natives of the fringe area. The natives could be vulnerable to land encroachment by trends and impacts of urbanization while also be presented with better non-agricultural activities which would consequently uplift their economic status (Ricci, 2019).

Land Fragmentation and its Impact on Fringe

One of the most important but not very visible change in fringe area is the change in land ownership pattern. Change in land ownership usually takes place before the land use change happens and in the beginning of the city's spread into fringe area (Bryant et al., 1982). In a study carried out by Subba (2003) in urban fringe of Kathmandu, he identified two factors that promoted land fragmentation: the internal force and external force. The internal force comes from the family members who own the land and the external force is associated with the land demand, hike in land value and market activities. Usually, the internal force acts as the cause of land fragmentation caused by property and land division. The internal force induces change on land regardless of the presence or absence of the external force (Subba, 2003). The fragmentation thus initiated by the entitlement pushes the farmers to phase out the newly fragmented land parcel into sale in the face of urbanization.

The chain reaction of the land fragmentation continues as the number of land owners grows (Subba, 2003), leading to negative implication on the development pattern and production pattern. With smaller land parcels and sub divided land owners, the continued cultivation process is altered, decreasing production required to fulfill the land owner's family's needs. The effect of reduced land stock puts pressure to the landowners and even the tenant farmers as food supply decreases. This leads to putting the agricultural land out to the land market. The push to phase out land is created by domestic needs as well as the desire to move up in income and living condition (Subba, 2003).

The Trend of Urbanization and Land-use Change in Nepal

Although limited data are available regarding historical urbanization of Nepal, according to Devkota (2012), urban settlements existed in Nuwakot, Dolakha,

Banepa, Panauti during Kirat regime. In the Malla era, Kathmandu was the major trade route between India and Tibet resulting in it being one of the important urban centers. The unification of Nepal into a single nation by King Prithvi Narayan Shah led to expansion and addition of urban cores in Nepal. This also resulted in emergence of Pokhara, Butwal, Tansen, Ilam as urban centers outside the valley. Consequently, development of administrative centers around the country supported the urban growth in Nepal. The trade treaty in 1923 between Nepal and British-India and industrial development in Terai during 1930s further encouraged the urbanization of towns in southern part of the country (Whelpton, 2005). The Malaria eradication program, construction of east- west highway encouraged migration of people from hills to Terai and consequently encouraged ribbon development and urbanization of those areas

Today, Urbanization in Nepal is largely driven by the increase in population living in designated urban areas- the municipalities, which are de facto called urban areas according to the National Urban Development Strategy (NUDS, 2017). These urban areas, despite having rural characteristics, have increasing in-migration trend due to presence of a few urban centers that serve as hubs for commercial, industrial, administrative, and social activities (Ghimire, 2022).. The trend of migrating into these urban centers and their peripheral area is increasing due to the presence of better job opportunities, better facilities like healthcare and education, political stability, and technological and industrial advancement (Thapa & Murayama, 2010)..

Although many towns with urban characteristics continue to grow in case of Nepal due to diversification of industrial growth, areas which have rural characteristics still exist even though they are politically under the urban area- the municipalities. In Nepal, the criteria such as population size, density, contiguity and occupational structure of the population have been over-emphasized while legally defining an area as urban without considering other urban characteristics like infrastructure development, job opportunities and economic activities (Sharma, 2003). The National Urban Development Strategy (2017), prepared by the National Planning Commission, states that “municipalities in Nepal are de facto urban areas” which means that the classification of an area as urban is often a result of merging rural areas to form a municipality with larger political area - rather than natural growth of the area.

The study of urban areas and their characteristics has been made complicated by the frequently changing definitions and political boundary of rural and urban areas

(Basyal and Khanal, 2001; Sharma, 2003). Still urbanization in Nepal has seen significant rise in the past few decades, resulting in it being one of the fastest urbanizing countries in Asia Pacific Region (ADB/ICIMOD, 2006). Nepal had only 3% of its people living in urban areas in 1952/54 which by has been increasing to 16.2% in 2001, and 13.03% in 2011. After the restructuring of the state and increasing the number and political area of existing municipalities, the urban population has increased to 65.19% in 2011 which is still increasing such that in 2021, the urban population is 66.08% (CBS, 2021).

Urban population growth rate in Nepal is 3.38% while the rural and total population growth rates were measured to be 1.03% and 1.4% respectively in 2011 (CBS, 2011). The urban population of Nepal has increased from 13.9% in 2001 to 17% in 2011, 38.25% in 2016 and 56.5% in 2017 (CBS, 2019). The urban centers of Nepal have also increased from 10 in 1952/54 to 217 by 2017 (CBS, 2012).

The socio-political factors, economic factors and development factors driving the rapid urban growth in Nepal are multidimensional and correlated with each other (MoUD, 2017). The expansion of municipal boundaries, inclusion of new areas into municipality and merger of rural municipalities to form new municipalities have been instrumental in this growth (Choe & Pradhan, 2010). The shift of people from rural areas to urban area in search of better economic opportunities, better infrastructural facilities, due to the political unrest and conflict during the in the past three decades and the rehabilitation process after the Gorkha earthquake in 2015 have all directly or indirectly shaped the socio-economic and development process of urban centers in Nepal (Timsina et al., 2020).

Studies of Nepalese agriculture and land use show that land used for agriculture was 15,119 km² in 1910, which increased to 40,019 km² in 1978 and is still increasing such that in 2010 it was 43,879 km² (Paudel et al., 2019). But recent studies by Rimal (2017) and Thapa & Murayama (2009) have found a slight decrease in agricultural land use near the urban centers due to infrastructure and industrial activities in the peripheral area. Study by Rimal et al. (2015) also found that agricultural land in the Kathmandu Valley has decreased by around 64 km² between 1976 and 2015, while in Pokhara it has decreased from 350 km² to 321 km² between 1990 and 2013.

The Trend of Urbanization and Land-use Change in Kathmandu

Kathmandu Valley comprising of three districts- Kathmandu, Lalitpur and Bhaktapur is one of the fastest-growing metropolitan region in South Asia (Timsina et al., 2020). “The valley is an urban anchored system with few urban centers surrounding by suburban areas and traditional satellite cities and towns” (Muzzini & Aparicio, 2013). Once an agriculture dependent area, the valley is being lost to rapid urbanization with population growth at about 4.3% per year (Muzzini & Aparicio, 2013; Zurick and Rose, 2009). According to them this rapid urbanization is a result of the capital’s importance as an economy which has resulted in an increase in number of migrants from rural areas to the capital city. The trend on migration in the valley started in the Rana era along with the development interventions like construction of ring-road and ribbon development along smaller roads in the periphery of Kathmandu core (Ranjitkar & Manandhar, 1981) and now has been increasing due to its economic activities and infrastructure development.

The Kathmandu Valley, with a population estimated at 2.54 million (CBS, 2012), has been experiencing a significant growth rate of 4.3% per year over the past decade (KVDA, 2016). The 2011 census recorded the population of Kathmandu Metropolitan City alone at nearly one million, a figure projected to double by 2030 (CBS, 2011). Notably, the peripheral municipalities such as Kirtipur and Madhyapur Thimi have seen high population growth rates of 5.0% and 5.7% per year respectively. On average, the fringe areas have experienced a population growth rate of 4.8% per year from 2001 to 2011 (Muzzini and Aparicio, 2013).

The foundation of urbanization of the valley was set by the Ranas who built their palaces outside the urban cores and constructed roads leading to their palace. This encouraged ‘linear urbanization’, focused along the newly constructed roads (Ranjitkar, 2000). After 1951, these corridors of development continued to grow as did new roads. Roads along the Bishnumati, Bagmati corridor, Ring Road of 27.6km, and its extension up to the peripheral villages created new corridors of linear urbanization into the periphery. “After the development of the roadside property, the farmlands in between roads gradually converted into residential use, a process that urban planners have come to call “baneshworization”, named after the rapid and unplanned growth of Baneshwor, Southeastern area of Kathmandu”. (Nelson, 2013). The provision of gifting lands to higher class officials and government employees ensured an influx of upper caste classes and the first wave of migration (1951-1980)

in the valley was followed by a second wave of migration (1980-2000) of a diverse set of the middle-class population seeking opportunities in the valley. The process continued with the political conflict and unrest country wide (Bohra-Mishra and Massey, 2011), followed by displacement of many households after the Gorkha Earthquake in 2015.

These events resulted in increased employment opportunities in the valley, increased infrastructure development and mushrooming of residential houses resulting in change in agricultural land into residential houses and industries in the past three decades (Ishtiaque et al., 2017). The built-up area in the Valley has seen a significant increase from 38 sq. km (1990) to 119 sq. km (2012). Over the past three decades, 31% of agricultural land in the valley has been repurposed to various use beside agriculture (KVDA, 2016). Although cultivated land still covers half of the valley, the dependency on agricultural land has decreased from 83% to 63% from the 50s to 70s (Rimal et al, 2017). But the unplanned growth in the fringe area has also led to unplanned, mismanaged and haphazard development, with inadequate infrastructure and haphazard housing patterns resulting in increased vulnerability to disasters.

To preserve the historical and cultural heritage, and guide the urban development plans in fringe areas, Kathmandu Valley Physical development plan was initiated in 1969 which, although failed to implement, is still considered as an official guideline for the urban development of the valley (Thapa et al., 2008). Zoning, policy components, and land use regulations were the main areas of focus in the Kathmandu Valley Town development plan formulated on 1976. As a result of this plan, the ring road was built, adding to the peripheral ribbon development and urbanization in the area. In the Kathmandu Valley, the Land Pooling Scheme was started in 1988 to facilitate planned development which resulted in the creation of 7632 serviced plots totaling 247 ha. Up until 2009, the government combined more agricultural land for the same uses in a number of other locations (Thapa et al., 2008). After 2000, following the political unrest and conflict, the land market and land value in the valley boomed due to the increase in in-migrants from the rural parts and the build-up area of the valley increased to 117% (Ishtiaque et al., 2017). Over the past few decades, new developed areas have been created along the main roads that connect the valley to the other districts as well as in the southeast portion of the valley, including Balkot, Tikathali, Sirutar, and Lubhu (Timsina et al., 2020). Many old buildings within and outside the city core have been continuously demolished and new ones have been

built with modern style, modern architecture and modern construction materials. Not only residential buildings but *Bahas*, has also been disfigured by their modern style buildings in the city core chaining the old fabric of the core. This alteration as per (Ranjitkar, 2000) was due to demolition of private and semi-private buildings and historical structures to construct new modern buildings, addition of floors to new buildings, use of modern building materials and construction of new house in spaces that are left.

Roads, open spaces, and small land parcels for dwellings have all been demarcated in the name of plotting as the demand for residential area has grown. There are currently no lands of any kind that remain unaffected, including river banks, fragile areas, steep terrain, and fertile agricultural fields. Some of the real estate agents and brokers have bought cheap steep land, sold the excavated sand produced while leveling it and eventually plotted the leveled land for sale at a higher price (Nelson, 2013). Other than the requirement that a plot of land be at least 80 m³, there are no restrictions on land subdivision, and agricultural land revival is not taken into account. (Poudel et al., 2023). The rapid increase in migration into the valley has resulted in an increase in the residential plots and has also increased the houses renting out to in-migrants consequently resulting in tremendous urban growth at the expense of prime agriculture land around ring road (Timsina et al., 2020).

The traditional urban landscape of the valley too has undergone a drastic change due to the effects of urbanization. Once it consisted of densely built areas comprising of narrow alleys and row houses has been replaced by modern houses and wider road networks. The traditional pattern of development with *toles* and *chowks* has been replaced by linear development with houses constructed in line along the main highways and main roads. The high population density that was once a major characteristic of the urban core is gradually shifting (Timsina et al., 2020) in the periphery with more rural features and the old residential mud houses in the urban core is being replaced by new houses built for the purpose of commercialization (particularly, after the earthquake of 2015).

There are many factors behind this shifting from core to fringe area trend. Some reasons include native residents selling their land in the core area due to the breakdown of their families, or renting and/or selling a home or piece of land in the core areas due to their higher market values. According to Nelson's (2015) research, the majority of the locals shifted to separate housing areas created by real estate in the

periphery because they desired isolated residential buildings in less congested locations. When the value of the land increased, some of the original residents of the core area sold their properties, while others kept them intact and rented them out. (Subba, 2003).

Another major factor affecting growth in fringe in Kathmandu valley is the low land value in the fringes resulting in economic residential plots and housing units (Shrestha, 2011). Despite a strong history of harmony between its settlements and surrounding, urbanization has altered and reshaped Kathmandu's periphery. The urbanization of the Kathmandu core is having an effect on the valley's last remaining resources in the periphery, including fertile soil, rivers and streams, sources of drinking water, forests, and cultivated land (Manna, 2021). In a study conducted by Poudel et al. (2023) in Khokana, one of the fringe of Lalitpur core, the lack of irrigation, rising labor costs for labor-intensive farming, and the higher income from land leasing than from agriculture were found to have encouraged the local Khokana landowners to lease out their fallow land. This led to the large-scale development of residential units as well as haphazard construction, concretization, and encroachments that flooded agricultural land and destroyed the traditional *Rajkulo* canal, which was used to irrigate agricultural land (Poudel et al., 2023).

Rapid conversion of agricultural land to built-up areas and residential plots has resulted from increasing land values and interconnected challenges for growth in cities. These pressures include the government's emphasis on infrastructural developments, displacement due to political conflict and instability and the Gorkha earthquake, migration from Kathmandu's city core to its periphery, and rise in land value in the core encouraged by land pooling policies (Timsina et al., 2020). After the 2015 earthquake, which forced many victims to sell agricultural land to raise money to rebuild their homes, there was more pressure to convert land. This has led to a decrease in traditional farming methods, such as shared land ownership and collective agriculture, and an increase in livelihood and food insecurity in this formerly self-sufficient village (Poudel et al., 2023).

The Trend of Urbanization and Land-use Change in Kirtipur

The case of Kirtipur is similar to other peripheries of the valley. With rapid urbanization in the Kathmandu urban core, majority of people are shifting towards the fringe, one of which is Kirtipur, and changing the traditional land use patterns. With the development of roadways (highway, ring road, and arterial road ways) and the

construction of Tribhuvan University, Kirtipur Municipality has been subjected to substantial urban growth since 1950s. The haphazard and unplanned land use change that results from people building their homes first and basic infrastructure like roads, water, and sewerage connections later is mirrored in Kirtipur's urban development, which is similar to other peripheral settlements in the valley (Manandhar & Shrestha, 1989). The migrants from rural parts of Nepal have been settling in Kirtipur due to its low land cost, better climatic conditions, and availability of resources. The lands that used to be valued for their agricultural value are now sought for their speculative value. The increase in demand for land and rise in the value of land has compelled the native farmers to sell their land to new migrants and change their primary profession as a farmer to other non-farming activities.

In 1954 the construction of Tribhuvan University and Horticulture research center took over 4308 *ropani* of land, decreasing the cultivated area from 89% (1954) to 55% (1964). The government acquisition of land for construction of Tribhuvan University was nearly 34.62% of total land of then Kirtipur which reduced the cultivated land from 89% in 1954 to 55% in 1964. After the ring road was constructed from 1964 to 1978, there was a rapid increase in population in Kirtipur (Manandhar & Shrestha, 1989). This was because people living in congested Kathmandu core and newcomers to the valley started to seek residential plots increasing the land value sky high and prompting farmers to sell their land for other purpose than utilize for agriculture (Manandhar & Shrestha, 1989). The establishment of Brick kilns on the Northern edge of the settlement area and the expansion of the area of Tribhuvan university further decreased the cultivated land area of Kirtipur. The proportion of fallow land also increased due to fear of acquisition by the government and in hopes to sell the land as soon as possible. By 1974, dependency on agriculture had decreased from 83% (1957) to 63%. Additional 600 *ropani* agricultural land was acquired by Tribhuvan University in 1957 leading people to leave their land fallow in fear that TU would further acquire their land. The fear in people also led them to sell their land as there were rumors that the government would take over their land for construction of main bus terminal. The construction of graveled road from Kirtipur to Salyanthan in the south in 1969 further brought changes in land use pattern and increased the land value from Rs 45,000 per *ropani* to Rs. 70,000 per *ropani*. Due to road access, more and more people changed the cultivated land into residential plots outside the settlement. These changes were

induced by the development of various facilities like transportation, electricity and water supply in the south eastern part of the town. Construction of graveled road in the northern Kirtipur brought about more changes in the land use pattern. The farmers found land prices quite attractive and started holding their land fallow to get more value. The farmers also started selling their land to land developers, real estate speculators and industrialists (Manandhar & Shrestha, 1989).

Majority of land use between the period of 1954-1989 was closely associated with the decision of the government. Not only has the unplanned and haphazard growth of urban encroachment has consumed agricultural land, in the fringe area like Kirtipur but has also threatened the environmental quality of these growing areas along with a change in the livelihood of the native dwellers (Pradhan et al., 2020). Increasing urbanization in Kathmandu core and slow rate of infrastructure development in Kirtipur decreased production and made people shift to other occupations and also induced out-migration in search of better jobs.

Kirtipur is inhabited by Newar and is in many respects represents typical Newar society so I would give a short description of the Newar society before moving on to their livelihood and land use patterns. Newar is one of the indigenous groups of Nepal and one of the earliest settlers of the valley (Shokoohy & Shokoohy, 1994). In regard to the origin and history of the Newar, scholars claim that they were intermixed with multiple caste and ethnic groups (Nepali, 1965). The Newar are an intermixed community and were not only skilled farmers but were skillful in business and trade too (Sharma, 1982 in Shrestha, 2020). Majority of Newar are farmers, traders and artisans, the earliest known traders (Malla, 2010). They have traditionally been very efficient farmers, making the most of the fertile land in the valley. They used to differentiate their land as per their use and geographical location. Their settlements used to be in the center, usually preferred on top of the hill and agricultural land in the periphery. However, since the encroachment in farmland, their traditional practice has been affected (Nepali, 1965).

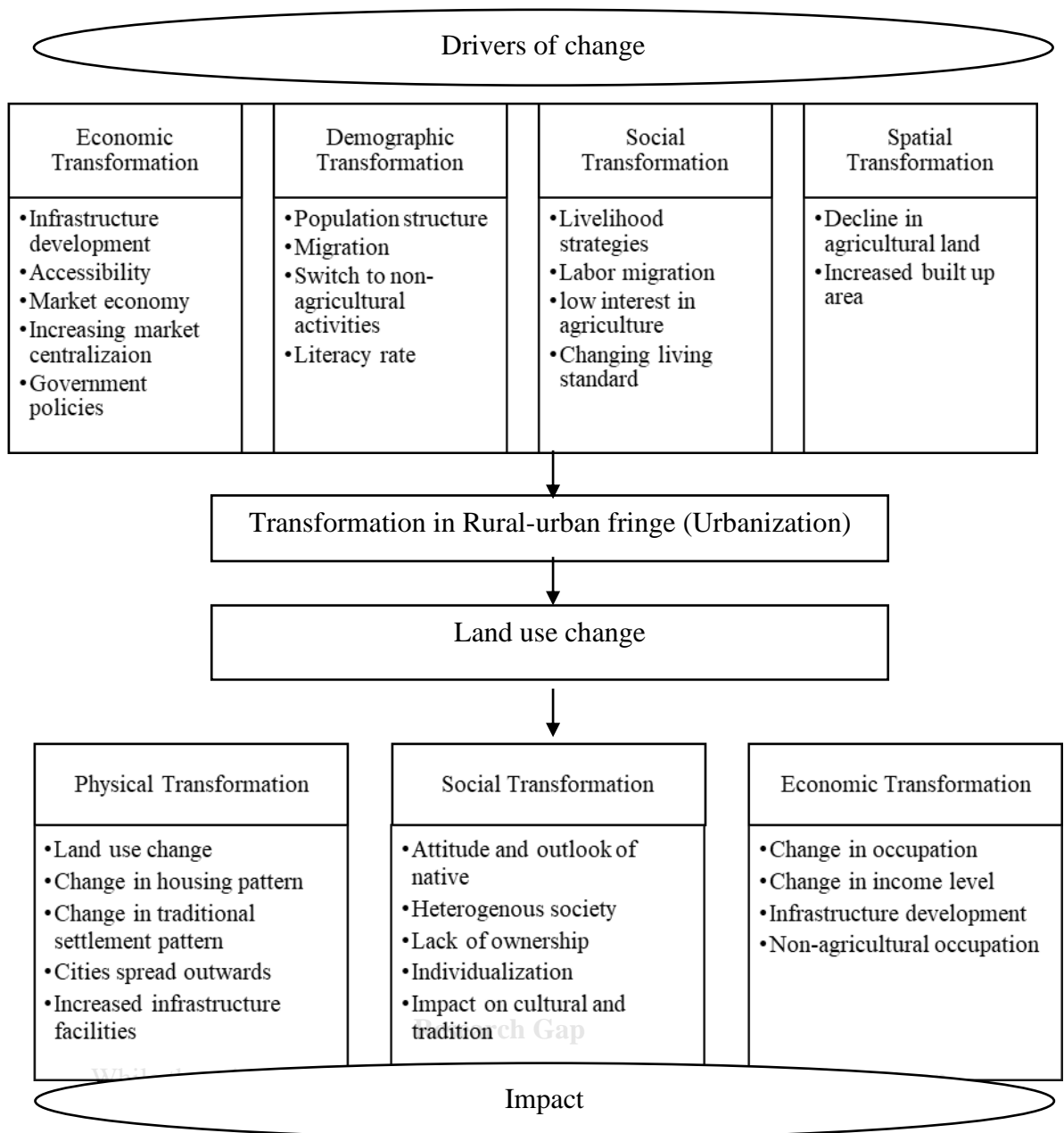
Livelihood Change Patterns of Natives in Kirtipur

Kirtipur was dominantly an agriculture-based town but as land use patterns changes, occupation of the Natives- the Newar, living here changed too. According to the research by (Manandhar & Shrestha, 1989), in 1964, over 83% households had agriculture as their main occupation while only 45 had wage employment and only 1.75 had industry as their main occupation. No households were associated with

government service before that period. But with land acquisition for Tribhuvan University and Horticulture center and increasing number of immigrants, dependence on agriculture decreased to 83% in a decade and the dependence on wage employment was increased to 17%. By 1989, percentage of households depending on agriculture as their main occupation decreased to 50% while dependence on wage employment increased to 35% (almost by 500%) and dependence in service employment increased to 29%. This was also due to remarkable growth in governmental and non-governmental organizations providing employment opportunities in the Kathmandu urban core.

As cited by Davis et al. (1979/80) in Manandhar & Shrestha 1989), increased job opportunities induced people to abandon their traditional caste occupation and to adopt new ones such that there were at least one member working in an office in one out of five households in Kirtipur. In Manandhar and Shrestha's survey, they found that people were also engaged as construction artisans, masons, carpenters as secondary occupation along with agriculture. Even though it was no longer the town's primary industry, quite a few of its residents continued to work in agriculture as a secondary occupation.

Conceptual Framework



Agriculture land, land use change pattern in the context of urban cores, there is a notable gap in studying these aspects in the context of rural-urban fringe. Rural-urban fringe are transitional zones where there is intermix between agriculture and urban job opportunities. Moreover, fringe areas, dominated by native dwellers, have their own distinct socio-economic, cultural, traditional and environmental characteristics.

The present research work is concerned with the trends of urban growth and urbanization in the rural-urban fringe and its impact on the livelihood of native dwellers in Kirtipur. Kirtipur, the fringe area of Kathmandu core has experienced both

physical and environmental changes followed by a rapid change in the size of the population, socio-economic development, political and administrative aspects, along with changes in the socio-economic status of the natives. While studies have been conducted to study the land use pattern change, and its impact on farming, water resources and disaster resilience in Kirtipur, the study on impact of urbanization and land use pattern has not been conducted in recent years. In light of this, this study aims to study the change in livelihood pattern of native dwellers along with change in land use pattern and their perception on urbanization in Kirtipur.

CHAPTER III

RESEARCH METHODOLOGY

This chapter discusses the research methodology that was used to study the changing livelihood patterns of the natives of fringe area of Kathmandu Valley along with the change in agricultural land use patterns. The chapter begins with the post-positivist research paradigm that guided this study. The survey research design is explained along with the content validation process in detail, which was adopted for making the questionnaire. A short introduction to the research site- Kirtipur is also included along with the sampling procedure and sample size calculation. Likewise, the data collection and analysis procedure has been discussed. This chapter concludes with the reliability measures ensuring the reliability, and validity through the content, construct, and criteria-related validity.

Post Positivist Research Paradigm

I have employed the post-positivist research paradigm to investigate the transforming agricultural land use pattern and the changing livelihood pattern of native dwellers of Kirtipur. The post positivist approach pursues objective answers by attempting to recognize and work with such influence or biases with the theories and knowledge the researcher develops. Instead of performing a study on people, the researcher, in this approach, sees themselves as people who conduct research with them and learn from them (Ryan, 2006). Thus, this paradigm allows the research to focus on meaning and allows understanding of the situation. This research paradigm allowed me to regard myself as a person who executes research among other people, and perform the study but by learning from them.

As a post positivist researcher, my ontological position of this research is that the change in agricultural land use due to urbanization has changed the socio-economic condition of native settlers in Kirtipur. The first objective deals with changes in agricultural land and socio-economic condition that has been faced by the native settlers due to the urbanization in the fringe area. The quantitative approach emphasizes the importance of rigorous data gathering and analysis to determine objective truths, based on multiple measures, observations, and errors.

Epistemology is that knowledge is obtained through systematic and logical methods, focusing on an observation, measurement, and reasoning. Post-positivist

research allows for the identification of patterns in data and the drawing of conclusions or hypotheses. It emphasizes the importance of empirical evidence and replicability in the research process (Ryan, 2006).

Survey Research Design

Research design is a plan for conducting the study. It is a term employed to refer to a framework for the collection and analysis of data (Kothari, 2004)

Cross-sectional Survey

Since this research is a quantitative, it has a structured research design. By examining a sample of a population, I have tried to provide a quantitative or numerical description of its trends, attitudes, or opinions. In this study, at first, I identified the purpose of the survey research. The elements of my research design included the method and tools applied for data collection, sources of data, analysis and interpretation of data. As a cross sectional survey I collected data at a time. The data were processed, analyzed and interpreted quantitatively to find out the truth (Kothari, 2004). In this Survey Research, I have administered the structured questionnaire with close ended questions. In survey research, questionnaires having dozens of questions are filled with a large number of people in a short time frame (Neuman, 2008).

Research Site

Situated in the southwestern part of Kathmandu Valley, Kirtipur is one of the oldest Newar Settlement in the valley. Lying at just 5 km away from the Kathmandu Metropolitan city, this ancient town was turned into a municipality in 1997 AD by combining 8 Village Development Committee (VDC) (Manandhar & Shrestha, 1989). Today the Kirtipur municipality is divided into 10 wards with a diverse population having the majority of Newar inhabitants. The entire Kirtipur municipality though synonymously known as Kirtipur, the name originated from a single stone hill with the same title. The term Kirtipur I use in this study denotes the Kirtipur hill which includes wards 1, 2, 3, 9 and 10 and not the entire Kirtipur municipality

I specifically choose this Kirtipur hill (also known as *Kipu/Kipuli* by locals) as my study area as it is a town with the earliest population group of the valley that still upholds the medieval settlements with a modern touch in its foothill (Shokoohy & Shokoohy, 1994). Additionally, since the construction of ring road and Tribhuvan University, Kirtipur has been experiencing rapid changes in land use pattern due to changes brought by urbanization and has also experienced haphazard growth in

infrastructure, population increase, haphazard development of residential units, land sell in large scale and environmental consequences.

Sampling Procedure

Since a complete census is impractical and costly (Kothari, 2004), I worked with a sample which is drawn representing the population. While selecting the sample, I followed the "three stages of sampling procedure" (Bhattacharjee, 2012). Firstly, the population of the study was defined. Then the sampling technique I intended to use for the study was determined along with the sample size. Then data collection procedure was selected.

I have conducted stratified random sampling to collect data from my research area. For this study, the population- households- have been divided into different strata based on the wards (1,2,3,9, and 10) and sample size has been calculated for each strata using statistical measures for each stratum.

Since my research objective is to find the change in land use pattern and livelihood pattern of natives after the Maoist insurgency in 2000s, I have surveyed any one member of the household who is of age 50 or above. I have introduced the age criteria to ensure that the present-day data can be compared to the scenario that was 30 years ago i.e., before the political instability. I choose to study the changes in a period of 30 years for the following reasons: due to the political unrest in the country that occurred in the 1990s leading to population influx in the valley, availability of secondary sources of data in these 30 years and since this timeframe of three decades was easier to recall for most respondents.

The total number of households in Kirtipur municipality as per the census 2021 is 11892 with total number of households and population in each stratum as in the table below:

Table 1*Household and Population Distribution in Kirtipur Municipality*

Ward	Number of households	Population		
		Total	Male	Female
1	1899	6379	3377	3002
2	2443	8025	4217	3808
3	1357	5249	2632	2617
9	2995	9108	4996	4112
10	3198	9782	5359	4423
Total	11892	38543	20581	17962

Since the ward wise data for number of native dwellers (Newar) was not available, rather a cumulative data of percentage of Newar individual was available as 31.1%, the total population of Newar in each ward was calculated resulting in number of Newar household as 3699.

Sample Size Determination

The sample size was calculated from the population (300) by applying the sampling formula of (Lamola & Yamane, 1967)):

$$S = N / \{1 + N * \alpha^2\}$$

Where,

S = Sample size

N = Total population = 3699

α = Level of significance = 0.05

$$S = 3699 / \{1 + 300 * 0.05^2\}$$

S = 361 households

After the calculation of sample size as 361 households, the number of households in each stratum (ward) was calculated based on the proportion of the households in each ward: 1, 2, 3, 9, and 10 of Kirtipur Municipality. The number of samples from each ward is shown in the table 2 below:

Table 2*Proportionate Sampling Calculation*

Ward	Number of households	Number of Newar households	Population percentage	Sample size
1	1899	591	15.98	58
2	2443	760	20.55	74
3	1357	422	11.41	41
9	2995	931	25.17	91
10	3198	995	26.89916	97
Total	11892	3699		361

Once the sample size was determined, I first made a sketch map of each wards, and then assigned house numbers to each household so that it would be easier for me to reach the houses. Then starting from one pe determined center point, I moved to visit the respondents.

Data Collection*Questionnaire*

According to Mugenda & Mugenda 1(999) questionnaires provide thorough solutions to complex issues. Survey questionnaire are the most efficient method of gathering data because they are comparatively objective. Questionnaires were used in the study to study the sampled population of native dwellers of Kirtipur to determine impact of urbanization in land use pattern and livelihood. The questionnaire contains five parts- the initial part gathered demographic information of the respondent, the second part gathered information on their and their family's consumption. The third and fourth parts of the questionnaire gathered information on their family's socio-economic status viz livelihood, income, and land ownership status of their family. The final part of the questionnaire collected information on the respondent's perception related to urbanization in the fringe area.

The wording of the questions, the options provided, ordering the sequence of the questionnaire were the most important parts to facilitate the interview. This step included initial questionnaire design, consultation with the supervisor, revisions and further consultations with the expertise, add-ons after review from the site constraints

and more revisions after the pretest of questionnaires. I piloted the questions among 37 people, which was approximately 10% of the total sample (361) of this study (Baker, 1994). After the pilot test, the data from the 37 people were entered into SPSS software and the validity and reliability test was conducted. Respondents commented that few questions on reason for leaving farming and respondent's perception on urbanization were difficult so those questions were revised and few reason were added as per the respondent's feedbacks. After finalizing the questions, the final questions were printed and the survey was carried out.

Before I started the collecting data with the respondents, I took their consent verbally and explained the purpose of the study and also told them that answering the survey was completely up to them and there was no obligation to take part in the study. I promised participants that their answers would remain anonymous and would only be used for the academic research purpose. The primary data was collected in the hardcopy of questionnaire and later analyzed using MS EXCEL and SPSS software. The sample of questionnaire is shown in Appendix-1.

Data Analysis

After obtaining the data in hardcopy, I entered and coded the data in MS Excel and SPSS software. I checked the correctness and completeness of the data, then coded the data from alphabetic form to numeric form. The obtained information was then processed through mean, frequencies, percentage and have presented in tabulation form to obtain the descriptive information. I have also tried to see if there is significant difference in average value of the reason for selling land between different demographic and socio-economic attributes like age range of respondents, occupation of respondents, number of members in the respondent's family, ownership of house, main source of income of respondent's family, and agricultural continuity by respondent's family. For inferential statistics, the bivariate data were analyzed using *t*-test and for multivariate data, I have employed ANOVA test. For this I met the assumptions of *t*-test and ANOVA test. The assumptions required for both the test are as follows (Kim, 2015):

The data must be collected from randomly selected respondents; the data when plotted must result in a normal distribution, and the value of Skewness and Kurtosis must be more than 0.7.

The above-mentioned assumptions were met so I employed *t*-test and ANOVA test.

Validity and Reliability

I used quantitative data, so the research followed the principles of reliability and validity. The consistency of scores or responses when given by a different person is referred to as reliability (Kothari, 2004). To signify the reliability and ensure the tool gives similar results, I conducted the pilot survey and conducted the Cronbach's Alpha test. I piloted the questions among 37 people, which was approximately 10% of the total sample (361) of this study. While making test, Alfa value of the study was 0.838 (More than 0.7) which was enough to justify that the tools could measure what was intended to measure. Further, three questions were rephrased after the item analysis.

Similarly, the questionnaire that gets accurate responses from respondents maintains its validity (Bryman, 2008). I attempted to establish validity in this research by approving the questionnaire with the help of my research supervisors and having it verified by an expert to ensure the questionnaire's validity. I then went to the research site for pilot survey which also helped me in validity testing of my questionnaire. In the case of content validity, the questionnaire prepared for this research covered all areas of research questions. Content validity was also based on literature review. To maintain construct validity, the research finding was further compared and constructed with the literatures and exiting knowledge. For criterion validity, the result that was obtained from the research was based on standard sampling method and standard statistical procedure.

Ethical Consideration

Research ethics includes the protection of the dignity of the participants and distinguishing between acceptable and unacceptable behavior. The researcher should be careful about respecting the participants, confidentiality, and informed consent (Cohen et al., 2002). I performed this study under the ethical guidelines for research from Kathmandu University and adheres to ethical principles to protect the dignity and rights of research participants. Before proceeding to the data collection, I got approval from my university and Kirtipur Municipality. Furthermore, I informed all the participants of the study's purpose, the anonymity of their identities, and their freedom to withdraw whenever they want and ensured confidentiality as it is an important part of research ethics (Babbie, 2010). After providing all the details, I further took the verbal informed consent to collect participants' data and taking pictures. The respondents that were not willing to open their identities, anonymity and

confidentiality were maintained. I equitably selected the participants as a sample through stratified random sampling in each stratum so that the research would be fair enough without any inclusion or exclusion.

CHAPTER IV FINDINGS

This chapter begins with a description of the socio-demographic variables of the native dwellers such as age, gender, occupation, literacy, and number of family members of the respondents. After the socio-demographic variable, other variables concerning their family's consumption, information on their family's socio-economic status viz livelihood, income, and land ownership status of their family and the respondent's perception related to urbanization in the fringe area are presented.

The second section of this chapter includes statistical test such as *t*-test and *ANOVA* to examine the mean difference in respondent's reason for selling land based on their age range, occupation, education level, number of members in their family, house ownership, family's main occupation and their family's continuity with agriculture.

Demographic Information About the Respondents

To form a general idea of the population's characters, some socio-demographic characteristics were collected. The demographic characteristics include age, gender, occupation, education level, number of family members, and income source and income level of the families in past and present.

Age Range and Sex of the Respondents

Table 3:

Age and Gender of the Respondents (N=361)

Age Range	Sex		Total
	Male	Female	
50 – 59	174 (48.2%)	46(12.7%)	220(60.9%)
60 – 69	90(24.9%)	23(6.4%)	113(31.3%)
more than 70	23(6.4%)	5(1.4%)	28(7.8%)
Total	287(79.5%)	74(20.5%)	361(100%)

Males aged 50-59 made up the most significant proportion of respondents within the study's population (174, 48.2%), while females aged 70 or above made up the minor proportion (5, 1.4%). Most of the respondents were male accounting to 79.5% (287) of the total population while the proportion of females was 20.5% (74) out of the 361 respondents, even though the respondents didn't need to be house

owners. In comparison to age range, most of the respondents of age 50-59, (220, 60.99%) while the least population was of respondents more than age 70 (28, 7.8%) Overall, it illustrates that the total number of male respondents was more significant than female and the number of respondents of age 50-59 was more significant than other age ranges.

Occupation of Respondent

Table 4:

Occupation and Sex of Respondent (N=361)

Occupation	Sex		
	Male	Female	Total
Agriculture	24 (6.6%)	6 (1.7%)	30 (8.3%)
Business/ trade	120 (33.2%)	26 (7.2%)	146 (40.4%)
Government Job	6 (1.7%)	1 (0.2%)	7 (1.9%)
Private Job	58 (16.1%)	13 (3.5%)	71 (19.7%)
Daily Wage	36 (10.0%)	5 (1.4%)	41 (11.4%)
House Rent	43 (11.9%)	23 (6.4%)	66 (18.3%)
Total	287(79.5%)	74(20.5%)	361(100%)

Observing the data of occupation and sex of respondents, it was found that the most number of male respondents were engaged in business/ trade (33.2%), followed by Private job (16.1%) and house rent (11.9%). In case of female respondents, it was found that most of the female respondents were involved in business/ trade (7.2%) followed by House rent (6.45%) and Private job (3.5%). The three occupations: Business/ trade, Private job and house rent seemed to be the major professions in respondents with the least respondents in Government Job (male- 1.7% and female- 0.2%). The data above also shows that most of the respondents (40.4%) are involved in business/ trade followed by 19.7% involved in private job and 18.3% relying on house rent.

Education Level of Respondent

Table 5:

Education Level and Age Range of Respondents (N=361)

Education level	Age Range						Total	
	50 - 59		60 - 69		> 70			
Illiterate	8	2.2%	3	0.8%	6	1.7%	17	4.7%
Literate	32	8.9%	24	6.6%	4	1.1%	60	16.6%
Primary level (Up to Grade 5)	43	11.9%	27	7.5%	9	2.5%	79	21.9%
Secondary level (Up to Grade 10)	32	8.9%	31	8.6%	2	0.6%	65	18.0%
Secondary level (Up to Grade 12)/ Diploma	22	6.1%	6	1.7%	2	0.6%	30	8.3%
Bachelors	58	16.1%	20	5.5%	3	0.8%	81	22.4%
Masters or above	25	6.9%	2	0.6%	2	0.6%	29	8.0%
Total	220	60.9%	113	31.3%	28	7.8%	361	100.0%

Table 5 shows the frequency and percentage of the respondent's education level and age range. Majority of respondents were of age range 50-59 (60.9%) while only 7.8% of respondents were of age 70 or above. Most of the respondents had completed their bachelor's degree (22.4%) and only 4.7% of the respondents were illiterate.

16.1% of respondents had education level up to Bachelor's level and were of age 50-59 while in the same age range, only 2.2% were illiterate. The majority of respondents of age 60-69 had completed their secondary level (Up to grade 10) (8.6%), while the majority of respondents of age 70 or above had completed Primary level (Up to Grade 5) education (2.5%). The higher percentage of people of age 50-59 completing bachelor's and master's degree shows the awareness of people towards education. This also indicates that the number of educated people is gradually increasing in urban fringe.

Number of Family Members

Table 6:

Family Size (N=361)

Family Size	Frequency	Percentage
1-5	199	55.1%
6-8	127	35.2%
More than 8	35	9.7%
Total	361	100%

Table 6 shows the frequency and percentage of Family size. It can be observed that majority (55.1%) of respondents had family size of 1-5 members while only 9.7% respondents had more than 8 members in their family. Although people used to live in joint families in the past in fringe areas, with growing urbanization, the trend has been rapidly declining. More and more families are turning into nuclear with less than 5 members in family.

Socio-Economic Condition of Respondents

To learn about the changing lifestyle and economic condition of respondents and their family, it is important to learn about their consumption details like house ownership, material of their house, vehicle ownership status, drinking water facility, sewerage system, communication modes and facilities available in their area. Moreover, tracking the respondent's family's monthly income and their major sources of income gives insight into their changing lifestyle and economy.

Consumption Information

In fringe area, higher level of urbanization is characterized by higher level of service provision and modern consumption pattern of the dwellers. Findings from this research indicate that there is high level of accessibility to services such as piped water, municipal sewerage, schools, hospital, motorable road and internet. The details of the above are shown in table 7 and 8.

Table 7:
Consumption Information

Category		Frequency	Percentage
House Ownership	Self-owned	343	95%
	Rental house	18	5%
Material of house	RCC	160	44.3%
	Brick Cement (load bearing)	158	43.8%
	Mud bonded	43	11.9%
Vehicle ownership	Yes	285	78.9%
	No	76	21.1%

Table 7 shows the house-ownership status of the respondent's family, the material of the house they live in, their vehicle ownership status and the sewerage system their houses have. 95% of the respondents live in their own house while the others live in rental houses. Almost equal number of people live in RCC (Pillar-system) house and Brick System (Load bearing) house. More than two-third of the respondent's family owned one or more vehicles (78.9%). High percentage of families owning two or four wheelers may indicate limited public facility in the area which forced the respondents to use private vehicles to reach their destination.

Table 8*Consumption Details*

Consumption description		Total respondents	
Drinking water facility	Piped water (N=361)	360	99.7%
	Kuwa/ Public well (N=361)	10	2.8%
	Hand pump/ Tube well (N=361)	55	15.2%
	Water Tanker/ Jar (N=361)	89	24.7%
Sewerage System (N=361)	Municipal Sewerage system	361	100%
	Other	0	0%
Communication facilities	Telephone (N=361)	250	69.3%
	Mobile Phone (N=361)	361	100%
	Internet (N=361)	330	91.4%
Facilities in Tole	School (N=361)	255	70.6%
	Hospital/ Pharmacy/ Health post (N=361)	267	74%
	Local Market/ Shops (N=361)	356	98.6%
	Motorable Road (N=361)	336	93.1%

Table 8 shows the frequency and percentage of respondent's houses' drinking water facility, communication modes used in their homes and facilities available in their *Tole*. Almost all of the houses had connected to the municipal piped water system (99.7% of total respondents) while 24.7% of total respondents bought Water Tanker/Jar, 15.2% of total respondents used Handpump/ Tube well and only 2.8% of total respondents used Kuwa/ Public well for drinking purpose. All the respondents have municipal sewerage system connected to their houses for solid waste disposal. Out of 361 respondents, 250 (69.3%) respondents had telephone connected to their houses while 91% of the total respondents had internet connection and all respondents had mobile phones. Of 361 respondents, almost all respondents had local market and shops in their *tole* (98.6%) while only 98.6% of total respondents had motorable road in their *tole*.

Occupations and Source of Income of the Respondents

Change in livelihood can also be characterized by the change in income level and occupation of the dwellers along with their consumption patterns. In the study area, out of 361 total respondents, 349 respondents provided information on their family's income level and occupation status in the past and present

Table 9:

Comparison of Monthly Family Income in Past and Present (N=349)

Monthly income range	Present		Past	
	Frequency	Percent	Frequency	Percent
0-10,000	7	2.01%	186	53.30%
10,000-20,000	14	4.01%	148	42.41%
20,000-40,000	103	29.51%	15	4.30%
More than 40,000	225	64.47%	0	0.00%
Total	349	100.00%	349	100.00%

Table 9 shows the comparison between the monthly income of respondent's family in the past and the present. About 30 years ago most of the respondents had monthly income less than Rs. 10,000 (53.30%) and no respondent's family earned more than Rs. 40,000. But today, 64.47% respondents said that their family's monthly income was more than Rs. 40,000 and only 2.01% said their family's monthly income was less than Rs. 10,000.

Occupation also indicates the source of income of the respondent's family. They engage in different kinds of occupations for their livelihoods, like agriculture, jobs, business/trade, foreign employment, daily wages, and others.

The respondents' family's sources of income are shown in the table below, where they are further subdivided into primary, secondary, and tertiary sources. The respondent's primary source of income is their primary line of work; secondary is their next source of income, and tertiary is their source of income after primary and secondary. The respondents' data with primary, secondary, and tertiary sources of income is presented in table 10.

Table 10:

*Comparison of Primary, Secondary, and Tertiary Occupation in Past and Present
(N=361)*

Occupation	Present Income source			Past income source		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
Agriculture	43 (11.9%)	39 (10.8%)	29 (8%)	235 (65.1%)	38 (10.5%)	7 (1.9%)
Business/ Trade	112 (31%)	57 (15.8%)	26 (7.2%)	53 (14.7%)	57 (15.8%)	12 (3.3%)
Government Job	26 (7.2%)	9 (2.5%)	1 (0.3%)	18 (5%)	16 (4.4%)	20 (5.5%)
Private Job	125 (34.6%)	63 (17.5%)	17 (4.7%)	35 (9.7%)	60 (16.6%)	15 (4.2%)
Daily Wage	10 (2.8%)	44 (12.2%)	11 (3%)	20 (5.5%)	71 (19.7%)	9 (2.5%)
House Rent	37 (10.2%)	65 (18%)	24 (6.6%)	0 (0%)	8 (2.2%)	1 (0.3%)
Foreign employment	7 (1.9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Other	1 (0.3%)	0 (0%)	5 (1.4%)	0 (0%)	2 (0.6%)	0 (0%)
	361	277	113	361	252	64

From the table it can be noted that 30 years ago more than half of the respondents were involved in agriculture as their main profession (65.1%) and no family was dependent on house rent or foreign employment. Business/ trade accounted to only 14.7% while Government Job, Private Job and Daily wage were recorded at less than 10% in case on primary occupation.

But today, more families have started to discontinue agriculture such that only 11.9% respondent's families are involved in agriculture as their main profession. There has been an increase in the number of families depending on Business/ Trade and Private job and the percentage of respondents has increased from 15.8% to 31% in Business/ Trade and 16.6% to 34.6% in Private Job. House rent as primary source of family's

income has also increased to 10.2% from 0%. House rent has also been increasing as secondary and tertiary occupation as 18% and 6.6% respondents said that their secondary and tertiary income source is House rent. The change in occupation is mainly due to the better educational facilities and accessibility to education and job opportunities. It is also induced by hike in land value and preference of people to construct a house and provide it for rent rather than selling agricultural products (Nelson, 2013).

Change in Land-use Patterns

Table 11:

Land ownership details

Category	Attribute	Frequency	Percentage
Land ownership (N=361)	Owned	345	95.6%
	Not owned	16	4.4%
Land ownership form	Gifted by relatives (N=345)	13	3.6%
	Inheritance (N=345)	319	88.4%
	Bought (N=345)	70	19.4%

From table 11, it can be observed that almost all of the respondent's families own land (95.6%) and most of the people inherited the land from their father/grandfather or mother (88.4%). Out of 345 people who owned land, less than one-fourth responded that they bought the land while 3.6% of 345 respondents said that they were gifted the land by their relatives.

Land-use Then and Now

Changing land use pattern can be observed by how the respondents are using their land and comparing it with how it was used 30 years ago. The following table shows the comparison.

Table 12

Comparison of Land-use 30 years Ago and Today (N=345)

Category	Past		Present	
	Frequency	Percentage	Frequency	Percentage
Agriculture	291	84.35%	127	36.81%
Industry	8	2.32%	23	6.67%
Business	2	0.58%	14	4.06%
Residential purpose	206	59.71%	318	92.17%
Fallow land	33	9.57%	51	14.78%

Land rented for agriculture	39	11.30%	101	29.28%
Land rented for other purpose	2	0.58%	56	16.23%

From table 12, it can be observed that more than 84.35% of 345 landowners were using their land for agriculture while today only 36.81% are using it for agriculture. Table 10 also reveals that at present the majority of respondents (92.17% of 345 land owners) stated residential dwelling as their predominant land use purpose followed by agriculture (36.81% of 345 land owners). It was also observed that the average land holding size of families 30 years ago was 21.90 *anna* which has decreased to 15.31 *anna* in these 30 years.

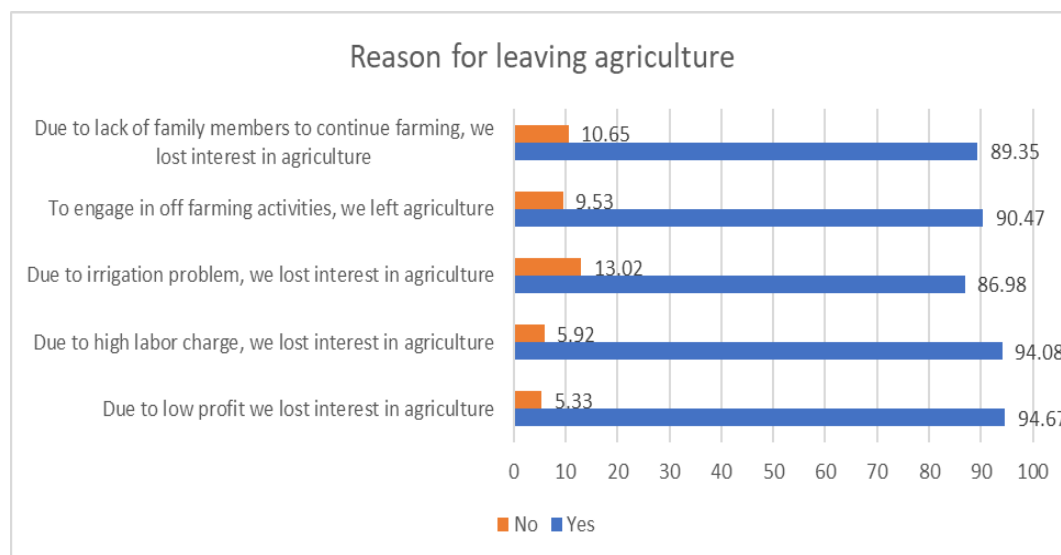
From above tables, it can be observed that many families had left agriculture as their profession and the land use pattern has also been changing, so the data in table 11 was collected to understand if the respondents and their family left agriculture due to lack of land or not.

Table 13

Agricultural Continuity of People Who still Own Land

Agricultural continuity of people who still own land	Frequency	Percent
Continued agriculture	171	47.4
Discontinued agriculture	190	52.6
Total	361	100.0

From 13, it can be observed that almost half of the respondent's family, who still owned land, has discontinued agriculture. To understand the reason for leaving agriculture, the respondents' data were recorded and has been presented in figure 1.

Figure 1*Respondents' Reason for Leaving Agriculture*

To understand their reason for leaving agriculture, five different questions were asked and the answers has been presented in figure 1. The survey response indicated that low profit in agriculture was the major reason why they discontinued agriculture followed by high labor charge in agriculture. Likewise, engagement in off-farming activities and lack of family members to continue agriculture and issues in irrigation of land were other factors affecting their decision to leave farming.

Table 14*Number of Respondents Selling Land in 30 years*

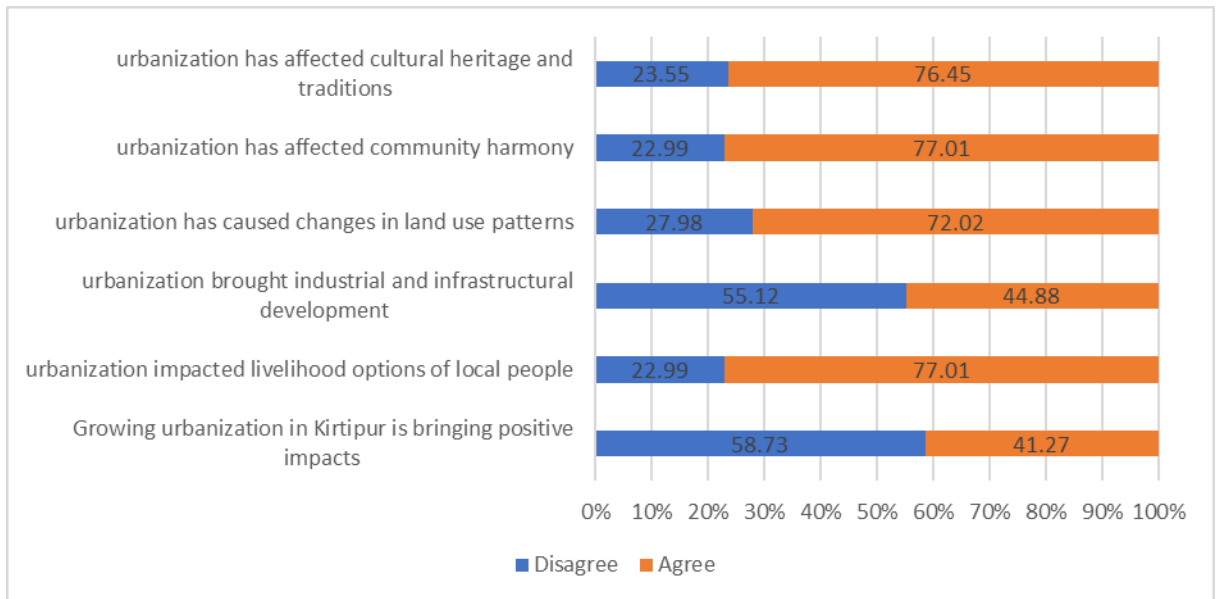
	Frequency	Percent
Has sold land in 30 years	171	47.4
Has not sold any land in 30 years	190	52.6
Total	361	100.0

It can also be observed in table 14, that out of 361 respondents, 94 respondents and their families have sold their land. To understand if the reason for selling the land was affected by the respondent's occupation, sex, education level, their family size or family's present primary occupation, independent t – test and ANOVA were carried out.

Responses in Regards to Urbanization and Associated Land-use Change

Figure 2

Respondent's Perception on Urbanization

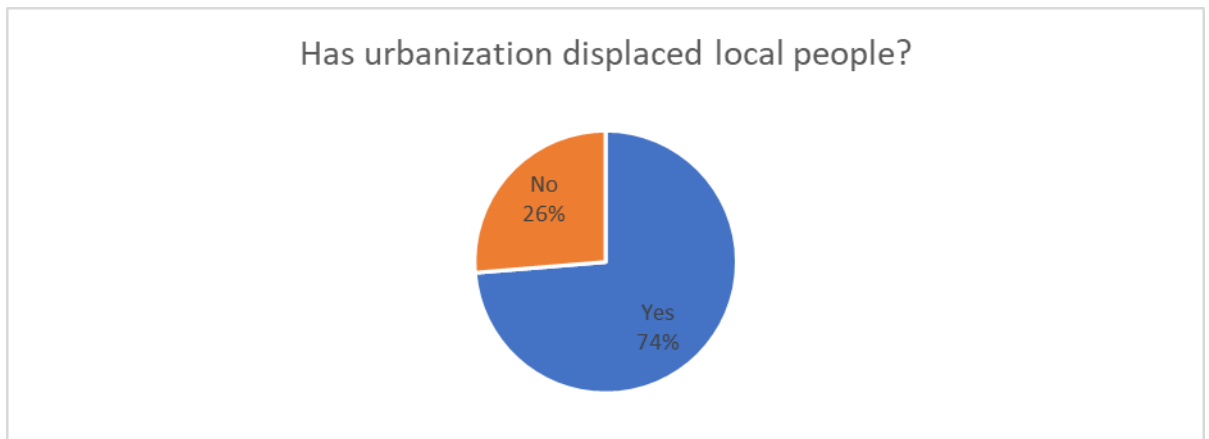


From figure 2, it can be observed that more than half of the respondents had negative perception on the changes that urbanization has brought in Kirtipur. More than 70% of respondents believed that urbanization had affected their cultural heritage and tradition and has affected community harmony. More than 70% respondents also believed that urbanization has brought land use changes and has affected livelihood options of the local people. Only 44.88% agree that urbanization has brought industrial and infrastructural development and only 41.27% believed urbanization has brought positive impacts in Kirtipur.

As mentioned in literatures, the number of in-migrants has been rapidly growing in the valley and in Kirtipur, and their influence is having adverse consequences on the native people. Based on the survey responds by 266 out of 361 people (74%), it can be observed that the existing trend of urbanization has caused displacement of natives by various means.

Figure 3

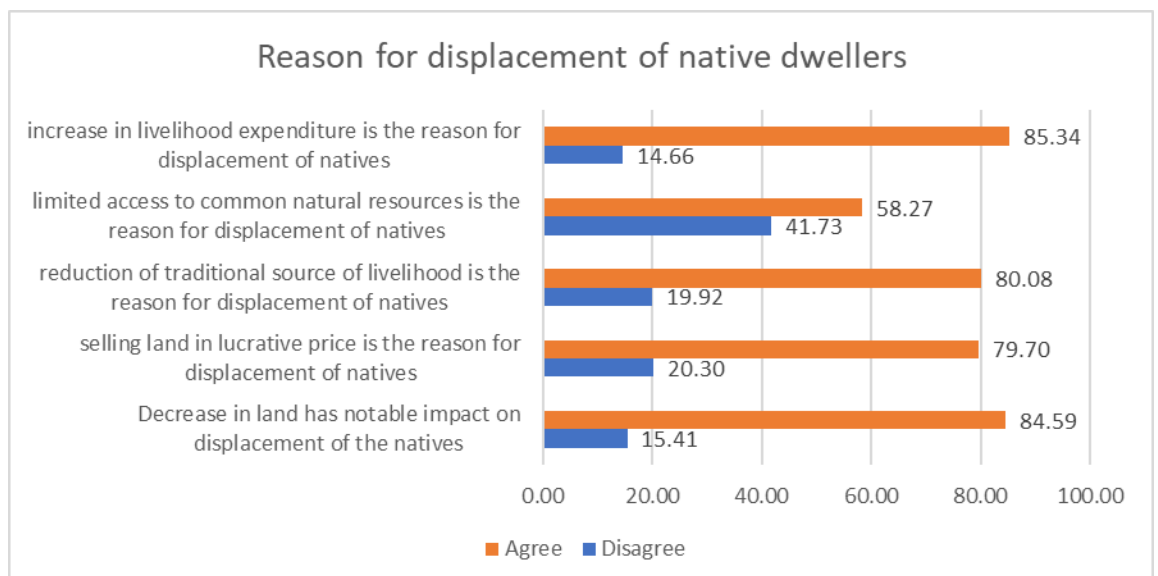
Perception of Respondents on Displacement of Local People



As shown in figure 4, a total of 85.34% of 266 respondents expressed the view that increase in livelihood expenditure is the reason for displacement of native people. Additionally, 80.08% and 84.59% respondents indicated that reduction of traditional source of livelihood and decrease in land has made notable impact on displacement of natives. While 79.70% respondents indicated selling land in lucrative price is the reason for displacement, only 58.27% of 266 respondents indicated that displacement of natives was caused due to limited access to common natural resources.

Figure 4

Respondent's Perception on Reason for Displacement of Native Dwellers



Statistical Analysis

To test the hypothesis, I adopted the inferential statistical analysis using two tailed test with alpha value 0.05. parametric test was employed to test the significant

difference in average value of the reason for selling land between different demographic and socio-economic attributes like age range of respondents, occupation of respondents, number of members in the respondent's family, ownership of house, main source of income of respondent's family, and agricultural continuity by respondent's family. The alternate hypothesis developed for the study is given below:
 H_1 = There is significant difference in average value of the reason for selling land between different demographic and socio-economic attributes (age range of respondents, occupation of respondents, number of members in the respondent's family, ownership of house, main source of income of respondent's family, agricultural continuity by respondent's family)

Testing the Assumption for Parametric test

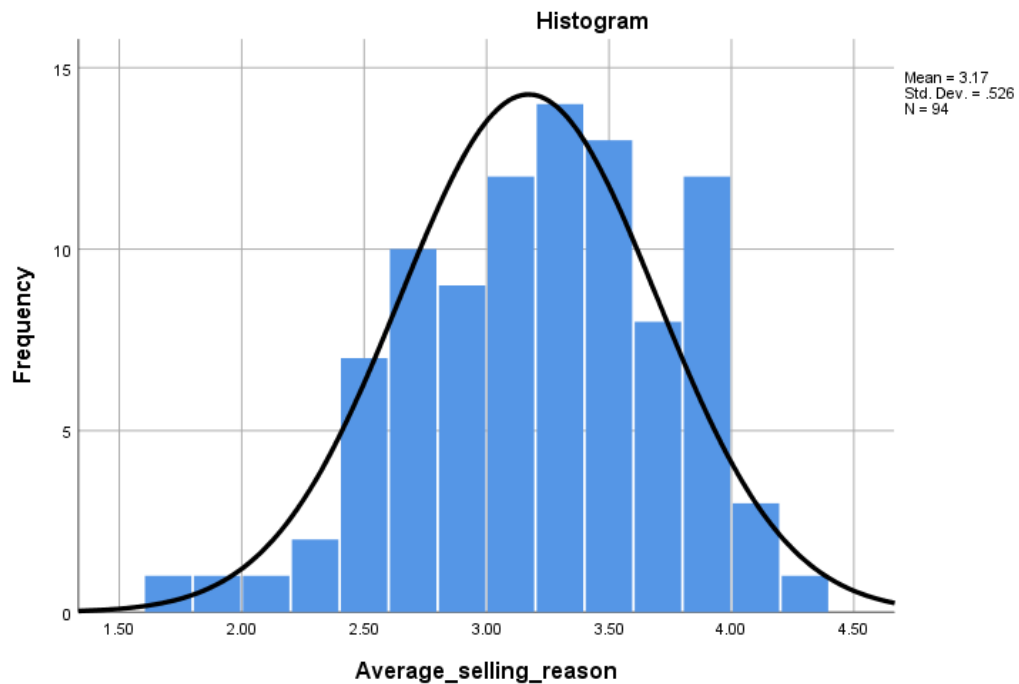
To conduct the parametric test, the following assumptions are to be met (Kim, 2015): The data must be collected from randomly selected respondents; the data must be collected in an interval or ratio level of measurement; the data when plotted must result in a normal distribution, and the value of Skewness and Kurtosis must be more than 0.7.

To ensure random data, I have conducted stratified random sampling where I have divided the wards 1,2,3,9, and 10 into different stratum and have calculated the sample size for each stratum then I have selected the respondents randomly.

To ensure the data were collected in an interval or ratio level of measurement, the respondent's different reasons for selling land were measured through 6-point Likert Scale where 1 indicated Strongly Disagree, 2 indicated Disagree, 3 indicated Somewhat Disagree, 4 indicated Somewhat Agree, 5 indicated Agree, and 6 indicated Strongly Agree, and then the obtained data was computed into a new variable which was the average of the respondent's data of reasons for selling land. The histogram curve of the new variable was generated and is presented in the figure 5:

Figure 5

Normal Curve for Average of Reason for Selling Land



The figure shows that the dependent variable is normally distributed as the value of mean is six times less than the standard deviation. The skewness and kurtosis of the thus obtained variable is shown in table 15. This ensured all the assumptions required to conduct the parametric test were met.

Table 15

Skewness and Kurtosis for Average of Respondent's Reason for Selling Land (N=94)

Skewness	-0.378
Kurtosis	-0.327

Hypothesis Testing

I have tested the respondent's reason for selling land based on their age range, occupation, education level, number of members in family, house ownership, respondent's family's main occupation and stopping agriculture using independent sample *t*-test and ANOVA.

Reason for Selling Land and Age Range of Respondent

This section elucidates the influence of age range on reason for selling land. For this purpose, I have employed ANOVA test.

Table 16

ANOVA Test of Respondent's Reason for Selling Land in Respect to their Age Range.

Groups	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.008	2	.004	.014	.986
Within Groups	25.705	91	.282		
Total	25.712	93			

Table 16 shows that p-value is 0.986, which is more than α -value (0.05). Thus we could retain the null hypothesis. Hence, there is no significant difference in average value of the reason for selling land between different age range of respondents.

Reason for Selling Land and Occupation of Respondent

This section elucidates the influence of occupation of respondent on reason for selling land. For this purpose, I have employed ANOVA test.

Table 17

ANOVA Test of Respondent's Reason for Selling Land in Respect to their Occupation.

Groups	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.799	4	.700	2.717	.035
Within Groups	22.914	89	.257		
Total	25.712	93			

Table 17 shows that p-value is 0.035, which is less than α -value (0.05). Thus, we could not retain the null hypothesis and hence the alternative hypothesis is assumed. Thus, means that there is significant difference in average value of the reason for selling land between different age range of respondents. To further test the result between different individual's occupation, post-hoc test was conducted and the result is shown in table below:

Table 18:

Post-Hoc test of Respondent's Reason for Selling Land to their Occupation

(I) Occupation	(J) Occupation	Mean Difference (I-J)	Std. Error	Sig.
Business/ trade	Private Job	.03998	.14261	.780
	Daily wage	.61224*	.20472	.004

	House Rent	.20272	.13215	.129
	Business/ trade	-.03998	.14261	.780
Private Job	Daily wage	.57227*	.22753	.014
	House Rent	.16275	.16530	.327
	Business/ trade	-.61224*	.20472	.004
Daily wage	Private Job	-.57227*	.22753	.014
	House Rent	-.40952	.22112	.067
	Business/ trade	-.20272	.13215	.129
House Rent	Private Job	-.16275	.16530	.327
	Daily wage	.40952	.22112	.067

From table 18, it can be seen that the p-value is less than 0.05 between Business/ Trade and Daily wage (0.004) and between Private Job and Daily wage (0.014). There is a negative mean difference between Daily wage and Business/trade. Similarly, there is a negative mean difference between Daily wage and Private job. This indicates that people who are relying on Business/Trade and Private Job have significantly lower average reasons for selling land compared to those with daily wage as their occupation.

This means that there is significantly lesser probability of person with business/trade or private job to sell their land as compared to those relying on daily wage.

Reason for Selling Land and Education Level Respondent

To examine the influence of education level of respondent on their reason for selling land, I have employed ANOVA test.

Table 19

ANOVA Test of Respondent's Reason for Selling Land in Respect to their Education Level

Group	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.715	6	.286	1.036	.407
Within Groups	23.997	87	.276		
Total	25.712	93			

Table 18 shows that p-value is 0.407, which is more than α -value (0.05). Thus we retain the null hypothesis. Hence, there is no significant difference in average value of the reason for selling land between different education level of respondents.

Reason for Selling Land and Number of Members in Family of Respondent

To examine the influence of number of family members in respondent's family on their reason for selling land, I have employed ANOVA test.

Table 20

ANOVA Test of Respondent's Reason for Selling Land in Respect to the Number of Members in their Family

Group	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.233	2	.117	.416	.661
Within Groups	25.479	91	.280		
Total	25.712	93			

Table 19 shows that p-value is 0.661, which is more than α -value (0.05). Thus, we could retain the null hypothesis. Hence, there is no significant difference in average value of the reason for selling land between different respondents with different number of family members.

Reason for Selling Land and Owning a House

To examine the influence of ownership of house by respondent's family on their reason for selling land, I have employed ANOVA test.

Testing the hypothesis, average of the reason of selling land by respondents who sell land and those who do not sell land was found to be 3.18 and 3.15. This description shows that both house owners and non-house owners tended to be towards the "agree" side. Further, to see if this result was generalizable, independent t-test was conducted.

Table 21:

Independent Sample t-test for Respondent's Reason for Selling Land in Respect to their Family's House Ownership

	House Ownership	N	Mean	SD	T	df	Sig. (2-tailed)
Average of reason	Yes	88	3.17	.53	.102	92	.92

of selling land

No	6	3.15	.26
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Table 20 shows that t value = 102, df = 92 and p -value = 0.92 which is more than the accepted level of significant 0.05. So, the null hypothesis was retained. Thus, it means that there is no significant difference in average value of the reason for selling land between respondents who own a house and respondents who don't own a house

Reason for Selling Land and Family's Main Source of Income

To examine the influence of respondent's family main source of income on their reason for selling land, I have employed ANOVA test.

Table 22

ANOVA Test of Respondent's Reason for Selling Land in Respect to their Family's Main Source of Income

Group	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.285	4	.571	2.170	.079
Within Groups	23.427	89	.263		
Total	25.712	93			

Table 21 shows that p -value is 0.079, which is more than α -value (0.05). Thus, we could retain the null hypothesis. Hence, there is no significant difference in average value of the reason for selling land between different main source of income of respondent's family.

Reason for Selling Land and Stopping Agriculture

To examine the influence of respondent's family' decision to stop agriculture on their reason for selling land, I have employed ANOVA test.

Table 23

Independent Sample t-test for Respondent's Reason for Selling Land in Respect to Stopping Agriculture

	Stopped Agriculture	N	Mean	SD	T	df	Sig. (2-tailed)
Average of reason of selling land	Yes	51	3.09	.62	-1.480	92	.14
	No	43	3.25	.36			

The result shows that t value = -1.545, df = 82.226 and p - value= 0.126 which is more than the accepted level of significant 0.05. So, the null hypothesis was accepted. Thus, it means that there is no significant difference in average value of the reason for selling land between respondents who have stopped agriculture and those who have not stopped agriculture.

CHAPTER V DISCUSSION

The peripheral area in the Kathmandu Valley have grown significantly and quickly in recent decades. The valley has experienced a sharp increase in the number of immigrants from rural areas due to the political unrest in the 1990s. The Valley's population has increased as a result of exposure to globalization as well as the development of physical and other infrastructure, such as basic health care and educational facilities. Along with the increase in population, the valley's land use has seen significant changes as a result of the urban area's rapid expansion and its horizontal expansion into the rural-urban fringe. In peripheral areas such as Kirtipur, the commercial pressures originating from the urban core are evident.

Socio-Economic Condition of Native Dwellers

The survey results showed that most of the respondents (40.4%) are involved in business/ trade followed by 19.7% involved in private job and 18.3% relying on house rent. This, as indicated in preceding literatures, suggest that the fringe areas are being widely considered and are turning into small business hubs. Since the business/trade option also indicated any small industries, it also suggests, as in literatures, that fringe areas are being considered for small and cottage industries. As mentioned by Nelson (2015), increasing number of people responding house rent as their occupation suggests that people are constructing house to rent it to immigrants.

Education is one of the fundamental factors of development and urbanization and is a driver of reducing poverty, improving health, equality and stability (*Education Overview: Development News, Research, Data*, n.d.). The survey revealed that the education level among native dwellers has also showed improvements as respondents of age 50-59 had higher education level than those of age 60-69 and more than 70. The higher % of respondents completing their bachelor's and master's degree shows that the native dweller have better access to educational facilities.

With growing number of concrete houses in the area, modification in the form of buildings can be clearly be seen. Growing vehicle ownership and motorable roads in each toles also denote growing infrastructure growth and urbanization. Similar case was seen in Bungamati where the native settlers had although kept the traditional

material of streets (bricks or stones) had made the streets motorable (Shrestha & Shrestha).

Access to infrastructure is an important measure to improve standard of life. It is noted from the findings above that almost all households were connected to piped water provided by the municipality, all households were connected to municipal sewerage and more than half of the households were connected with telephone lines. More than 70% people responded that they have schools and hospitals/pharmacy or health post in their *tole*. Almost all households had local market/shops and motorable roads. Above status of infrastructure indicates that there is growing infrastructure development in the area.

Over the past three decades, there has also been noticeable increase in income level of the native dwellers. More than 60% respondents' family's monthly income was more than Rs. 40,000 while nearly 30% had monthly income between Rs. 20,000 to Rs. 40,000 indicating that most of the people in fringe area have middle- and high-income level¹. Three decades ago, more than 60% respondent's family's main source of income was agriculture while only 14% of them had business/ trade as their main income source. But today only 11.9% families were primarily dependent on agriculture. Most of the respondent's family were dependent on private job or business/trade for their income source. This indicated that the lifestyle of the respondents is also changing with growing urbanization. As Bhatta & Doppler (2010) reported, higher income levels are found in urban areas due to easy access to urban amenities and the availability of off-farm employment.

From findings above, it can be observed that the primary source of income of most respondents' family is Private job and Business/ trade. This finding opposes with findings from (Browder et al., 1995) who said that the fringe areas are more inclined towards agriculture as they are functionally integrated with rural areas. The presence of agriculture as primary income source of 11.95% of respondent's families and secondary and tertiary income source for 10.8% and 8% respondent's families respectively shows that the fringe areas are not fully dependent on non-agriculture

¹ Level of income is determined from (CBS, 2011) where it is stated that the richest 20% have income level greater than Rs. 90,000 and poorest 20% have income level around Rs. 16,000 in Kathmandu Valley. That means middle income lies in between Rs. 16,000 to Rs. 90,000. Accordingly, for the sake of ease of response from the interviewee, the income level is delimited as follows: <Rs. 20,000 (low income), Rs. 20,000- Rs. 40,000 (middle income) and >Rs. 40,000 (High income))

activities only which further shows that fringe area is the zone of interaction between rural and urban area.

Effect of Land Use Change on Livelihood of Native Dwellers

The study found a clear shift in primary land use pattern in three decades as most of the respondents were not involved in agriculture and many had already sold their land to in-migrants. While more than 80% respondent's land was used for agricultural purpose in the past, only 36% today claimed to use that land for agriculture. Most of the families who still owned land had converted agricultural land for residential and commercial purpose. Many responded that low profit in agriculture, high labor charge and engagement in off farming activities were the reasons their family discontinued agriculture. These findings resonated with findings from Paudel et al. (2014) who found that the labor shortage and higher production cost affected farmer's decision regarding continuation of agriculture as their primary occupation. This resulted in gradual shift from agricultural activities to other occupation and income sources.

Furthermore, the landholding size of the natives has also been decreasing over time. Researchers like Thapa (2009), Timsina et al. (2020) found that most of the agricultural land in the peripheral area of urban cores were rapidly changing to house the in-migrants and to make space for infrastructure development. It was also observed that the respondent's present occupation made a significant difference in their reason for selling land..It was found that the respondents who did not have enough skills to start a business/trade or to get a proper private job and where dependent on daily wage had significantly more reasons to sell their land and transforming more from agriculture to other non-agricultural jobs. Owing to urbanization, change in lifestyle and lower economic benefit the natives have been gradually changing their occupation from agriculture to other non-agricultural occupations and have also been selling land along with shifting occupation.

The results of the study also indicates that most families used to have larger land holding sizes and used it for agricultural purpose. But today along with a decrease in land holding size by each family, the land itself is being utilized for dwelling purpose rather than for agriculture. Majority of respondents said that the reason for discontinuing agriculture were due to low profit in agriculture, high labor charge in agriculture and their engagement in off farming activities. Shrestha (2011) found that economic factor was one of the major drivers for shift in occupation of

natives from agriculture. Falling earnings, decrease in soil productivity and loss of traditional crops along with introduction of new crops and vegetables were attributed along with high labor cost and less profit from agriculture in his study.

From the study above it was also found that the land holding size was decreasing with increasing impacts of urbanization. Landownership today has become a social status not because of its productiveness, but due to its location and accessibility to infrastructural facilities (Shrestha, 2011). In the report, it was found that the agricultural land in fringe of Lalitpur- Lubhu and Lele VDCs- were not only being transformed into settlements but the remaining land was also being fragmented as landownership is considered to raise the social status in the present days. Similar case can be seen in Kirtipur where the natives, who used to have large land holding sizes three decades ago, now have less land holding size and almost everyone had built houses in their land. The land value in the fringe area is also increasing along with increase in land prices in the urban core due to scarcity of land in urban areas. Shrestha (2011) also found that the land values in Kathmandu as well as its peripheral area have increased due to two major reasons, first being increase in demand for land than the supply across all urban areas and the second being the speculative demand for land. As mentioned in literatures, more and more people and land brokers were buying land and keeping it fallow to sell it when the land value in the area hikes in the study area too.

Responses in Regards to Urbanization and Associated Land Use Change

From the study, it can be clearly seen that more than half of the respondents had a negative perception of the changes brought by urbanization in Kirtipur. Over 70% of the respondents believed that urbanization has affected the cultural heritage and tradition of the native community and has also affected the community harmony. The impact is likely due to the influx of migrants from different parts of the country after the Maoist insurgency, which has led to heterogeneous community with mix of culture, tradition, language, and decrease in ownership of traditional practices and values. McGee (1982) mentioned that when any area gains high number of in-migrants and has high population density, a heterogeneous population is induced with change in personality and social life of people. Similar result has been observed in the study where urbanization has created a heterogeneous society and has negatively affected the culture and tradition of the native communities.

Urbanization creates a market of non-agricultural job opportunities which attract the natives towards urban employment from agriculture (McGee, 1982) changing the livelihood pattern and the land use pattern. Another study by (Choithani et al., 2021; Kamwi et al., 2015) found that the livelihood elements and strategies of peri-urban natives are greatly affected by the decrease in farm-size and lack of accessibility to common resources. This phenomenon is clearly seen in the study where over two-third respondents also believed that the land use pattern change induced by urbanization has affected the traditional livelihood of the natives.

Additionally, the increase in livelihood expenditure along with availability of non-agricultural occupation opportunities, increase in education level among the natives has led to reduction in traditional livelihood. This shift can have implication on the economic stability of the native dwellers and identity of native community as their traditional occupation is being abandoned. With increase in residential plots and increasing division of land, irrigation in smaller land has become costlier and difficult resulting in impact on agricultural activity.

The study also explored the issue of displacement of native people as a consequence of urbanization. In similar study conducted by Alemineh (2018) and Rahman et al., (2023) in Ethiopia and North Bangladesh, it was found that urban growth and development activities had negative effects on livelihood of native population. In their study it was found that urbanization tends to offer non-agriculture-based job opportunities resulting in either outmigration of natives or them selling land to sustain their livelihoods, both resulting in their displacement. Over 70% of the respondents believed that the existing trend of urbanization resulted in displacement of native people where most people believed that increase in livelihood expenditure, reduction in traditional source of livelihood and decrease in available land for agriculture were the most significant reasons for displacement of native people. Over 70% people believed that the selling of land by residents in greed of money was also the reason for displacement of natives. This also resonates with the study by Ricci (2019) that urbanization has the potential to either improve or deteriorate the livelihood prospect of people living in the fringe.

CHAPTER VI

SUMMARY, CONCLUSION AND IMPLICATION

Summary

The study provides a comprehensive study on the socio-economic change in native dwellers and change in land use pattern in the context of urbanization in its urban core, Kathmandu. The Kathmandu valley, one of the worlds fastest growing cities in South Asia, is facing serious socioeconomic and environmental threats due to a lack of comprehensive and well-defined land policy and planning. Rapid urbanization, along with poorly managed settlements and unplanned infrastructure development, has resulted in air pollution, traffic jams, haphazard solid waste disposal into rivers and streams, and the loss of a rich cultural heritage. Rapid urbanization has also resulted in the conversion of the agricultural land pattern into human settlement, industry, markets, and other uses.

The study suggests that there has been a significant transformation in socio-economic condition of native dwellers in the past three decade. Most of the native dwellers have abandoned their traditional livelihood option, agriculture, and are engage in business/ trade or private job or are dependent on house rent suggesting that the fringe areas are gradually transforming into business and small industry hubs. The dependency on house rent also indicates the increasing number of immigrants in the area. There has also been a noticeable change in income level of the native dwellers as they shift from agriculture to other occupations. Education levels have also improved, and there are more concrete houses and better infrastructure. This shows the change in lifestyle and economic structure due to urbanization. While the majority of respondents' primary income sources are private jobs, business/trade and house rent, few people are still dependent on agriculture indicating fringe area's role as a zone of interaction between rural and urban areas.

The results of the study showed that the urbanization has increased the residential houses reducing the agricultural land. Many respondents are no longer involved in agriculture, and a many have sold their land to in-migrants. This change can also be seen through the decreasing landholding size and the conversion of agricultural land for residential and commercial purposes. Landownership today has become a social status, influenced by location of land and its accessibility to

infrastructure facilities. The changing land use pattern from agriculture to residential purpose and other non-agricultural purpose has directly affected the traditional livelihood of native communities. Despite the fact that urbanization has created new opportunities, has brought awareness among people, has brought educational opportunities leading to better job landing, the benefits to natives are seen to be very less as most of the natives have been selling their land at lucrative price and building houses to rent for outsiders or to set up business or trade.

Based on global trends, urbanization and urban growth into the fringe areas can have both positive and negative implications. This usually depends on how the expansion is being handled by the government and policy makers. If urban expansion into the fringe areas is not handled and managed properly, it can have negative impacts on the economy, environment and the society, particularly the native communities (Choithani et. al., 2021). Similar case has been seen in Kirtipur where even though physical infrastructure has been growing along with growth in residential plots, residential areas and population, native people believe that the infrastructural development has not brought any good to the society. This implies that although the urbanization in Kathmandu urban core has been transforming Kirtipur physically, the benefits of urbanization has not been grabbed by the natives rather their traditional livelihood along with tradition, culture and values has been negatively affected. The transition from traditional occupation to modern non-agricultural occupation has largely affected their economic status and overall livelihood strategies. Those who had necessary skills, knowledge and had access to modern occupation options benefitted from such transitions but those with limited knowledge, access and resources had a severe impact on their livelihood leading to displacement from native land and has increased vulnerability.

In short, the study shows the wide range impact of urbanization on the socio-economic condition of native dwellers, how land is being used today and how they see these change in Kirtipur. It shows that urbanizations is not only related to physical growth, infrastructure development and land use change but is also related to culture, tradition and economy of the native dwellers.

Conclusion

Urbanization is an ongoing phenomenon. The rapid expansion of Kathmandu has made it one of the fastest growing cities in South Asia and has posed socioeconomic and environmental challenges in the neighboring fringe areas. The aim

of this study was to explore how urbanization in the urban core affects and shapes the livelihood and land use pattern of native dwellers in rural-urban fringe. Unplanned urban sprawl into the fringe areas has not only physically transformed the once agricultural land of Kirtipur into mushrooming houses, but this phenomenon has also changed the livelihood of the native communities whose livelihood depended on the very agricultural land.

With changing use of land and its speculative value, there has been a significant shift in the socio-economic condition and occupation pattern of the native dwellers in last three decades. Many have transitioned from traditional agricultural livelihood to business/trade or private job and many rely on house rent for their daily expenses. This transformation indicates the transforming nature of the fringe from agricultural area to hub of small businesses and industries. The increasing number of people relying on house rent also indicated the increasing number of in-migrants in the area. Despite infrastructural growth in the fringe areas, the income level of many natives is still low because many have not been able to take advantage of the growing non-agriculture-based occupation and opportunities. The natives' dissatisfaction with urbanization of Kirtipur is also because of the negative impacts it has on their culture, tradition and values which are being encroached upon due to heterogeneous community.

Much effort is required to seek permanent solutions to the effects of urbanization on rural-urban fringes. Efforts need to be made to incorporate culture, values and traditional and sustainable livelihood options for natives while planning for the fringe area and also for the urban core. Future efforts should target land use regulations to comply with traditional land use and traditional settlement patterns which in turn would contribute to sustainable livelihood options for the native farmers. This paper suggests further quantitative and qualitative study in other fringe areas of Kathmandu, Lalitpur and Bhaktapur urban cores as the sprawl has been growing intensively and change in livelihood and land use patterns needs to be studied in these areas to plan for development activities in these areas and other fringe areas all over Nepal.

Implication

The research findings provide valuable implications for sustainable urban planning in growing rural-urban fringe areas. By looking into not just the physical transformation of the agricultural land but also diving deep into the socio-economic

effects on native's livelihood, this study suggests the importance of incorporating native's traditional livelihood option, culture and values while developing plans and policies in fast-growing urban core and its peripheral fringe areas.

It is important to understand the transformation of socio-economic aspects while planning development of physical infrastructure in the rural-urban fringe which includes not just preserving the fertile agricultural land but also preserving their culture and tradition. This study also emphasizes the need to look if the urbanization-offered new livelihood options are actually accessible and sustainable for the native dwellers or not. Assessing their knowledge and skill set before introducing any development intervention and bridging the knowledge and skill gap to assist smooth transition into urbanization associated occupation will not only ensure sustainable livelihood option for the natives but will also ensure viability of the development intervention. To achieve a sustainable urban planning strategy, it is also crucial to understand and acknowledge the importance of fringe area as the zone of interaction between urban core and rural area. Acknowledging the importance on zone of interaction while planning development activities will balance the economic growth and well-being of the natives and their environment.

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APPENDIX

QUESTIONNAIRE

स्थानीयवासीहरूको रूपान्तरित कृषि योग्य भूमि तथा जनजीविका : किर्तिपुर नगरपालिकाको एक अध्ययन

नमस्ते, म केयूर प्रधान, काठमाडौं विश्वविद्यालय स्कूल अफ एजुकेसनको दिगो विकासमा स्नातकोत्तर तहमा अध्ययन गर्दै गरेको विद्यार्थी।

म किर्तिपुर नगरपालिकाका स्थानीयवासीहरूको कृषि भूमि उपयोग परिवर्तन र जीविका परिवर्तनको बारेमा अध्ययन गर्दैछु। मेरो यो अध्ययन पूरा गर्न तपाईंको सहयोगको अपेक्षा गर्दछु। यो अध्ययन केवल शैक्षिक ज्ञानको लागि हो। सबै प्रश्नहरू ऐच्छिक छन् र तपाईंले प्रदान गर्नुभएको जानकारीलाई म शैक्षिक कामको लागि मात्र प्रयोग गर्नेछु।

तपाईंको सहयोगको लागि धन्यवाद!

१	उत्तरदाता विवरण
१.	
१	नाम : _____ (ऐच्छिक) (optional)
१.	
२	लिङ्ग: पुरुष / महिला / अन्य
१.	
३	उमेर : _____
१.	
४	सम्पर्क नं: _____ (ऐच्छिक) (optional)
१.	ठेगाना : वडा : _____ टोल : _____
५	

६	१. पेशा:	क. कृषि	घ. दैनिक ज्याला
		ख. व्यापार	ड. वैदेशिक रोजगारी
		ग. सरकारी/निजी जागिर	च. अन्य (उल्लेख गर्नुहोस)
७	१. शिक्षा स्तर	क. निरक्षर	ड. माध्यमिक तह (कक्षा १२) / डिप्लोमा
		ख. साक्षर	च. स्नातक
		ग. आधारभुत तह (कक्षा ५)	छ. स्नातकोत्तर वा माथि
८	१. परिवार सङ्ख्या:	घ. माध्यमिक तह (कक्षा १०)	
		क. १-५	
		ख. ६-८	
		ग. ८ भन्दा माथि	

२ उपभोगको विवरण

२.१ के तपाईंको घर छ? छ / छैन

२.१.१ यदि छैन भने, तपाईं कहाँ बस्नुहुन्छ?

क. आफन्तको घर

ख. भाडाको घर

ग. अन्य (उल्लेख गर्नुहोस)

२.२ तपाईं बस्नु भएको घर कुन सामग्रीले बनेको हो?

क. आर.सी.सी (पिल्लर वाला घर)

ख. इट्टा सिमेन्ट (बि.एम.सी)

ग. माटोको बन्धन

घ. अन्य (उल्लेख गर्नुहोस)

- २.३ तपाईंको बासस्थानमा पिउने पानीको के सुविधा छ ?
(१ भन्दा बढी चयन गर्न सक्नुहुन्छ)
- क. पाइपको पानी
ख. कुवा वा सार्वजनिक ईनार
ग. ह्यान्डपम्प वा ट्यूबवेल वा ईनार
घ. पानी ट्याङ्कर वा पानी जार
ङ. अन्य (उल्लेख गर्नुहोस)
- २.४ तपाईंको बासस्थानमा कस्तो ढल निकास प्रणाली छ?
(१ भन्दा बढी चयन गर्न सक्नुहुन्छ)
- क. सेप्टिक ट्याङ्की
ख. नगरपालिका ढल निकास
ग. अन्य (उल्लेख गर्नुहोस)
- २.५ तपाईं कुन संचार माध्यमहरू प्रयोग गर्नुहुन्छ?
(१ भन्दा बढी चयन गर्न सक्नुहुन्छ)
- क. टेलिफोन
ख. मोबाइल फोन
ग. इन्टरनेट
- २.६ तपाईंको टोलमा के कस्ता सुविधाहरू उपलब्ध छन्?
(१ भन्दा बढी चयन गर्न सक्नुहुन्छ)
- क. स्कूल
ख. अस्पताल/स्वास्थ्य सेवा केन्द्र
ग. स्थानीय बजार / पसलहरू
घ. गाडी गुड्ने सडक
- २.७ के तपाईंसँग कुनै सवारी साधन छ? छ / छैन
- २.७.१ यदि छ भने, सवारी साधनको संख्या उल्लेख गर्नुहोस्:
- क. बाइक = _____
ख. कार = _____
ग. साइकल _____
अन्य (उल्लेख

गर्नुहोस))=_____

जीविकोपार्जन

- .१ अहिले तपाईंको परिवारको **मुख्य** आमदानीको स्रोत के हो?
(कृपया 1 देखि 5 सम्म मूल्याङ्कन गर्नुहोस्)
- .२ ३० वर्षअघि तपाईंको परिवारको मुख्य आमदानीको स्रोत के थियो?
(कृपया 1 देखि 5 सम्म मूल्याङ्कन गर्नुहोस्)
- .३ अहिले तपाईंको परिवारको **मासिक** आमदानी कति छ ?
- .४ ३० वर्षअघि तपाईंको परिवारको **मासिक** आमदानी कति थियो ?
- क. कृषि
ख. व्यापार/व्यापार
ग. घर भाडा
घ. सरकारी जागिर
- क. कृषि
ख. व्यापार/व्यापार
ग. घर भाडा
घ. सरकारी जागिर
- क. रु ०-१०,०००
ख. रु १०,०००-२०,०००
ग. रु २०,०००-४०,०००
घ. रु ४०,००० भन्दा माथि
- क. रु ०-१०,०००
ख. रु १०,०००-२०,०००
ग. रु २०,०००-४०,०००
घ. रु ४०,००० भन्दा माथि
- ड. निजी जागिर
च. दैनिक ज्याला
छ. वैदेशिक रोजगारी
ज. अन्य (उल्लेख गर्नु होस्)
- ड. निजी जागिर
च. दैनिक ज्याला
छ. वैदेशिक रोजगारी
ज. अन्य (उल्लेख गर्नु होस्)

.५ के तपाईंको परिवारले जग्गा भएपनि कृषि गर्न छोड्नुभएको हो? हो \ होईन

.६ यदि हो भने, तपाईंको परिवारले कृषि गर्न छोड्नुको कारण के थियो? (कृपया तपाईंलाई उचित लागेको विकल्पमा टिक (tick) लगाउनुहोस।

.६.१	कम नाफा भएकोले छोडेका थियौं	पुर्न असहमत	असहमत	थोरै	थोरै सहमत	सहमत	पुर्न सहमत
.६.२	उच्च श्रम शुल्क लाग्ने भएकाले छोडेका थियौं	पुर्न असहमत	असहमत	थोरै	थोरै सहमत	सहमत	पुर्न सहमत
.६.३	सिँचाइको समस्या भएकाले छोडेका थियौं	पुर्न असहमत	असहमत	थोरै	थोरै सहमत	सहमत	पुर्न सहमत
.६.४	कृषि बाहेक अन्य गतिविधिहरूमा संलग्न भएकाले छोडेका थियौं	पुर्न असहमत	असहमत	थोरै	थोरै सहमत	सहमत	पुर्न सहमत
.६.५	परिवारमा कृषि गर्ने मान्छे नभएका कारण छोडेका थियौं	पुर्न असहमत	असहमत	थोरै	थोरै सहमत	सहमत	पुर्न सहमत

जग्गाको स्वामित्वको विवरण

४.१ के तपाईंको वा परिवारको स्वामित्वमा कुनै भूमि छ? छ / छैन

४.१.१ यदि छ भने, कहिलेदेखि जग्गाको स्वामित्व तपाईंहरूको भयो? _____ बि सं/ ई सं

४.१.२ तपाईंको स्वामित्वमा कति जग्गा छ ? _____ - _____ - _____ रो-आ-पै-दा

४.१.३ जग्गा कसरी तपाईंहरूको स्वामित्वमा भयो ? (१ भन्दा बढी चयन गर्न सक्नुहुन्छ) उपहार / पुरखौलि/ खरिद

४.१.४ यदि उपहार हो भने, कसले तपाईंहरूलाई उपहार दियो? _____

- ४.१.५ यदि पुरखौलि हो भने, कसबाट पाउनुभयो? _____
- ४.१.६ यदि किन्नु भएको हो भने, तपाईंले के कारणले किन्नु भयो? (१ भन्दा बढी चयन गर्न सक्नुहुन्छ)
- क. कृषिको लागि
- ख. उद्योग/व्यवसाय स्थापना गर्ने
- ग. आवासीय प्रयोजनको लागि
- घ. व्यवसायिक प्रयोजनको लागि (बेचनका लागि)
- ङ. घर बनाएर भाडामा दिन
- च. अन्य (उल्लेख गर्नुहोस) _____
- ४.१.७ तपाईंले जग्गा कतिमा किन्नु भयो? (मुल्य प्रति आना) रु _____
- ४.१.८ कहिले किन्नुभयो? _____ बि सं/ ई सं
- ४.१.९ कति जग्गा किन्नुभयो? _____ - _____ - _____ - _____ रो-आ-पै-दा

४.२ आफ्नो स्वामित्वमा आउनु भन्दा अगाडि तपाईंको जग्गा के का लागि प्रयोग गरिन्थ्यो ? (सम्भव भए ३० वर्ष अघि)

कृषि / उद्योग / व्यावसायिक / आवासीय / खाली जग्गा / जग्गा भाडा(कृषि) / जग्गा भाडा(अन्य प्रयोजन)

४.३ तपाईंको स्वामित्वमा आएपछि के को लागि प्रयोग भएको छ?

कृषि / उद्योग / व्यावसायिक / आवासीय / खाली जग्गा / जग्गा भाडा(कृषि) / जग्गा भाडा(अन्य प्रयोजन)

४.४ के तपाईंहरूले ३० वर्षको अन्तरालमा कुनै जग्गा बेच्नुभयो? छ / छैन

४.४.१ जग्गा बेच्नुभयो छ भने कृपया कृपया तपाईंलाई उचित लागेको विकल्पमा टिक (tick) लगाउनुहोसा

क.	कम नाफाका कारण जग्गा बेचेका थियौं।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
ख.	अन्य ठाउँमा सस्तो दरमा धेरै जग्गा खरिद गर्न जग्गा बेचेका थियौं।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
ग.	लामो समयदेखि रोकिएको ऋण चुक्ता गर्ने जग्गा बेचेका थियौं।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत

घ.	कृषि बाहेकका कार्यमा संलग्न हुन जग्गा बेचेका थियौं।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
ङ.	सामाजिक प्रतिष्ठा कायम राख्न जग्गा बेचेका थियौं।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
च.	नयाँ घरहरू निर्माण गर्न जग्गा बेचेका थियौं।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
छ.	पारिवारिक खर्च धान्न जग्गा बेचेका थियौं।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
ज.	आफैं वा बच्चाहरूको विवाह / भोजभतेर गर्न जग्गा बेचेका थियौं।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
झ.	परिवारमा स्वास्थ्य समस्या भएर जग्गा बेचेका थियौं।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
ञ.	पारिवारिक समस्याका कारण जग्गा बेचेका थियौं।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत

४.४.२ कति मूल्यमा बेच्नुभयो ? (मूल्य प्रति आना) रु _____

४.४.३ कति क्षेत्रफल जग्गा बिक्री गर्नुभयो ? _____ - _____ - _____ - _____ रो-आ-पै-दा

४.४.४ कहिले बेच्नुभयो ? _____ बि सं/ ई सं

शहरीकरणसँग सम्बन्धित धारणा

कृपया तपाईंलाई उचित लागेको विकल्पमा टिक (tick) लगाउनुहोसा

५.१	किर्तिपुरमा बढ्दै गरेको शहरीकरण सहि तरिकाले भएको छ।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
५.२	बढ्दै गरेको शहरीकरणले स्थानीय जनताको जीविकोपार्जन विकल्पहरूमा असर गरेको छ।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
५.३	बढ्दै गरेको शहरीकरणले औद्योगिक र पूर्वाधार विकास ल्याएको छ।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
५.४	बढ्दै गरेको शहरीकरणले भूमि प्रयोग ढाँचामा परिवर्तन ल्याएको छ।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
५.५	बढ्दै गरेको शहरीकरणले सामुदायिक एकता\ सहिष्णुतामा (harmony) असर गरेको छ।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
५.६	बढ्दै गरेको शहरीकरणले सांस्कृतिक सम्पदा र परम्परालाई असर गरेको छ।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत

५.७ बढ्दै गरेको शहरीकरणले स्थानीय जनतालाई विस्थापित गरेको छ कि छैन? छ | छैन

यदि **छ भने**, कृपया तपाईंलाई उचित लागेको विकल्पमा टिक (tick) लगाउनुहोसा

५.७.१	जग्गाको कमीले स्थानीयहरू विस्थापन हुनु परेको हो।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
५.७.२	स्थानियाले महँगो मूल्य पाउने लोभमा जग्गा बेचेको भएर स्थानीयहरू विस्थापन भएका हुन।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
५.७.३	परम्परागत जीविकोपार्जनको श्रोतको कमी भएर स्थानीयहरू विस्थापन भएका हुन।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
५.७.४	साझा प्राकृतिक तथा सार्वजनिक स्रोतहरूमा सीमित पहुँच भएको भएर स्थानीयहरू विस्थापन भएका हुन।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत
५.७.५	जीविकोपार्जन खर्चमा भएको बृद्धिले गर्दा स्थानीयहरू विस्थापन भएका हुन।	पुर्न असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	पुर्न सहमत

