



TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
PULCHOWK, LALITPUR

THESIS NO: 076-MSUrP-013

**EMERGING URBAN SYSTEM IN FEDERAL SETTING:
A CASE STUDY OF PROVINCE ONE IN NEPAL**

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**A THESIS
SUBMITTED TO DEPARTMENT OF ARCHITECTURE
IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE
DEGREE OF MASTER OF SCIENCE IN
URBAN PLANNING**

DEPARTMENT OF ARCHITECTURE
LALITPUR, NEPAL

OCTOBER, 2022

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DECLARATION

I hereby declare that the thesis entitled “Framing the Challenges of Urban Flooding on Accessibility: A Case of Pulbazar, Banepa” which is being submitted to the Department of Architecture and Urban Planning, Pulchowk Campus, Institute of engineering, Tribhuvan University in partial fulfilment of the requirements for the degree of Masters in Urban Planning (MSUrP) is a research work carried out by me, under the supervision of Dr. Ajay Chandra Lal, between start date to completion date. I declare that the work is my own and has not been submitted for a degree of another University.

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ABSTRACT

The federal restructuring in the nation has decentralized the perspective of the governance. The research addresses a chain of interlinked aspects that contribute to the study of the economy, road network and corresponding urban center development in Province One. The demographic study is used to identify the emerging urban center while the production capacity in the province is analyzed with respect to the industries. The road networks have been studied and the interlinkage has been observed briefly. The perspective of few stakeholders inclusive of government officials, direct & indirect beneficiaries, local residents, etc. were taken into account to draw appropriate overview of the change in the urban system regarding identification of emerging urban centers. The study of the existing conditions of evolving urban centers gives an overview of the direction of change in urban system few of which has been depicted.

ACKNOWLEDGEMENT

It has been an insightful journey towards the materialization of this thesis. The foundation of this work has been laid with the firm wisdom and teachings of designated faculty of the Department of Architecture and Urban Planning who have been sharpening us in every aspect of the course. Their continuous dedication have been enlightening and shaped the intellectual ability progressively irrespective of the mode of study during the pandemic period.

It is a delight to express my appreciation to my supervisor Dr. Ajay Chandra Lal for his continuous guidance and support as well as his wisdom and encouragement during the period of my research. I am grateful to Prof. Dr. Sudha Shrestha, Head of Department of Architecture for this opportunity to present my work. I would like to thank Mr. Kumar Prasad Lohani & Mr. Chakravarti Kanth for their valuable comments and guidance for my research. I would also like to express my sincere gratitude to Prof. Dr. Sangita Singh for helping me during the mid-term feedback.

It was an honour to meet the Deputy Mayor of Biratnagar, Mrs. Shilpa Nirala Karki and receive her insights. Similarly, I am thankful for a blissful meeting with the president of Morang Merchant Association, Mr. Naveen Rijal and his vast knowledge. My sincere acknowledgement shall also extend to Mr. Jaya Kumar Ghimire, Secretariat of Province Planning Commission and Mr. Radha Raman Bhandari, Secretariat of FNCCI. I am also grateful for the officials of the various municipalities and institutions for their direct and indirect contribution to the research.

Last but not the least, I am heartily thankful to my family and friends for their support and encouragement throughout the research period which has helped me bring this research to a close.

Ronaj Bhandari

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Emerging Urban System in Federal Setting: A Case Study of Province One in Nepal

1 INTRODUCTION

1.1 BACKGROUND

Nepal has had several attempts in the context of regional planning. The initial division of the nation into the four-development regions in 1972 was one of the first practice of decentralization. It had its own merits and demerits. Moving further ahead into adopting the regional strategy, the country has now introduced planning in the provincial scale. “The main purpose of incorporating a regional approach in national planning is to reduce spatial disparity in development.” (Gurung, 2005)

Nepal made a historic move from a unitary form of government to a federal system. Nepal is now a federal democratic republican state as established by the 2015 constitution. In accordance to the concept of federalism, Nepal is divided into 7 provinces, 77 districts and 753 local levels. Now each province has a separate government along with the federal government at the center and the nation seeks to evolve through cooperative federalism.

Following the 2017 elections, power has been shared in Nepal from a central government to the provincial and local government. This has also paved way for diversification and localization of the development activities in the restructured local bodies. Consequently, the formation of the municipalities has been inducing the changes in the socio-economic and political systems significantly.

A predominantly rural country, Nepal is urbanizing rapidly with urban population growth rates of up to 7 percent. Various data show that the Nepal is one of the fastest urbanizing countries in South Asia and with the exercise of federalism, the urban system are sure to evolve. Hence, the study of the emerging urban system to identify the changes in the strategic planning perspective such as growth centers and its interlinkage should be a priority of the provincial government.

1.2 STUDY AREA

Province One is the easternmost of the seven provinces created by Nepal's new constitution, which took effect on September 20, 2015. The province is 25,905 sq.km in size, accounting for 17.5 percent of the country's total area. The Government of Nepal finalized the temporary capital of Province No. One on January 17, 2018. On 6th May, 2019 Biratnagar was announced as the permanent provincial capital. The province also includes other major urban areas such as along the highways and major trading routes with Itahari, Dharan, Dhankuta, Triyuga, and Mechinagar being the most well-known. Province One is one of the fastest growing regions under the new federal system.

Along the main highways, the fastest-growing small urban settlements with populations below 100,000 and growth in excess of 4 percent include Damak and Itahari (Eastern Tarai)(Muzzini & Aparicio, 2013). The province is bordered on the north by China's Tibet Autonomous Region, on the east by the Indian states of Sikkim and West Bengal, on the south by Bihar, and on the west by Bagmati Province and Madhesh Province. According to the Nepal census of 2021 preliminary report, the province's population is estimated to be 4,972,021 people, with a population density of 190 persons per square kilometer. According to the 2011 Nepal census, the province had a population of approximately 4.5 million people. The main sources of income for the residents of Province One are tourism, natural resources, industries, agriculture, and foreign jobs. Similarly, there are many tourist sites: Sagarmatha National Park, Makalu Barun National Park, Barahachhetra, Damak, Itahari, Dharan, Ilam, etc. In this province, mainly there are four transit points: i.e. Kakarbhitta, Pashupatinagar and Joghani to India, and Olangchunggola and Kimathanka to China. In Province No. One, highways connect almost all districts, while some roads at high altitudes are not paved, and their conditions deteriorate during the rainy season. Apart from the East-West Highway, the Mechi Highway, Koshi Highway, and Sagarmatha Highway are the principal roadways connecting Terai to the high altitude regions in Province One.

1.3 NEED AND IMPORTANCE OF THE RESEARCH

“With the adoption of federalism through the 2015 Constitution, seven newly created provincial and 753 local governments are now placed at the frontline, tasked to manage substantial amount of public resources and deliver critical services to citizens” (World

Bank, 2019). The notion of the federal system of governance was an introductory approach to the nation. Establishment of federalism and the resulting restructuring effect has changed the urban system. It has led to a requirement for the study of the evolution of intra-regional behavior of the province and the emergence of new urban centers if any.

There were many questions raised to the implementation and the transition to federalism has not been smooth. The people have to readjust to this scenario since the local bodies had to start from the ground up. On the other hand, the rearrangement of the local bodies in the federal setting is aimed at motivating equal development in the region. Hence, the study and identification of emerging urban centers, in addition to the existing, is essential. This study opts to establish relationships between the economic centers and analyze its effect on the transformation of the urban system.

In relation to these facts and as a way forward, the analysis of the behavioral reaction to the federal setting will generate important findings in understanding the province from a regional planning perspective and shall aid in the formation of regional strategies for the balanced growth of the province.

1.4 PROBLEM STATEMENT

A dominant concern of federalism is the functionality of the local bodies. The establishment of the reorganized local bodies within the province have caused transformation of the economic and administrative centers. The interrelationship between these centers has to be observed to establish various positions of the urban centers among the municipalities and its interdependence in the contribution to the urban system.

The variation in the demographics and the market centers inducing economic functions within the province has to be mapped and analyzed. This shall clarify the economic role of the emerging urban centers in the urban system. Consequently, in addition to the various factors, this shall have an effect on the formulation and implementation of the strategic planning. Hence, the absence of such scientific observation will cause imbalance in the provincial development.

1.5 SCOPE & LIMITATION OF THE RESEARCH

“Local governments are the closest unit of the grassroots communities as they are not only undertaking to institutionalize the governance system and create enabling environment to promote the democratic values and public participation mainly from marginal section in decision making process, but also accelerate the economic development so that they enhance the peoples’ capacity and enable them to influence the local governments representatives for responsive governance.” (Acharya, 2018) The scope of the research will be focused on increasing the understanding of the evolving urban system among the municipalities in the Province One under federalism. The research is oriented towards the study of linkages of the emerging urban centers and its interdependence with the prevalent urban centers. It is an attempt to outline the economic functional changes after the restructuring of the administrative divisions within the Province. The study aims to identify introduction of new centers and how is it interacting in the urban system of the provincial region.

However, the research has the following limitations:

1. The study is focused on the emergence of urban centers based on its demographics, production capacity and its interrelationship with other prevalent urban centers and sub-centers. Hence, the social, cultural and ecological aspects are not taken into consideration.
2. The research attempts to identify the urban centers but the root cause or the drivers of its development are not analyzed or quantified in this research.
3. The research is based on the selected urban centers with respect to the available municipality data and does not necessarily consider all the identified emerging sub-urban areas or small markets for analysis due to time and data availability constraints.
4. The analysis of the linkages of urban centers is based on the available secondary data of production capacity and economic function and KIIs performed in various concerned institutions.
5. The interdependence of urban centers are analyzed through the brief analysis of road linkages and traffic volume survey data. No further in depth analysis of the road characteristics and traffic O-D survey could be done due to time and resource constraints.

1.6 RESEARCH OBJECTIVES

1.6.1 Main Objective

- To study the evolving urban system in Province One.

1.6.2 Specific Objectives

- To identify the new urban centers among the restructured municipalities through study of their demographics and prominent market areas.
- To increase the understanding of the evolution of economic linkages of the urban centers based on their production capacity and road linkages.

2 CONCEPTUAL FRAMEWORK

2.1 RESEARCH PARADIGM

It is very important to locate the research in certain paradigm. The paradigm gives the basis for the choice of methodology, methods and literature. Research is a systematic investigation or inquiry where data are collected, analyzed and interpreted in some way in an effort to "understand, describe, predict or control an educational or psychological phenomenon or to empower individuals in such contexts (Mertens, 2007). Paradigm refers to models or frameworks that are derived from a worldview or belief system about the nature of knowledge and existence.

Constructivist/ Interpretivist paradigm tends to rely upon the 'participants' views of the situation being studied. (Chu, PH. and Chang, 2017) It believes that there is no single reality or truth and therefore reality needs to be interpreted. Likewise, constructivists believe that knowledge is comprised of multiple interpretations that are context dependent. Constructivist paradigm relies on qualitative data collection method or a combination of qualitative and quantitative methods. Constructivists do not generally begin with a theory rather they generate or inductively develop a theory or pattern of meanings. (Chu, PH. and Chang, 2017) So, my research is based on Interpretivist paradigm, as there will be study on the transformation in urban system of the area over a period with the surging practice of federalism. The theory or pattern of meanings will be developed over a time after studying the political and economic situation of the region. The study further involves the learning of the change in the province area. The research also includes findings of the various opportunities and challenges of different urban growth poles as experienced after Nepal being declared a federal state in 2008A.D and especially during the 1st five years of establishment of the province. The research will also include change in the road connectivity and administrative functions. After the study of the aerial maps, land use data, road network, the changes that have occurred in the area can be interpreted. Likewise, information about diversion from conventional development region into provincial region can also be interpreted to observe the changes taking place in the area.

The research is a **descriptive research** as it has described the different changes that have taken place over the urban and peri-urban areas of the newly formed province. So, for the descriptive type of research objectives are set. Descriptive research uses most

data-gathering techniques such as surveys, field research, content analysis, and historical-comparative research. The research also aims to study the contemporary changes that have taken place in the area. Along with this, the development pressures in the different locations will also be described in the research.

ONTOLOGY

Ontology is the starting point of all research. Ontology can be defined as “the science or study of being” and it deals with the nature of reality. Ontology is a system of belief that reflects an interpretation of an individual about what constitutes a fact. In simple terms, ontology is associated with a central question of whether social entities need to be perceived as objective or subjective. The ontology of this research is that the establishment of the country as a federal republic in 2008 and later the introduction of the province has contributed in the evolution of the urban system in the federal setting.

The ontological position of my research within the interpretivist paradigm is the reality that physical and economic development have changed after the restructuring of the municipalities, which have altered the urbanization patterns. The active decentralization process has subsidized in the formation of new spatial linkages or at least brought changes to the old.

EPISTEMOLOGY

Epistemology is the possible ways of gaining knowledge. It includes what we need to do to produce knowledge and what scientific knowledge looks like once we have produced it. (Djamba & Neuman, 2002) In this research, information can be obtained through observation, secondary source, field survey, interview with the stake holders which would be later interpreted. Interaction with people and the presentation of maps and records are two reliable sources of information. Direct observation, field surveys, and aerial maps can all be used to monitor changes in urban form. Questionnaire surveys and field studies may provide insight into the movement patterns and linkages. The growth axis and growth centers can be identified through economic and industrial data. The details available at the provincial offices and other development authorities shall be a reliable source for the criterion regarding urban development.

2.2 METHODOLOGY

Methodology is a general theory that governs how we investigate the world and show the validity of the information we produce. Similarly, methodology refers to the structure that is associated with a certain collection of paradigmatic assumptions that you can use to perform your study, such as the experimental method, ethnography, and action research. The different research strategies are Interpretive- Historical research, Qualitative Research, Correlational Research, Experimental Research, Simulation and Modelling Research and Case Study Strategies. My research strategy is a Qualitative Research. Qualitative research entails looking at the world through the eyes of another person while answering an open research query. To extract meaning from qualitative research data, it should be abstracted. Interpretivism analysis entails understanding and making sense of data outside the objective realities of observations. The study of the previous practices and scenario will be studied in brief to be aware of the politico-administrative evolution and its effect on the regional planning. However, the research will be majorly focused on the interpretivism research approach in which aerial maps and photographs along with official spatial maps will be interpreted to study the transformation of the urban areas mainly emerging cities/market centers of Province One. The aim is to investigate the occurrence of a new or an enlarging market center that must be interpreted in terms of a component of the urban system. Such identification can be done with the help of demographic analysis of parameters such as the population density, age group and migration/occupation patterns. Similarly the google imagery of settlement or market sizes of such places over the year shall aid in the understanding of the economic evolution from basic spatial point of view. Triangulation may be used to ensure the validity of techniques by using multiple investigators, multiple data sources, or multiple approaches to validate evolving results. Key Informant Interview and focused group discussions shall be conducted to interpret the interdependence of the urban centers. Study of production capacity and location of industries will be studied through secondary sources such as Economic Survey to establish the economic functions of the centers and relate its role in the urban system. The road linkages shall be studied with the help of the available GIS data and the interdependence of the different centers shall be studied.

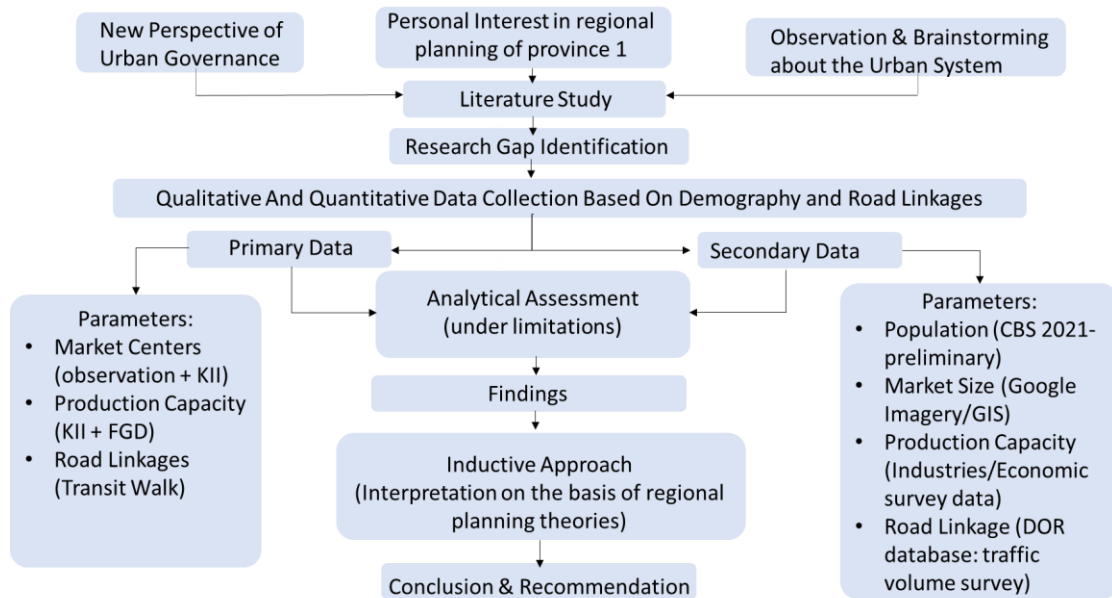


Chart 1: Methodology framework and parameters

Inductive approach will be used in the research. The inductive approach is the bottom-up-approach. Inductive research “involves the search for pattern from observation and the development of explanations – theories – for those patterns through series of hypotheses”. The imperfect inductions to be used is based on the limited observations and generalization. The inductive approach starts with particular statements and ends up with general propositions. The particular statement is the change in urban system through the various linkages of the urban center within the province. Nevertheless, the efforts shall be directed towards finding more observations and data collection so that there shall be a higher probability that the generalization done at the end of the research is very true to the reality.

3 LITERATURE REVIEW

3.1 FEDERALISM

Federalism is a mixed or compound form of government that combines a central or "federal" administration with regional governments (provincial, state, cantonal, territorial, or other sub-unit governments) in a single political system, with powers divided between them.

Since the introduction of the new constitution on September 3, 2015, Nepal has transitioned from a century-long centralized government to a more decentralized, cooperative federal style of governance after 12 years of armed war and another decade of political uncertainty.

According to the new constitutional provisions, Nepal initiated the federalism process by dividing the country into seven provinces and a total of 753 local level government units. The election of local level government bodies was completed after a hiatus of 15 years in three phases on 14 May, 28 June, and 18 September 2017 respectively. Then the election of federal and provincial level took place in two phases on 26 November and 7 December 2017. The 2017 election was the first one to take place after the decade long political transition in the country. (Adhikari, 2020)

3.2 RESTRUCTURING OF LOCAL GOVERNANCE

In the post-federalism context, the division of the provinces and the local bodies has brought about a new perspective not only in the governance but also in the socio-economic and political aspects of the various regions. The spatial reallocation of the local bodies have induced both physical changes in the area and behavioral changes in the people. The governance structure prior to federalism had many shortcomings and were limited by power and governance capacity. Hence, the new structure of governance was exercised.

“First, institutional structure and decision-making processes of the "center" itself was characterized by incapable, unorganized and weak institutional framework and decision-making processes. There was no coordination between two departments under the same ministry. Second, District Coordination Committee at the district level, urban municipality at the municipality level and Village Development Committee at the

grassroots level were functioning as the local government, there organizational structure was not very much clear and accountable to the local people. Third, the institutional mechanism at local level was constituted, as “council” with representation of different societal sphere was responsibility to formulate the plan and policy at the local level. However, unfair political influence made ineffectiveness of council. Similarly, a huge resources and opportunities channeled through local governments were captured by a limited group of people, leaving a large number of people out of the development mainstream. Thus, the socio-economic situations of large number of people was further deteriorated and they became dissatisfied with the establishment of the country.” (Acharya, 2018)

The Local Level Restructuring Commission identified 753 local government units across the country, including 293 urban municipalities and 460 rural municipalities. Restructured local governments have the goals of institutionalizing a democratic and well-functioning government at the local level, providing efficient, effective, and responsive public services to local communities, carrying out social and economic development activities to improve people's living standards, and developing organic local democratic leadership at the local level.

More than three decades of state reorganization in Nepal have been marked by a series of political and constitutional crises, including nearly ten years of armed strife. In addition to the 58 already existing municipalities, more than 230 new ones were established in the short period between 2014 and 2017. (Agergaard et al., 2022)

If the urban revolution is well recognized, there is another modern revolution almost equally widespread that has gone almost totally unrecognized. Federalism as we know it is at least as much a product of the modern era as contemporary urbanism and it has become nearly as significant in shaping modern political life. (Elazar, 1975)

3.3 URBAN SYSTEM

Urban System is basically the connectedness of the cities in the aspects such as economy, transportation, population, culture and information. The scale of the Urban System can be global, regional or local. The urban hierarchy is often defined by the magnitude of interaction attracted by the urban center.

“Locations should be designated as urban on a functional basis e.g., where a majority of economically active population are engaged in nonfarm occupation” (Gurung, 2005)

The urban system has had various interpretations throughout history. The simple concept of growing city and people is now inadequate to testify the different faces of the city that constitutes an urban system. As the modern cities grew in number, the urban system theories have been redefined and attempts to include the various economic activities, urban networks and associated urban environments.

‘Urban systems research aspires to make the complexity of the city and inter-city interactions understandable by isolating some of its constituent social processes, and then relating these processes to others occurring both inside the city and between cities and the outside world.’(Meeteren, 2019)

In context of spatial/regional planning the infrastructures and other community facilities can be considered as functions which are not only used by the people of the region but also by the residents of adjoining areas. Since all the facilities cannot be located in the same urban center, one urban center become dependent on the other. Thus there is an inter dependence (functional interdependence) between the urban centers. The sets of complex relationships are functional linkages-physical, economic, social, administrative and political and these functional linkages are reciprocal linkages. The linkages between urban centers bind them into an Urban System. Characteristics of an urban system may be listed as follows:

- Interrelationship: The various factors which indicate the interrelationship between the elements of an urban system may be written as population distribution, patterns of migration, occupational distribution, accessibility pattern, role of urban center, infrastructure development etc.
- Vertical Structure: An Urban system cannot grow indefinitely and there is a maximum size of a system which corresponds to an optimum structure, deviation from which may threaten the system's integrity. The urban system may be National, Regional, Sub-regional or Local depending upon how it is dealt with.
- Horizontal Structure: An urban system must also have an optimum horizontal structure; i.e. a correct ratio must be maintained between all dissimilar elements of the systems. If the correct proportion is not maintained, the system may

become an integrated set of parts that will behave in random manner compromising the correct functioning of the system. The system consists of not only the urban centers but also a number of rural centers as well provided they are functionally linked with the other centers within the system.

- Order: Order can be defined as the influence of the whole over the parts. In order to ensure that each part of the system behaves in a way, which benefits the activities of the system as a whole, there is a need to impose certain regulations and investment programs. Thus order is necessary for an efficient system.

Population

- Identification of the urban system: An urban system consists of nodes and links. The nodes represent the various urban centers and the links represent the interlinkage. Since each urban center has its own system of central functions, the volume of such central functions creates different hierarchies of urban centers. Such hierarchies lead to backward and forward linkage system; linkages with lower order centers are backward and those with higher order centers are forward linkages. Transportation and communication are effective means of linkages.

Thick tangles of inter-city relationships all of a sudden begin to make sense by connecting movements of information, goods, and money between cities.

The other important factor is the movement of the people. The internal migration plays a vital role in shaping the urban system of a region. The usual trend of southward movement of the people of hilly region towards the terai in search of various pull factors is prominent in the context of Nepal.

Migrants are made up of those in search of better living standards—the “pull” migrants—and those who have been forced out of their birthplace by a lack of job opportunities, poor public services, and natural disasters—the “push” migrants. Push factors are the predominant force driving internal migration in Nepal, accounting for as much as 88 percent of lifetime migration. (Muzzini & Aparicio, 2013)

In the context of Nepal, the intended National and sub-national urban system as (MoUD, 2017) states are as follows:

- Strengthening the regional population potential and resource mobilization-based national and sub-national hierarchy of urban centers.

- Investing in the provision of high-quality infrastructure and services in line with the potential of available resources.
- The urban areas chosen to serve as provincial capitals will get funding priority for urban development and infrastructure.
- The existing urban hierarchy may be impacted by the provincial strategy for developing and prioritizing basic intra-province road infrastructure.

3.3.1 The sustainability of the Urban system in India: A paper review

The paper states that Indian cities of various sizes are mapped out in terms of their structures and comparative dynamics. Through the use of Gibrat's law, a primacy index, and the rank-size rule, it seeks to address the hierarchical distribution of the data. Urban concentrations' effects on the GDP, banking system, foreign direct investment (FDI), public facilities, and various urban externalities (including pollution and spatial exclusion) are also looked at. It demonstrates how large and top-heavy India's urban structure is while adhering to the rank-size guideline. Gibrat's law of proportionate growth is also followed. India's cities control more than three-quarters of the nation's GDP despite housing fewer than one third of the country's overall population. Megacities now exhibit severe social polarization in addition to being crowded, dirty, and congested. The cities are in a state of gridlock, which limits their ability to serve as effective hubs for social and economic transformation. The balanced regional development of India is also negatively impacted by the top-heavy nature of India's metropolitan system.

This study looked at India's changing urban system in terms of how cities are distributed hierarchically, how economic resources are concentrated in cities in relation to urban hierarchy, how infrastructure is being developed, and how ecological and social inclusion issues are being addressed in the cities. India has a huge metropolitan structure and a sizable population. India's national urban system is top-heavy, meaning that a few number of cities govern a sizeable portion of the country's urban population, even though it does not break noticeably from the rank-size rule distribution for the years 1901–2011. In India, the urban structure is now significantly more top-heavy than it was previously. The percentage of people living in cities with 100,000 or more people has increased, and this trend is even more obvious in cities with one million or more residents. As a result, India's urban population is concentrated in a small number of

cities. This is a result of regional economic development that is distorted, as people relocate to cities with work prospects due to rural economic misery and income poverty. (Shaban et al., 2020)

3.3.2 Urban Centers

Urban centers exist where people gather in close proximity in order to carry on certain activities and satisfy certain needs which cannot be performed without such proximity. These may be commercial, industrial, administrative and others of like nature, which support urban settlements. The measurement and interpretation of economic and functional bases of towns are as important as the studies of other urban aspects. (Shrestha & Rijal, 2017)

Planning Norms and Standards, 2013 has categorized the urban areas into five classes based on the population. The criteria of these are as follows:

Table 1 Categorization of urban area (Planning Norms and Standards)

Category	Class	Population
Metro City	Class 1	>3,00,000
Sub-Metro City	Class 2	100,000 – 3,00,000
City (Municipality)	Class 3	40,000 – 1,00,000
Sub-City (Small Town)	Class 4	10,000 – 40,000
Market Center	Class 5	50 shops @ 100m from centre

Hence, the population characteristics becomes one of the preliminary basis for selection of urban centers. As stated by (Yu et al., 2021), ‘A set of contiguous grids that cover a certain area and contain a certain number of inhabitants with spatial clusters of high population density’ is defined as UCS in context of Asia if the research perspective is the population/employment distribution.

Emerging Urban Centers: The up springing population in an area that has a potential to rise as a significant urban center by serving a certain purpose in the prevailing urban system may be considered as the emerging urban center. The emergence can be marked

by its demographics and the introduction of various infrastructures, mainly road, that increases the interaction with the other major components of the urban system.

3.4 REGIONAL PLANNING THEORIES

A planning concept's use of the term "region" might be interpreted in terms of its geographic characteristics, climatic characteristics, demographic characteristics, administrative structures, settlement patterns, political dimension, and level of development. Some locations may be blessed with an abundance of natural resources, lush soil, stunning scenery, a distinct sociocultural identity, etc. Regional planning is thus essentially the planning of spatial development to ensure that the benefits of social and economic development are spread fairly among the areas. Bridging the gap between local and national development planning is another important goal of regional planning.

Under the multilevel planning system for development, regional planning is defined as the ordering of human activities in supra urban space in relation to other spatial units of national territory with a view to attain social and economic integration in space and facilitate national development. The main aim of regional planning may be said as to explore the development potential alternatives of the regions, which are usually bypassed under the sectoral plan, and to give focus to promote development process of depressed region for attaining balanced development. (Joshi, 1985; pp-6)

3.4.1 Growth Poles and Axis

The development of a region corresponds and evolves through certain nodes at variable intensities. The growth is not ubiquitous and rather occurs at poles, centers and points.

Traditional towns of Nepal have been parasitic nodes, for the retailing of Indian commodities. The expansion of road networks in the hills without complementary economic activities has further reinforced this southward orientation

“There is a lack of specialized studies as regards these matters, whilst in general, there is no systematic investigation of the development potential and the prospects of poles, centers and growth axes. (in terms of inputs, relations and interdependencies, zones of influence, etc.) and finally, of the special role of each one of them, in the development process at regional, national, and even further afield” (Christofakis & Papadaskalopoulos, 2011)

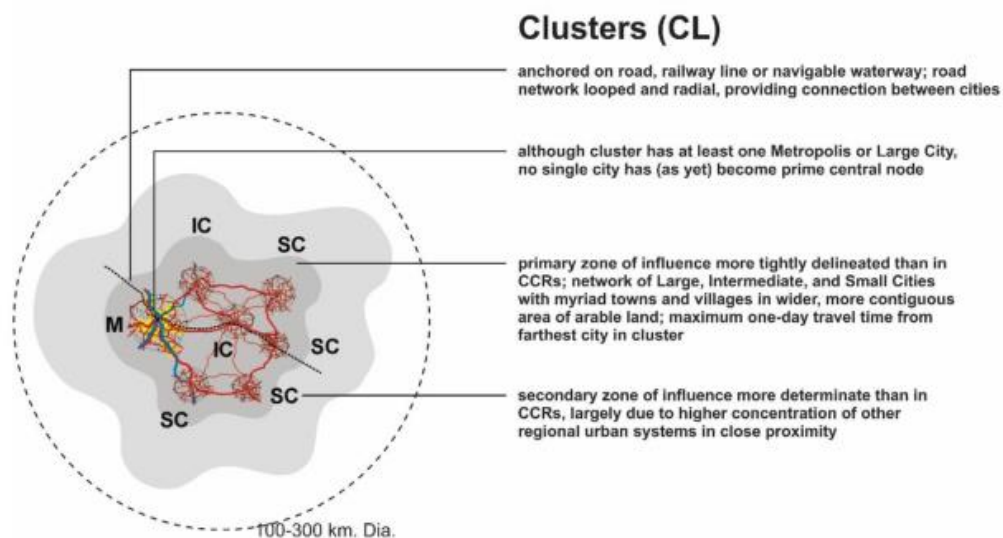
3.4.2 Center Place Theory

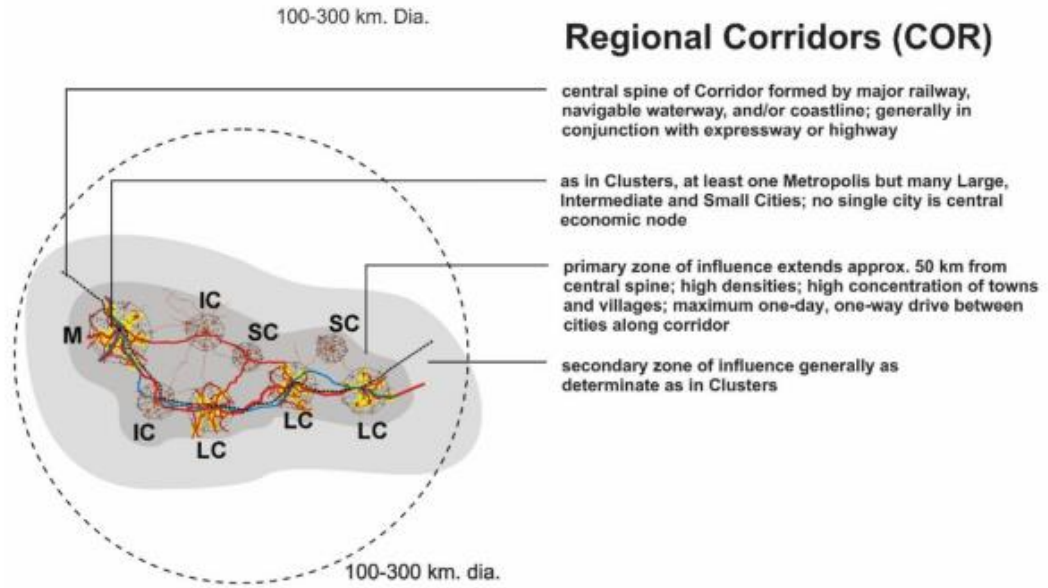
The central place theory says that spatial structure of a region mainly depends on tertiary activity and its location. The tertiary activities (services) can be in the form of repair work and other services carried out directly on physical objects, distribution and transportation of goods, processing and distribution of information, education, administration etc or security and health. The center place is where the service activities are concentrated. The central places are arranged in space in hierarchy to share the market uniformly.

The theory does have assumption such as:

- The region is homogeneous in topography (even plain), population distribution and distribution of natural resources.
- Under the above assumption, the competition among service provider for individual service gives the range of the service and eventually hexagonal market of a central place emerges.
- As a result, hierarchy of central place emerges.

On further elaboration of the concept, the formation of the clusters and corridors can be established.





Source: ADB 2019

4 POLITICAL HISTORY, REGIONAL PLANNING AND URBAN SYSTEM IN NEPAL

4.1 POLITICAL HISTORY OF NEPAL

The role of politics is significant in the development of an area. The politics orients the perception of the people and designates the power acquisition. Hence, this paves the way for the transformation of particular spaces into urban in accordance to the representation of the people. Moreover, in the national and international context, history of politics in Nepal becomes important in the study of the rise of the urban system. The evidence of this is quite visible in the transformation of Nepal from a unitary system to the federal system.

Following the Royal massacre in 2001, the late King's surviving brother Gyanendra was proclaimed as a king. On February 1, 2002, King Gyanendra imposed martial law, disbanded the Parliament, and installed a self-run administration. The Communist Party of Nepal (Maoist) and the Seven Party Alliance (SPA) of legislative parties reached a historic and unprecedented 12-point Memorandum of Understanding (MOU) for peace and democracy on November 22, 2005. The Communist Party of Nepal (Maoist) backed the SPA's demand for a protest movement in accordance with the 12-point MOU. This sparked the Loktantra Andolan, a nationwide uprising that began in April 2006. King Gyanendra announced the reinstatement of the House of Representatives, thereby conceding one of the major demands of the SPA, at midnight on 24 April 2006. (A. R. Pandey, 1980)

On 19 May 2006, the parliament assumed total legislative power and gave executive power to the Government of Nepal (previously known as His Majesty's Government). An agreement was reached on December 23, 2007 to end the monarchy and establish the Prime Minister as the nation's head of state in a federal republic. A federal republic was established in May 2008, which ended 240 years of autocratic rule in Nepal.

However, with the demand of civilian supremacy over the army there was instability in the government and the Maoist forced closures and also declared autonomous states for almost all the ethnic groups in Nepal. The constitutional legislature was dissolved in May 2012, and Dr. Baburam Bhattarai called for new elections to choose the assembly's members.

Madhes Movement was another important factor in orienting the governance. Nepal has had three Madhes Movements in almost a decade long period: the first one erupted in 2007; the second one in 2008; and the third one in 2015. The political movement by especially those based in Madhes, was for equal rights, dignity and identity of Madhesis and Tharus, Muslims and Janjati groups in Nepal. Their main agenda were: federalism, proportional representation and population-based election constituency, which were later ensured in the Interim Constitution of Nepal 2008.

The country strives to develop in the best possible way within the base of its political background. There might not be a direct relation between politics and urban development but it certainly drives the various factors that contribute to the formation of urban system. In the recent turn of events, the provisions of the states in the federal scenario seeks to establish a new perspective for regional planning.

4.2 REGIONAL PLANNING AND URBAN SYSTEM DURING UNITARY MODEL OF GOVERNANCE

Planning entails the thoughtful scheduling of priorities, wherein the accomplishment of some objectives is tied to both short- and long-term dimensions. Since resource endowment varies by region, development activities can result in considerable changes to the way the economy is spatially organized. Therefore, any development strategy that aims to spur growth must fully consider the spatial dimension.

"The objective of development efforts should not be directed towards accentuating inherent diversity but rather towards minimizing regional differentials. It is therefore, essential to appreciate the spatial reality in formulating development programs so that the varied resources of different regions contribute to the overall national development."(Gurung, Dr. Harka, 1969)

Table 2 National Development Plans up to 2007

Development Plans	Major Objectives & Actions
First Five Year Plan (1956-1961)	To increase production, create employment and raise living standard of the people.

<p>Second Three Year Plan (1962-65)</p>	<p>It was a three-year plan.</p> <p>Specific towards investment, employment and output to make a base for development</p> <p>The country was divided into 3474 panchayats and 75 district panchayats areas and 14 zones with power and responsibilities necessary for undertaking development works.</p>
<p>Third Plan (1965-70)</p>	<p>plan fixed the quantitative targets regarding the indices of economic development. It was aimed to increase the GDP by 19%, per capita income by 9% and food grain production by 15%.</p> <p>The country was in various regions on the basis of Karnali, Gandaki and Koshi watershed areas in order to achieve balanced development through maximum utilization of resources</p>
<p>Fourth Plan (1970-75)</p>	<p>To exert control on national development programs through proper regional control</p> <p>The strategy of developing growth axes based on financial regionalization principle was spelled out and major North South roads under the transport program were designated</p> <p>To bring equality in the use of the resources in accordance with the social and political needs of the region.</p> <p>To integrate hills, mountains and terai through development of inter-regional trade.</p>
<p>Fifth Plan (1975-80)</p>	<p>Concept of corridor development with a hierarchy of growth centers. The four growth centres were:</p>

	<p>Dhankuta(EDR), Kathmandu(CDR), Pokhara(WDR), Surkhet(FWDR).</p> <p>Regional balance and integration were adopted in the aspect of specialization of the ecological areas.</p>
Sixth Plan (1980-85)	<p>Similar to 5th plan with addition of projects relating to the integrated rural development, establishment of market settlements, small farmer development programs, etc.</p>
Seventh Plan (1985-90)	<p>Housing and physical planning was included.</p> <p>To develop a well-conceived and properly managed urban development plan for the country</p> <p>To create opportunities for future productive employment and increased income in parallel with urban growth</p> <p>To use urbanization to supplement rural development efforts</p> <p>The policy framework included two main aspects: promoting non-farm employment generation in urban places in response to rapid population and labor force growth and strategic use of urban development programs to support rural development</p> <p>The major strategy contained: The preparation of a typology of urban areas on the basis of their geographic situation, population sizes, functional characteristics, economic resources and development potential; Establishment of appropriate service standards in settlements as per their economic and financial resources; special studies to growth potential of the settlement at the intersection of the north/south corridor & east-west highway; Gradual</p>

	<p>and planned development of regional development centers.</p> <p>Hierarchical concept of urban development planning process was officially introduced.</p>
Eighth Plan (1992-97)	<p>Reduction of regional imbalance and achieve sustainable economic development</p> <p>Strengthening the urban planning and management framework at the central, district and town levels with an emphasis on economic development and service provision.</p> <p>Strengthening the linkage between urban and rural economic functions.</p> <p>Providing for efficient, planned development of urban centers</p>
Ninth Plan (1997-2002)	<p>To minimize the existing regional imbalances</p> <p>To alleviate poverty</p> <p>To achieve national socio-economic integration by accelerating the social and economic development through promotion of activities that contribute to employment and income generation</p> <p>To give emphasis to production enhancement through identification of local resources specific to the geographical regions</p>
Tenth Plan (2002-2007)	<p>To alleviate poverty by mobilizing optimally the means and resources on the mutual participation of government, local agencies, non-governmental sectors, private sector and civil society.</p> <p>To extend economic opportunities and open new ones enlarging employment opportunities and widen the</p>

	access to means and economic achievements for women, Dalits, peoples of remote areas and poor and backward groups
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In Nepal's initial attempt to incorporate spatial dimension into planning, a number of north-south growth axes (development corridors) connecting various natural regions were envisioned. As they reflected both the east-west and north-south territorial features of the nation, four growth axes were identified as providing the best chance for integration and coordination of development. The major justification for the creation of growth axes was to link the economies of the hill and tarai. Establishing the nature and extent of complementarity between the northern and southern sides of the growth axis in terms of trade, labor, and capital circulation is the best method to integrate the national economy.

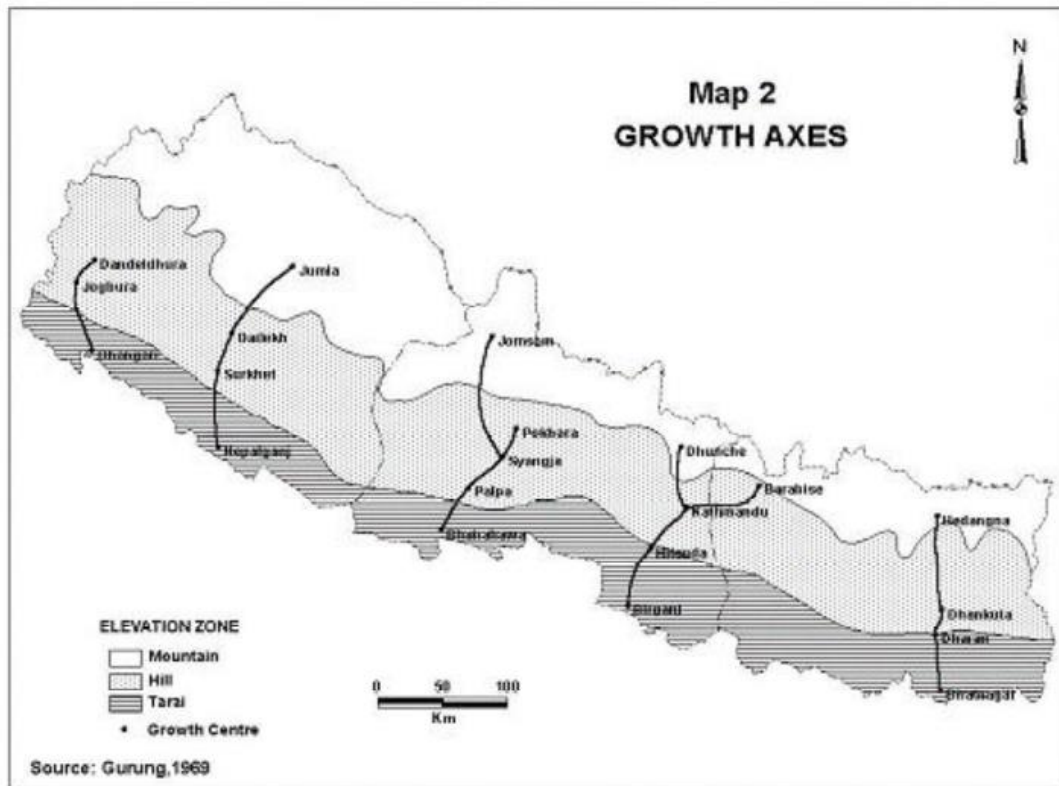


Figure 1 Growth Axis in National Urban System

The nation was conceived to be comprised of various growth axis that would foster in the economic and the functional perspective as shown in Figure 1. However, the idea has now been considered skeptical due to the fact that the intended targets were not achieved.

Table 3 Regional Development Areas

Macro Region	Growth Axis	Growth Centers (Geographic location)
Kosi (eastern) Section	Biratnagar- Hedangna	1. Hedangna (mountain); 2. Dhankuta (hill); 3. Dharan (tarai); 4. Biratnagar (tarai)
Gandaki (central) Section	Bhairawa-Jomsom	1. Jomsom (mountain) 2. Pokhara (hill); 3. Syangja (hill); 4. Palpa (hill); 5. Butwal (tarai); 6. Bhairawa (tarai)
Metropolitan Section (Kathmandu)	Birganj- Barabise/Dhunche	1. Dhunche (mountain); 2. Barabise (hill); 3. Kathmandu (metropolitan); 4. Hetauda (inner tarai); 5. Birgunj (tarai)
Karnali (western) Section	Nepalganj-Jumla	1. Jumla (mountain); 2. Dailekh (hill); 3. Surkhet (inner tarai); 4. Nepalganj (tarai)

Source: Gurung, H. 1969; p.17.

Over the past 50 years, decentralization had been a recurring subject in Nepal, however previous attempts to implement it have all failed due to the country's highly centralized governance structure. The sectoral approach's obduracy has been one of the barriers to effective decentralization. Decentralization is therefore still inefficient since line agencies, which have access to resources and technical know-how, are not under the jurisdiction of local governments. The issue of operational level sectoral agency lack of integration is mostly caused by such a vertical command structure.

4.3 REGIONAL PLANNING AND URBAN SYSTEM DURING RESTRUCTURED FEDERAL SETTING

Investments must be made according to a pattern of "decentralized concentration" if economic development is to be accomplished with improved social and geographical justice. The most efficient and effective way to accomplish this pattern of "decentralized concentration" is through an articulated and integrated system of settlements. The critical mass of services and facilities required in rural areas to boost agricultural productivity and income, as well as the trade, transportation, administrative, and social linkages that integrate a region into a self-sustaining economy, can be provided by hierarchical or diffuse settlement systems restructuring over the years.

Table 4 National Development Plans 2007 Onwards

Development Plans	Major Objectives & Actions
Eleventh Year Plan (2007-2010)	<ul style="list-style-type: none"> ➤ To give special emphasis on relief, reconstruction and reintegration ➤ To achieve employment-oriented, pro-poor and broad-based economic growth ➤ To promote good-governance and effective service delivery ➤ To increase investment in physical infrastructures ➤ To give emphasis on social development ➤ To adopt an inclusive development process and carry out targeted programs
Twelfth Year Plan (2011-2013)	<ul style="list-style-type: none"> ➤ To create employment and achieve poverty alleviation in the joint efforts of government, private and community sectors. ➤ To prepare the physical infrastructure in order to develop the future federal form of the country and support regional economic growth. ➤ Emphasis on inclusive development and community development to achieve sustainable peace and prosperity ➤ Contribute to the economic and social transformation of the state by promoting economic and social services
Thirteenth Year Plan (2014-2016)	<ul style="list-style-type: none"> ➤ To enhance the contribution of the private government and cooperative sector in the

	<p>development process, with an inclusive broad and sustainable economic approach.</p> <ul style="list-style-type: none"> ➤ To develop physical infrastructure ➤ To improve access, utilization and quality in social service sectors ➤ To enhance the economic and social empowerment of target class sectors and groups ➤ To conduct development programs adapted to climate change
<p>Fourteenth Year Plan (2016-2018)</p>	<ul style="list-style-type: none"> ➤ Transforming the agricultural sector through tourism and increasing production through small and medium businesses. ➤ To enhance energy, road and air transport infrastructure for the development of people of the rural & urban area and increase infrastructures for the trilateral international projects. ➤ To enhance and improve human development by emphasizing social development and related security and social protection ➤ Economic, social and government reforms for improvement of overall governance
<p>Fifteenth Year Plan (2019-2023)</p>	<ul style="list-style-type: none"> ➤ To build the basis of prosperity by constructing universally accessible, quality, and modern infrastructure, increasing productive and decent employment, achieving high, sustainable, and inclusive economic growth and poverty alleviation. ➤ To give citizens the feeling of well-being and decent livelihood by strengthening the federal governance system through quality health and education, a healthy and balanced environment, social justice, and accountable public service. ➤ To protect national interest, self-respect, and independence of the country through socioeconomic transformation and building an independent national economy.

The various interim and development plans have tried to address the inclusivity demands of the country. Moreover, the necessary strategies have been adopted for uniform urban growth but the execution of the same is not exemplary. In context of industries the economic plans have estimated to included charming goals such as

supporting the economy through boosting entrepreneurship; increasing the export of industrial goods by making the industrial products high quality and competitive; attracting local and foreign investment in the industrial sector; increasing the contribution of industrial sector in balanced regional development. However, the policies and acts have not been fulfilling enough to accomplish these goals.

The 14th plan had its objectives such as to increase the contribution of this sector to the total domestic product by increasing the production of the industrial sector; creating opportunities for employment growth by increasing domestic and foreign investment in the industrial sector and to reduce Nepal's deficit by increasing exports of material goods. The objectives of sustainable development were also attempted to be mainstreamed and internalized for the first time in this periodic plan. The devastating earthquake was believed to have cost the economy 700 billion rupees at the time this plan was being developed. Due to the prolonged trade interruptions at the southern border crossings, a further loss had to be incurred.

On one hand, the review of the 14th plan claims to have achieved most of its targets while on the other hand the everyday livelihood is facing difficulties due to inflation and the reconstruction works during its implementation have not been praiseworthy.

‘The Fourteenth plan had intended for socio-economic transformation by expediting poverty alleviation through productive employment-oriented high economic growth with equitable distribution. Accordingly, against the targeted average economic growth of 7.2 per cent, high economic growth of 6.9 per cent on average per year was achieved’ (National Planning Commission, 2019)

The fifteenth plan has formulated few strategies that shall contribute in the economic development of the federal bodies which are as follows:

- To achieve rapid, sustainable and employment-oriented economic growth
- To ensure universal and quality health service and education
- To develop internal and cross-border interconnectivity and sustainable cities/settlements
- To increase production and productivity

5 URBAN SYSTEM IN PROVINCE ONE

5.1 DEMOGRAPHY

According to the preliminary results of the National Census 2078, Province one makes 17.03 % of the total national population with a sex ratio of 95.23. The districts Morang, Jhapa and Sunsari are listed among the top five populated districts with a population of 1147186, 994090 and 934461 respectively. The other two being Kathmandu and Rupandehi. This is a preliminary indicator of the concentration of the activities is in the terai region in the province.

Demographic analysis usually depends on the population size to determine the pattern of the settlements that is the degree of hierarchy, the rank order and the degree of urbanization. These approaches provide an initial and easily determined profile of the settlement pattern that can be analyzed in more detail and cross checked with functional analysis of the region.

5.1.1 Population Composition & Growth

The province is composed of 14 districts that is comprised of 1 metropolitan city, 2 sub metropolitan city, 46 municipalities and 88 rural municipalities.

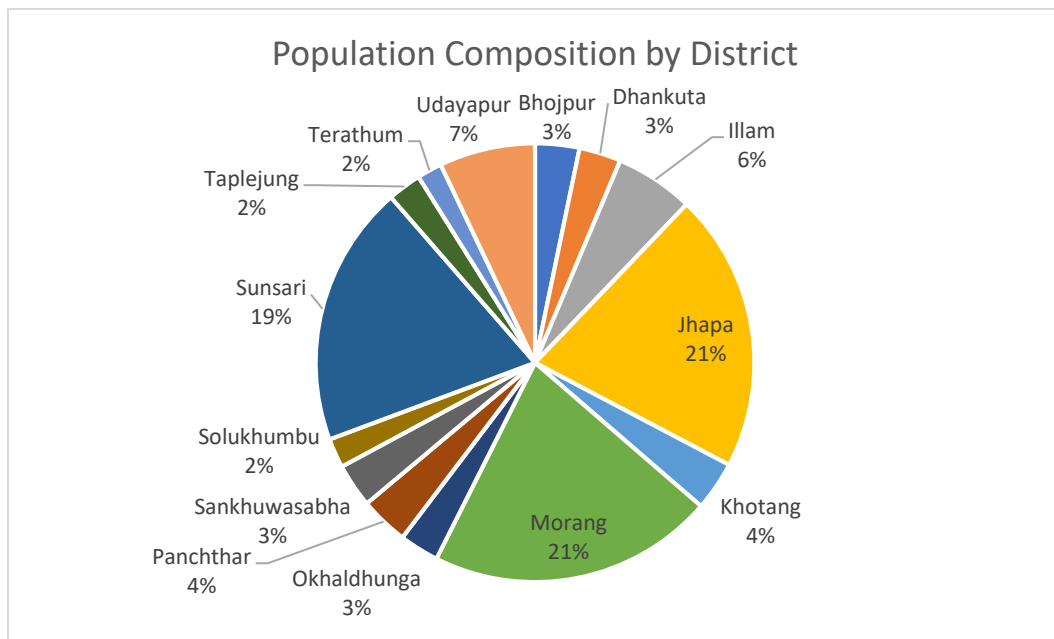


Chart 2 Population Composition by District (CBS, 2021)

Table 5 Population Composition by Local Bodies

Province, District and Gaun Palika / Nagarpalika	Total	Male	Female
Province 1	991,750	865,693	96,068
Taplejung			
Total	120,359	60,524	59,835
1 Aatharai Tribeni Gaunpalika	12,288	6,005	6,283
2 Maiwakhola Gaunpalika	10,365	5,264	5,101
3 Meringden Gaunpalika	12,040	6,181	5,859
4 Mikwakhola Gaunpalika	7,991	4,000	3,991
5 Phaktanlung Gaunpalika	11,925	6,239	5,686
6 Phungling Municipality	28,786	14,160	14,626
7 Sidingba Gaunpalika	10,981	5,593	5,388
8 Sirijanga Gaunpalika	14,186	7,227	6,959
9 Yangwarak Gaunpalika	11,797	5,855	5,942
Panchthar			
Total	173,273	85,971	87,302
1 Falelung Gaunpalika	20,531	10,211	10,320
2 Falgunanda Gaunpalika	21,253	10,417	10,836
3 Hilihan Gaunpalika	20,537	10,160	10,377
4 Kummayak Gaunpalika	13,020	6,532	6,488
5 Miklajung Gaunpalika	21,328	10,535	10,793
6 Phidim Municipality	48,713	23,963	24,750
7 Tumbewa Gaunpalika	11,063	5,644	5,419
8 Yangbarak Gaunpalika	16,828	8,509	8,319
Ilam			
Total	280,498	139,518	140,980
1 Chulachuli Gaunpalika	22,856	11,215	11,641
2 Deumai Municipality	31,531	15,807	15,724
3 Fakfokathum Gaunpalika	20,004	9,800	10,204
4 Ilam Municipality	50,455	24,781	25,674
5 Mai Jogmai Gaunpalika	19,295	9,686	9,609
6 Mai Municipality	30,988	15,126	15,862
7 Mangsebung Gaunpalika	16,897	8,602	8,295
8 Rong Gaunpalika	17,555	8,739	8,816
9 Sandakpur Gaunpalika	15,460	7,840	7,620
10 Suryodaya Municipality	55,457	27,922	27,535
Jhapa			
Total	994,090	477,496	516,594
1 Arjundhara Municipality	84,429	40,591	43,838
2 Barhadashi Gaunpalika	37,916	17,952	19,964
3 Bhadrapur Municipality	70,823	33,988	36,835
4 Birtamod Municipality	117,355	57,136	60,219
5 Buddhashanti Gaunpalika	52,911	25,276	27,635
6 Damak Municipality	107,410	51,118	56,292
7 Gauradaha Municipality	60,598	28,782	31,816

8	Gauriganj Gaunpalika	36,058	17,089	18,969
9	Haldibari Gaunpalika	33,054	15,831	17,223
10	Jhapa Gaunpalika	39,372	19,131	20,241
11	Kachanakawal Gaunpalika	42,386	20,024	22,362
12	Kamal Gaunpalika	53,710	25,739	27,971
13	Kankai Municipality	53,088	25,557	27,531
14	Mechinagar Municipality	131,520	64,410	67,110
15	Shivasatakshi Municipality	73,460	34,872	38,588

Morang

	Total	1,019,455	496,608	522,847
1	Belbari Municipality	81,837	38,460	43,377
2	Biratnagar Metropolitan City	244,750	122,769	121,981
3	Budhiganga Gaunpalika	51,640	25,472	26,168
4	Dhanapalthan Gaunpalika	45,204	22,136	23,068
5	Gramthan Gaunpalika	36,500	17,889	18,611
6	Jahada Gaunpalika	47,836	24,262	23,574
7	Kanepokhari Gaunpalika	43,177	20,441	22,736
8	Katahari Gaunpalika	48,633	24,414	24,219
9	Kerabari Gaunpalika	34,725	16,768	17,957
10	Letang Municipality	38,675	18,473	20,202
11	Miklajung Gaunpalika	33,315	16,074	17,241
12	Pathari Shanishchare Municipality	72,689	34,263	38,426
13	Rangeli Municipality	57,814	28,238	29,576
14	Ratuwamai Municipality	61,355	29,091	32,264
15	Sundarharaicha Municipality	121,305	57,858	63,447
16	Sunwarshi Municipality	56,169	27,092	29,077
17	Urlabari Municipality	71,562	33,827	37,735

Sunsari

	Total	932,452	452,087	480,365
1	Baraha Municipality	91,891	43,178	48,713
2	Barju Gaunpalika	36,533	18,571	17,962
3	Bhokraha Gaunpalika	49,371	24,501	24,870
4	Dewanganj Gaunpalika	39,367	19,710	19,657
5	Dharan Sub-Metropolitan City	173,096	82,683	90,413
6	Duhabi Municipality	67,051	33,448	33,603
7	Gadhi Gaunpalika	39,478	19,426	20,052
8	Harinagara Gaunpalika	49,501	24,459	25,042
9	Inaruwa Municipality	75,920	37,273	38,647
10	Itahari Sub-Metropolitan City	198,098	94,308	103,790
11	Koshi Gaunpalika	48,768	24,550	24,218
12	Ramdhuni Municipality	63,378	29,980	33,398

Dhankuta

	Total	149,384	72,669	76,715
1	Chaubise Gaunpalika	17,914	8,764	9,150
2	Chhathar Jorpati Gaunpalika	16,477	7,976	8,501
3	Dhankuta Municipality	36,156	17,387	18,769

4	Khalsa Chhintang Sahidbhumi Gaunpalika	17,784	8,807	8,977
5	Mahalaxmi Municipality	22,196	10,862	11,334
6	Pakhribas Municipality	19,256	9,247	10,009
7	Sangurigadhi Gaunpalika	19,601	9,626	9,975

Terhathum

Total		88,885	43,563	45,322
1	Aatharai Gaunpalika	18,210	8,996	9,214
2	Chhathar Gaunpalika	14,245	6,960	7,285
3	Laligurans Municipality	15,418	7,482	7,936
4	Menchhayayem Gaunpalika	6,698	3,272	3,426
5	Myanglung Municipality	19,078	9,347	9,731
6	Phedap Gaunpalika	15,236	7,506	7,730

Sankhuwasabha

Total		156,457	77,473	78,984
1	Bhotkhola Gaunpalika	6,509	3,256	3,253
2	Chainapur Municipality	27,078	13,210	13,868
3	Chichila Gaunpalika	6,720	3,351	3,369
4	Dharmadevi Municipality	16,300	7,890	8,410
5	Khandabari Municipality	36,102	17,967	18,135
6	Madi Municipality	13,428	6,584	6,844
7	Makalu Gaunpalika	13,492	6,920	6,572
8	Panchakhapan Municipality	16,391	8,060	8,331
9	Sabhapokhari Gaunpalika	10,005	5,012	4,993
10	Silichong Gaunpalika	10,432	5,223	5,209

Bhojpur

Total		157,817	77,362	80,455
1	Aamchowk Gaunpalika	15,237	7,517	7,720
2	Arun Gaunpalika	14,853	7,247	7,606
3	Bhojpur Municipality	26,126	12,676	13,450
4	Hatuwagadhi Gaunpalika	16,302	8,030	8,272
5	Pauwa Dunma Gaunpalika	12,170	5,851	6,319
6	Ramprasad Rai Gaunpalika	15,632	7,741	7,891
7	Salpa Silichho Gaunpalika	12,229	6,008	6,221
8	Shadananda Municipality	29,777	14,681	15,096
9	Tyamke Maiyum Gaunpalika	15,491	7,611	7,880

Solukhumbu

Total		104,768	52,629	52,139
1	Dhudha Koushika Gaunpalika	18,459	9,225	9,234
2	Dhudhakoshi Gaunpalika	12,746	6,422	6,324
3	Khumbu Pasanglhamu Gaunpalika	9,226	4,737	4,489
4	Likhu Pike Gaunpalika	5,264	2,588	2,676
5	Mahakulung Gaunpalika	11,971	5,921	6,050
6	Necha Salyan Gaunpalika	10,828	5,325	5,503
7	Solu Dhudhakunda Municipality	27,013	13,700	13,313

8	Sotang Gaunpalika	9,261	4,711	4,550
Okhaldhunga				
	Total	140,914	69,322	71,592
1	Champadevi Gaunpalika	16,528	8,146	8,382
2	Chishankhu Gadhi Gaunpalika	13,761	6,711	7,050
3	Khiji Demba Gaunpalika	15,867	7,926	7,941
4	Likhu Gaunpalika	11,930	5,912	6,018
5	Manebhanjyang Gaunpalika	19,883	9,626	10,257
6	Molung Gaunpalika	16,944	8,464	8,480
7	Siddhicharan Municipality	27,977	13,554	14,423
8	Sunkoshi Gaunpalika	18,024	8,983	9,041
Khotang				
	Total	175,340	86,521	88,819
1	Aiselukharka Gaunpalika	13,581	6,713	6,868
2	Baraha Pokhari Gaunpalika	11,461	5,713	5,748
3	Diprung Gaunpalika	16,549	8,139	8,410
4	Halesi Tuwachung Municipality	27,274	13,434	13,840
5	Jante Dhunga Gaunpalika	12,066	5,934	6,132
6	Kepilasgadhi Gaunpalika	13,339	6,583	6,756
7	Khotehang Gaunpalika	16,952	8,417	8,535
8	Lamidanda Gaunpalika	11,218	5,424	5,794
9	Rupakot Majhuwadhi Municipality	43,295	21,345	21,950
10	Sakela Gaunpalika	9,605	4,819	4,786
Udayapur				
	Total	342,051	164,379	177,672
1	Belaka Municipality	51,458	24,631	26,827
2	Chaudandigadhi Municipality	53,537	25,389	28,148
3	Katari Municipality	60,168	29,250	30,918
4	Rautamai Gaunpalika	20,418	10,017	10,401
5	Sunkoshi Gaunpalika	9,789	4,837	4,952
6	Tapli Gaunpalika	13,377	6,648	6,729
7	Triyuga Municipality	104,375	49,514	54,861
8	Udayapurgadhi Gaunpalika	28,929	14,093	14,836

Over the years, the population of few areas has increased to a greater extent. The agglomeration effect of the capital city have sprung pockets of non-farm active regions and there has been a constant increase in the population of the major cities in the region as described in Table 6. These cities have shown greater economic activities in the recent years as well. The list of cities are listed as per the rank of their population density and are only those municipalities with a density greater than nine PPHA.

Table 6 Population growth of major cities (Municipalities)

Municipalities as Cities/Towns	District	Population (2001)	Population (2011)	Population (2021)	Pop. Density p/sqkm
Biratnagar	Morang	166674	204949	244750	3179
Itahari	Sunsari	41210	76869	198098	2112
Birtamod	Jhapa	-	-	117355	1500
Damak	Jhapa	35009	75743	107410	1418
Sunder Haraicha	Morang	-	-	121305	1103
Duhabi	Sunsari	-	-	67051	991
Inaruwa	Sunsari	23200	28923	75920	976
Urlabari	Morang	-	-	71562	961
Dharan	Sunsari	95332	119915	173093	916
Patharishanishare	Morang	-	-	72689	915

Source: CBS

However, the places such as Mechinagar, Bhadrapur, Barakhshetra, Arjundhara, Belbari and Triyuga have population greater than 70,000 currently although having lower density.

On the other hand, as per the 2021 census, the majority of the hilly and Himalayan districts have seen a decline in their annual population growth: Taplejung(-0.55%), Solukhumbu(-0.1%), Okhaldhunga(-0.47%), Khotang(-1.56%), Bhojpur(-1.32%), Dhankuta(-0.82%), Terathum(-1.26%), Panchthar(-0.91%), Ilam(-0.33%). Hence this has caused stagnant situation in the predominant towns in the hills. However, there are handful of municipalities, namely Suryodaya, Khandbari, Dhankuta, Ilam, Rupakot and Phidim with a population over 35,000.

A preliminary analysis of the population data suggests that neither Rank Size Rule nor Primate City concept actually holds valid for the cities within the province. However, the decline of the population in the hills and increased attraction in the terai areas suggests that the major population flow has been from the traditional growth centers in the hilly region to the terai with the functional cities attracting the people and directing the internal migration.

5.1.2 Age Sex Pyramid

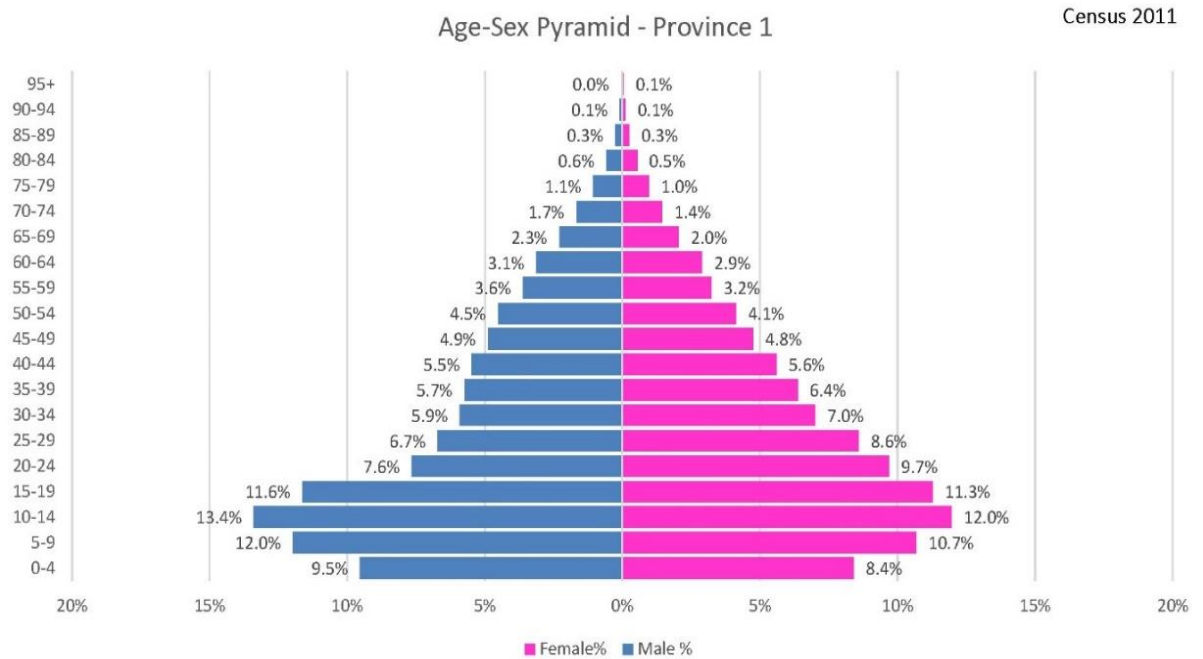


Chart 3: Age Sex Pyramid of Province 1, Census 2011

With 47.8% male population and 52.2% female population, the pyramid shows dominance of female population over male population. Maximum percentage of population lies in the age group 5-9, 10-14 and 15-19, which shows the dominance of working population. The pyramid can also be represented as constructive type which is shrinking in the bottom which can be caused by lesser child birth ratio. With higher life expectancy ratio adults of age greater than 64 years can also be seen in quantitative proportion. Male child ratio is seen in dominance of age below 14, which can be due to the greater preferences of male child.

Trend Analysis

Comparing the age sex pyramid of Province One from three consecutive Census year 1991, 2001, and 2011, it is clear from the data that young age population is decreasing and working age population is increasing. Census 2011 shows decrease in the dependency ratios i.e. working population of age 15-59 years are greater than dependent population of age below 14 years and adults of age above 60 years. Female percentage is increasing as compared to men. Also the percentage of old age population has significantly increased over the years which refers to the higher life expectancy of old age people because of the improved health facility in the nation.

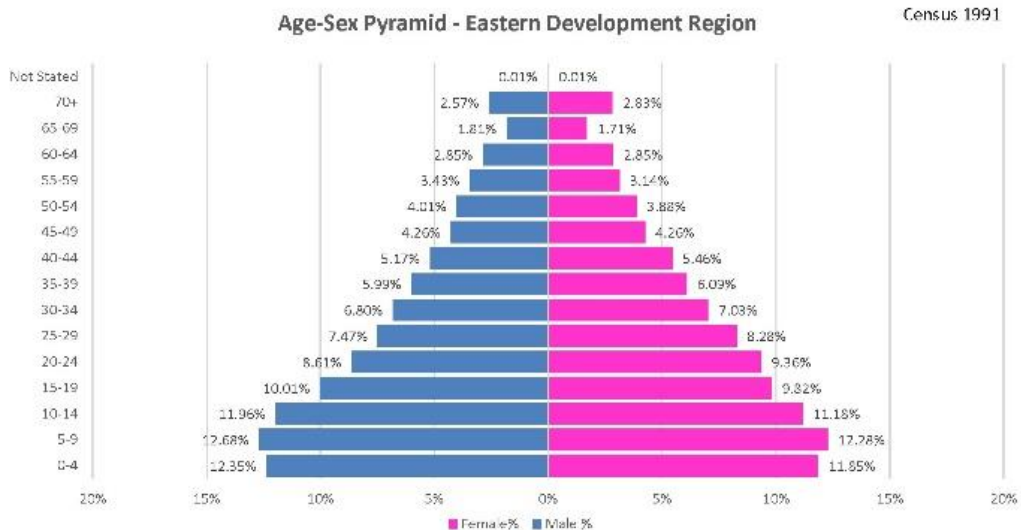


Chart 4: Age Sex Pyramid of Eastern Development Region, CBS 1991

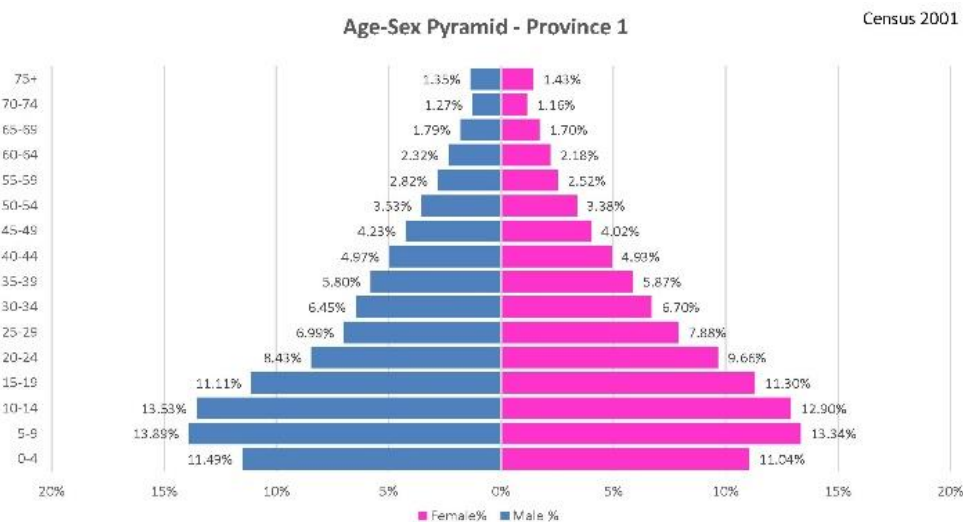
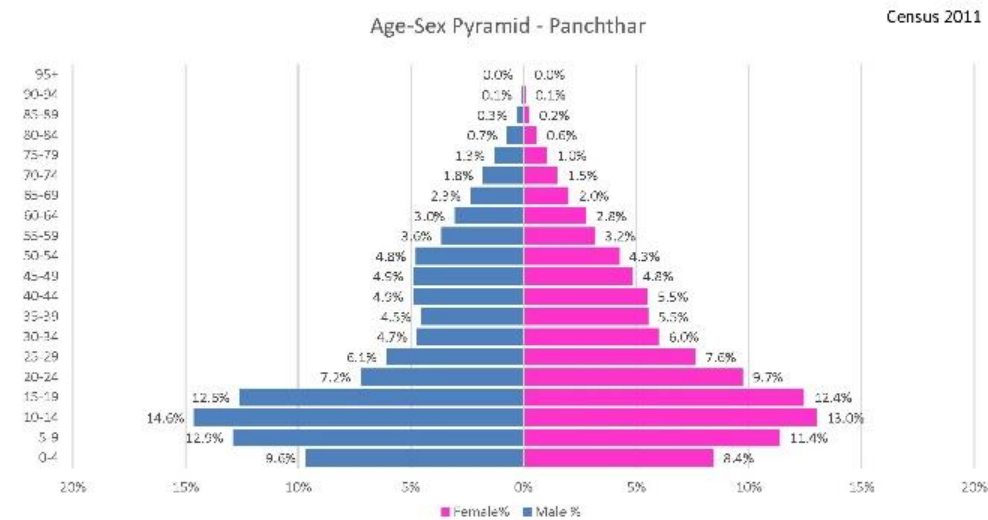
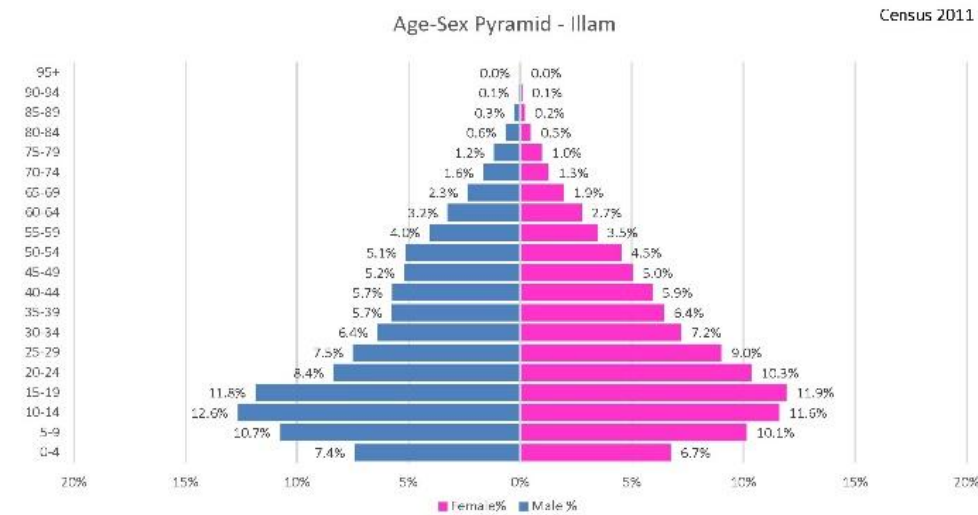
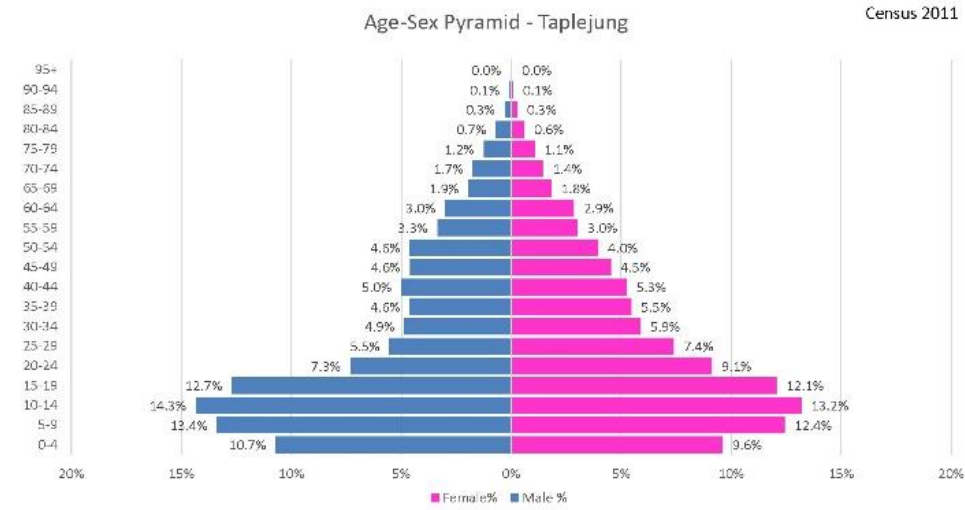


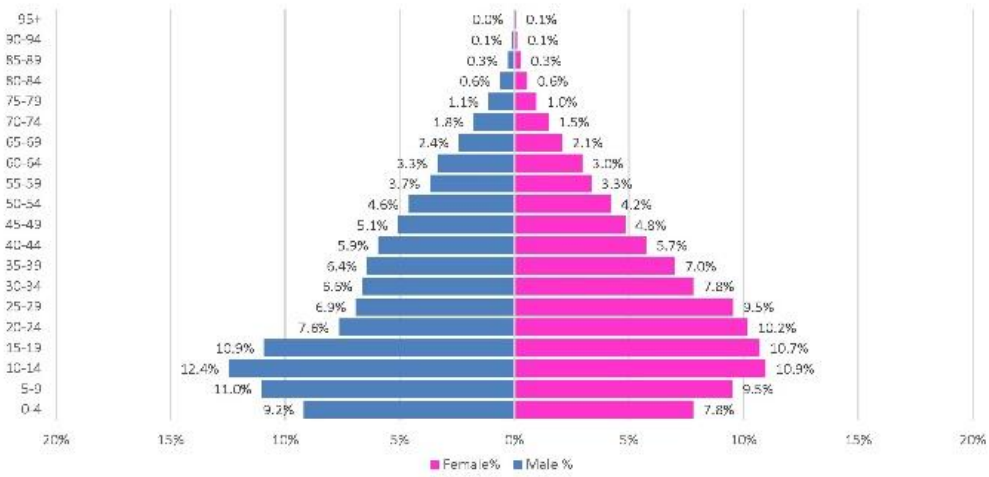
Chart 5: Age Sex Pyramid of Eastern Development Region, CBS 2001

Age Sex Pyramids (District Wise)



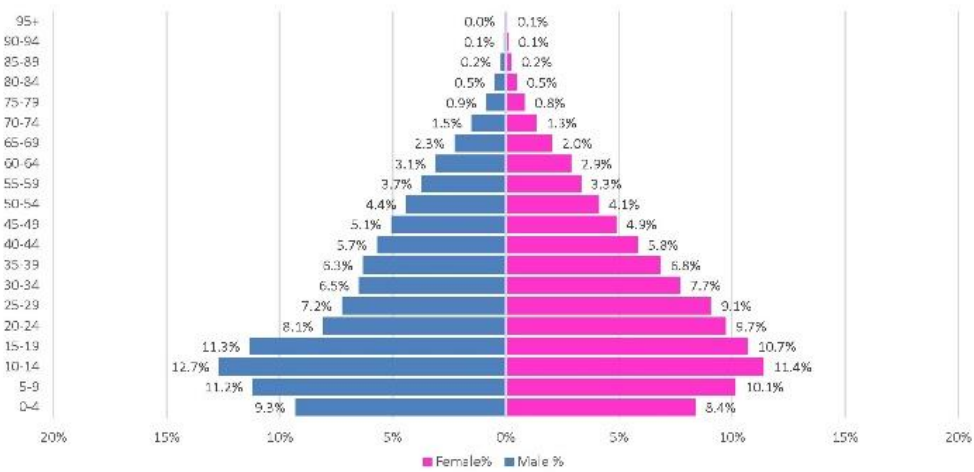
Age-Sex Pyramid - Jhapa

Census 2011



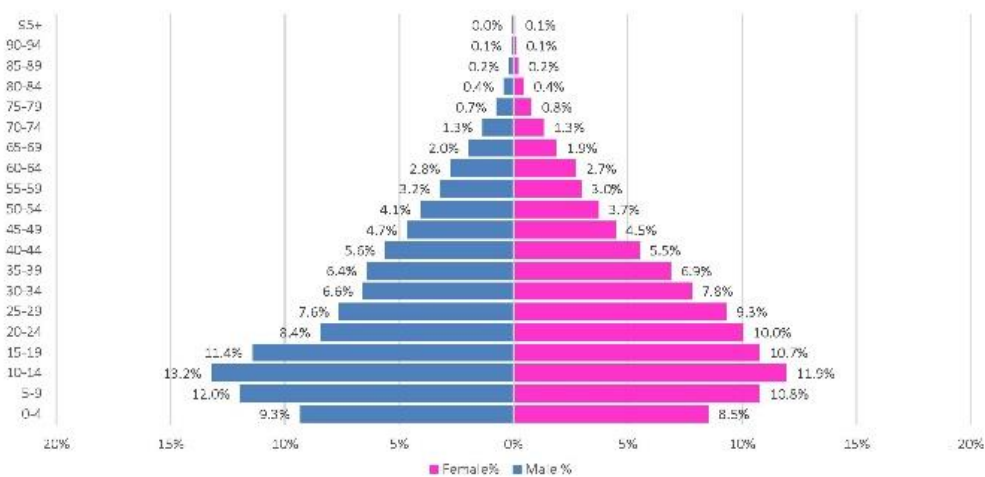
Age-Sex Pyramid - Morang

Census 2011



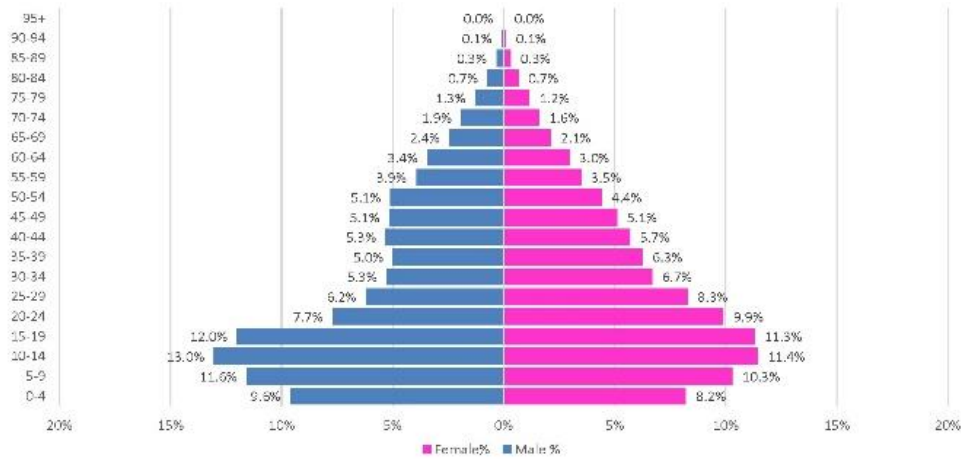
Age-Sex Pyramid - Sunsari

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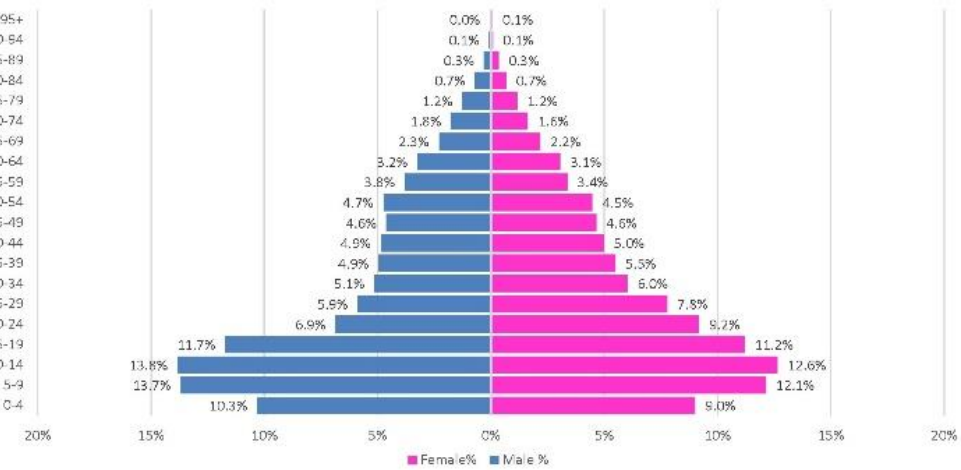
Age-Sex Pyramid - Dhankuta

Census 2011



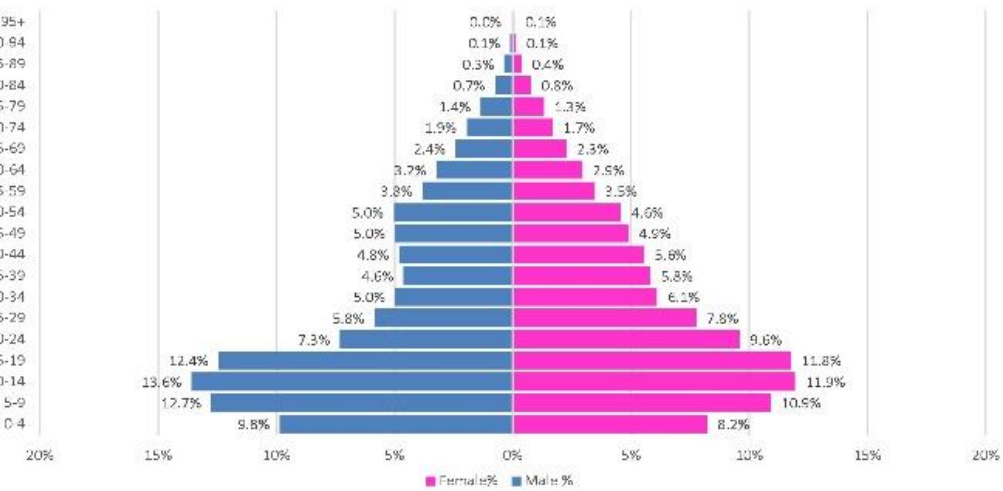
Age-Sex Pyramid - Sankhuwasabha

Census 2011



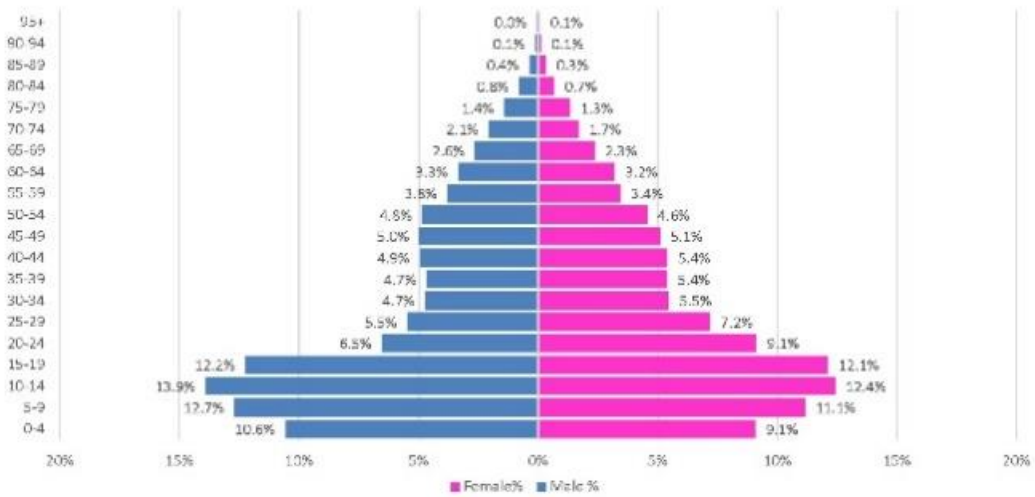
Age-Sex Pyramid - Terhathum

Census 2011



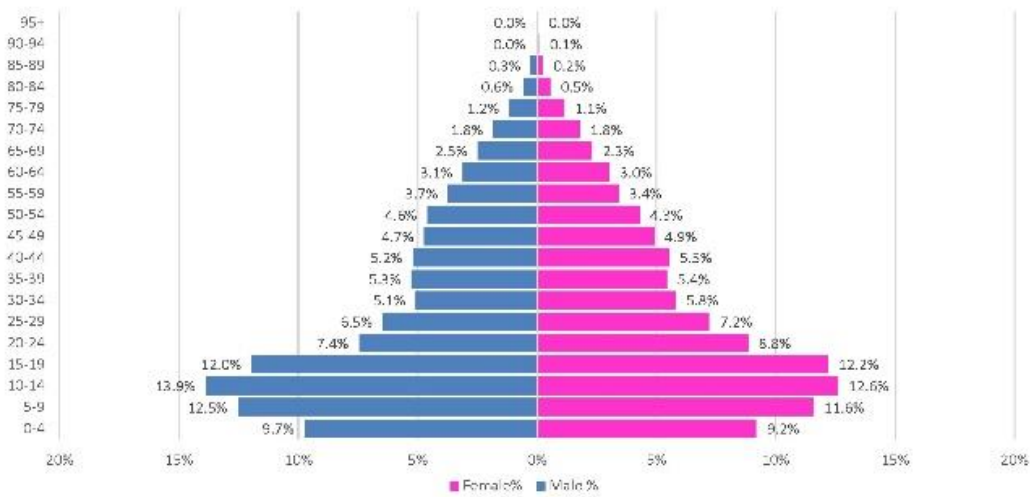
Age-Sex Pyramid - Bhojpur

Census 2011



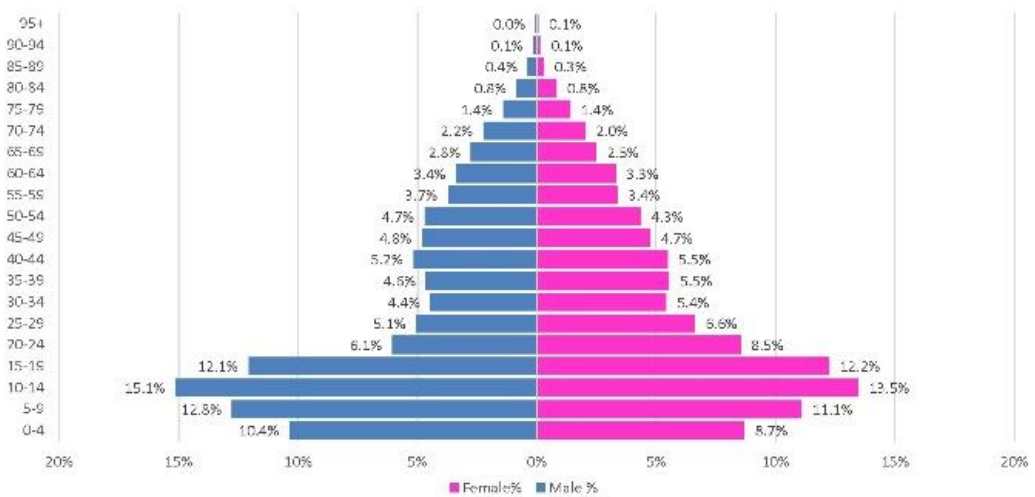
Age-Sex Pyramid - Solukhumbu

Census 2011



Age-Sex Pyramid - Okhaldhunga

Census 2011



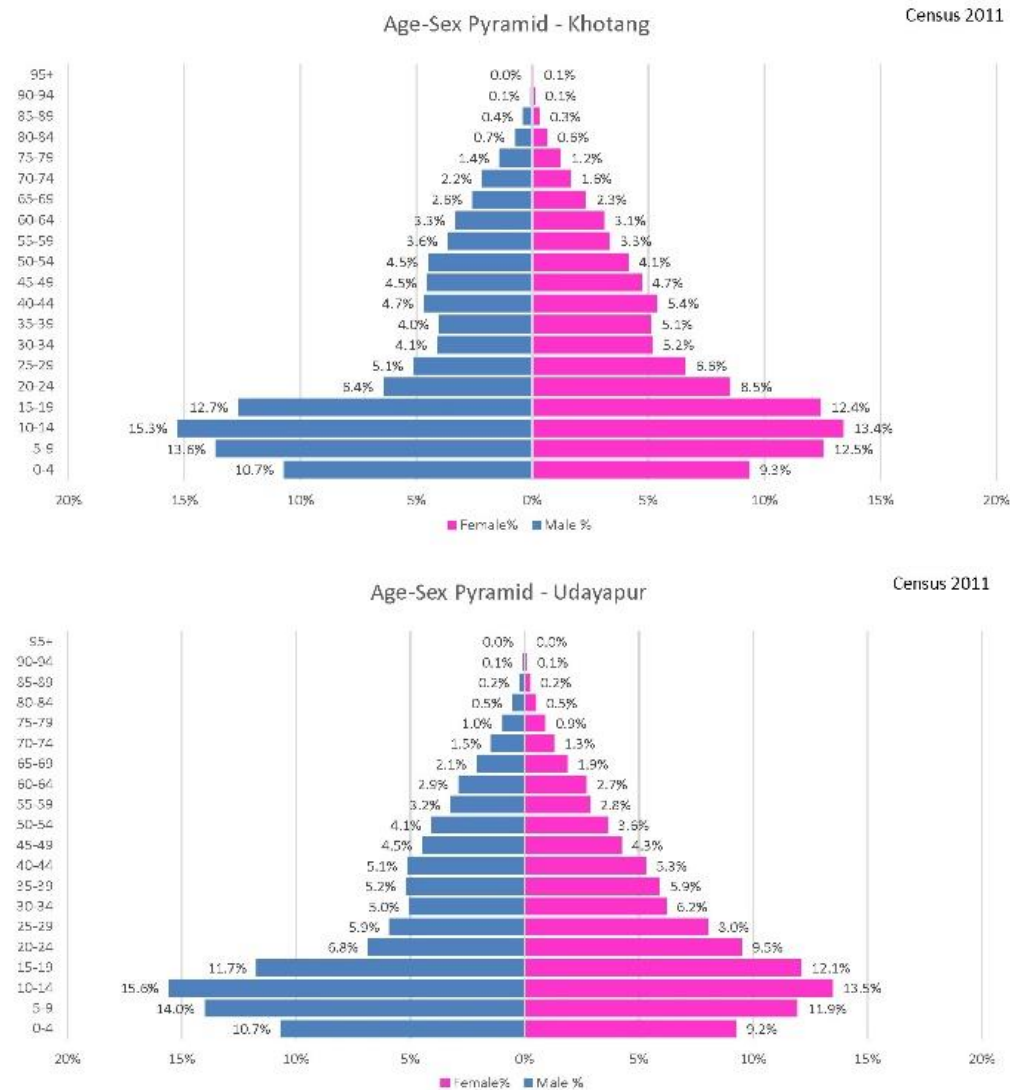


Chart 6: Age Sex Pyramid of Districts of Province One, CBS 1991

Comparing at the age sex pyramid of 14 districts of Province-1, all the districts male population is dominated by female population. Illam, Jhapa, Morang and Sunsari's male and female population is evenly distributed as compared to other districts. The working age male population of Taplejung, Panchthar, Dhankuta, Terathum, Bhojpur, Okhaldhunga and Khotang's population is seen in lesser percentage which suggests the out migration. All of the population pyramid has narrow base which shows decrease in the child birth ratio or fertility rate. With this declined rate of fertility, the population growth rate also decreases resulting in greater time required to double the population.

The age group below 14 years shows somewhat greater percentage of male population over female population which might be due to the greater preference of male child.

Thus the data suggests that in the coming years, female population will be dominate by male population unlike the present situation.

Age Sex Pyramids (Nepal's Context)

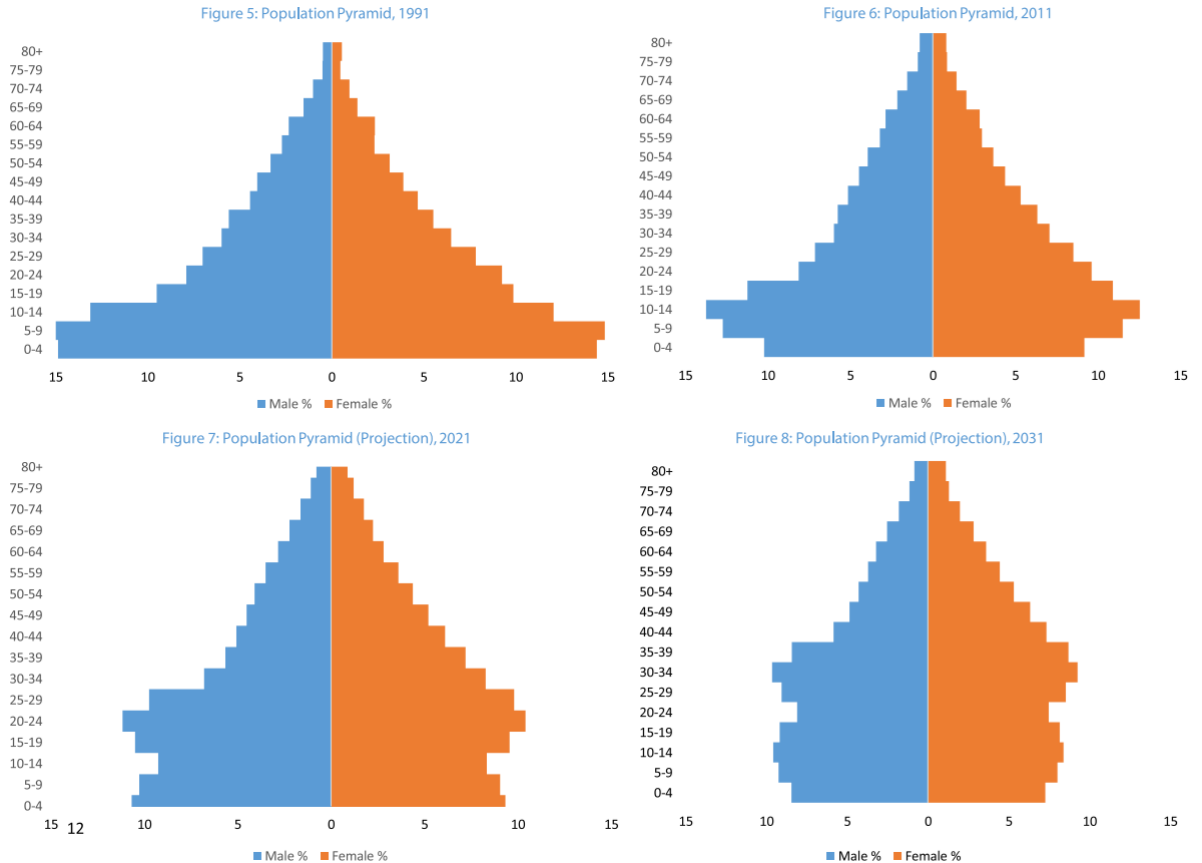


Chart 7: Population Pyramid Projection

In Nepal, the young age population is declining and the working age population is increasing. In 1991, the working age male population, defined internationally as aged 15-64, was 52.9 percent of the total male population and the corresponding figure was 55.3 percent for females. The 1991 pyramid also indicates that fertility was beginning to decline 10 years prior to 1991. As of 2011, the male working age population increased to 57.9 percent and the corresponding figure for females was 61.6 percent. This shows that the proportion of working age population increased more rapidly for females than for males, however, it must be noted that among the males a large number (1,684,086) were absentees working outside the country while the respective figure for females was 237,408. A population growth projection conducted by CBS shows that by 2021 the male working age population will increase from 58 percent in 2011 to 64 percent in 2021, with the corresponding figures for females 62 percent and 67 percent

respectively. Population projections for 2031 shows an increase of working age male population to 66 percent (CBS) and for females 69 percent. CBS projections show fewer female children (9.3 percent females vs. 10.7 percent males) in age group 0-4 in 2021, this pattern continues to 2031. This indicates a decrease in female births each year, with potential implications on the sex ratio balance and implications with respect to gender discrimination and human rights violations. (United Nations Population Fund, 2017)

Economically Active Population

Economically active population comprises all persons of either sex who furnish the supply of labour for the production of economic goods and services as defined by the United Nations System of National Accounts during a specified time-reference period. Population of age group 15-64 are called economically active population.

The economically active population may be related to the total population for the derivation of the crude participation rate, or, more appropriately, to the population above the age prescribed for the measurement of the economically active population. Production includes all individual or collective goods or services that are supplied to units other than their producers, or intended to be so supplied, including the production of goods or services used up in the process of producing such goods or services; the own-account production of all goods that are retained by their producers for their own final consumption or gross capital formation; the own-account production of housing services by owner-occupiers and of domestic and personal services produced by

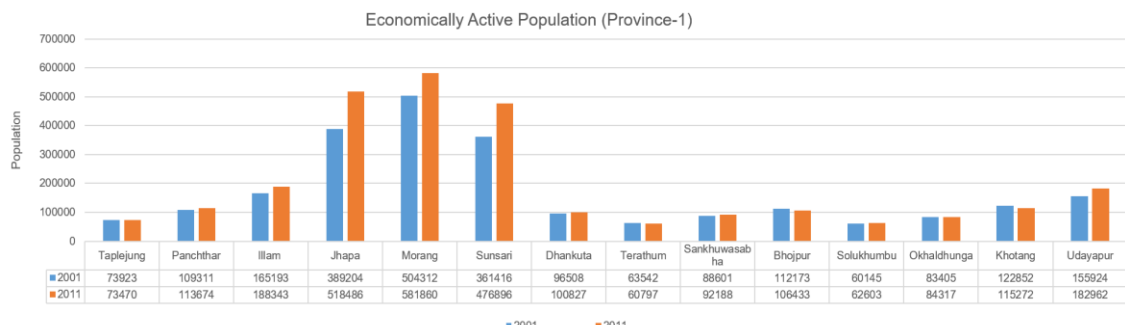


Chart 8: District wise Total Active Population (2011)

employing paid domestic staff. Non economically active population comprises the balance of the population.

The bar graph represents the total active population of each districts of Province One, i.e. the age group of 15-64. Among the 14 districts, Morang, Jhapa, and Sunsari shows highest number of economically active population. Meanwhile Taplejung, Terathum, Solukhumbu, Okhaldhunga and Sankhuwasabha has the lowest number of economically active population.

Comparing the census data of 2001 and 2011, the economically active population has risen in all the districts except Taplejung, Terathum and Okhaldhunga. The data from the graph suggests out migration from these districts to other where active population are increasing like Jhapa, Morang and Sunsari.

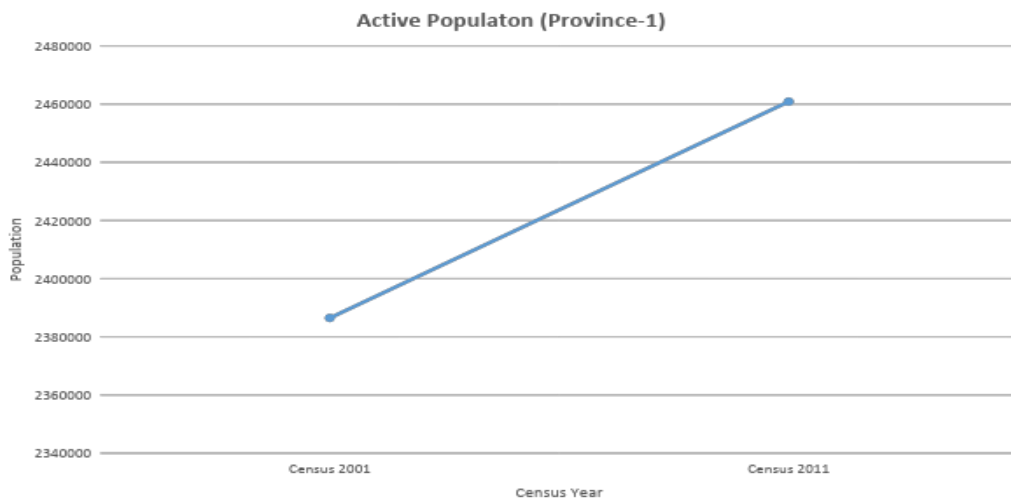


Chart 9: Rise in Active Population in Province One

The graph represents the rise in economically active population in Province One from 2001 to 2011 from 23.8 Lakh to 24.6 Lakh. The total active population in the province was expected to grow in the coming years in similar manner. Comparing the census data of 2001 and 2011, there is a gradual decline in child dependency ratio but slight increase in the old dependency ratio can be seen which has resulted in the increase of life expectancy ratio. Overall the total dependency ratio has decreased from 80% to 71.10%. And it is also projected to decline over the years.

Dependency Ratio- Province 1

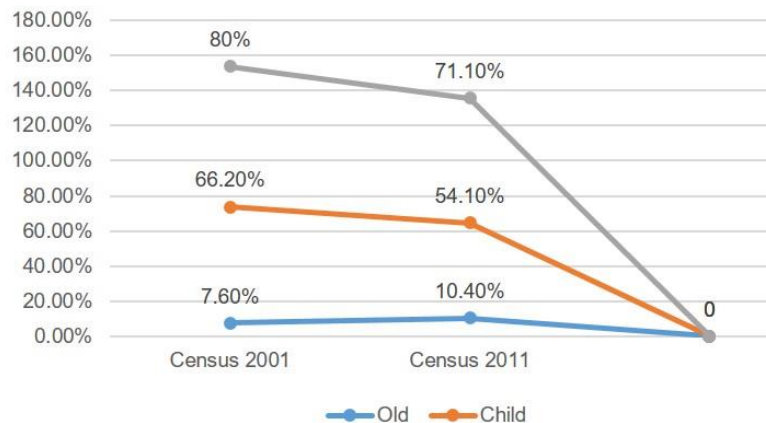


Chart 10: Dependency Ratio

A high dependency ratio can cause serious problems for a country if a large proportion of a government's expenditure is on health, social security & education, which are most used by the youngest and the oldest in a population. The fewer people of working age, the fewer the people who can support the youngest and oldest members of a population, often considered the most vulnerable members of the society.

High dependency ratios can also result in population-wide, long-term shifts in saving and investment rates, property markets, and consumption patterns. Workers typically start to save more as they get closer to retirement age, but as more people reach retirement age and fewer people are having children, long-term interest rates will eventually be affected. If the demographic population continues to follow this trend, their savings will decrease while their long-term interest rates increase.

Due to the enormous numbers of dependents who pay little to no taxes, low dependence ratios encourage economic growth while high dependency ratios inhibit it. This will stimulate a higher economic growth because the working-age population will grow in number if more young adults migrate into their country. This method has shown great results in Asia's economic growth.

The increase in the involvement of women in the work force has contributed to the working-age population which complements the dependency ratio for a country. Encouraging women to work will help decrease the dependency ratio. Because more women are getting higher education, it is less likely for them to have children, causing the fertility rates to decrease as well.

The figures show that Nepal’s dependency ratio in 2011 was 75.56, meaning that for every 100 persons in the working age population, 76 persons were dependents.

The table also reveals that child dependency started to decrease from 2001; conversely old age dependency is increasing consistently overtime.

The demographic window of opportunity is projected to be 55 years. It is important to note that according to these calculations, Nepal has already spent 25 years—45 percent of its window of opportunity—and has 30 years remaining to reap this dividend. (National Planning Commission, 2017).

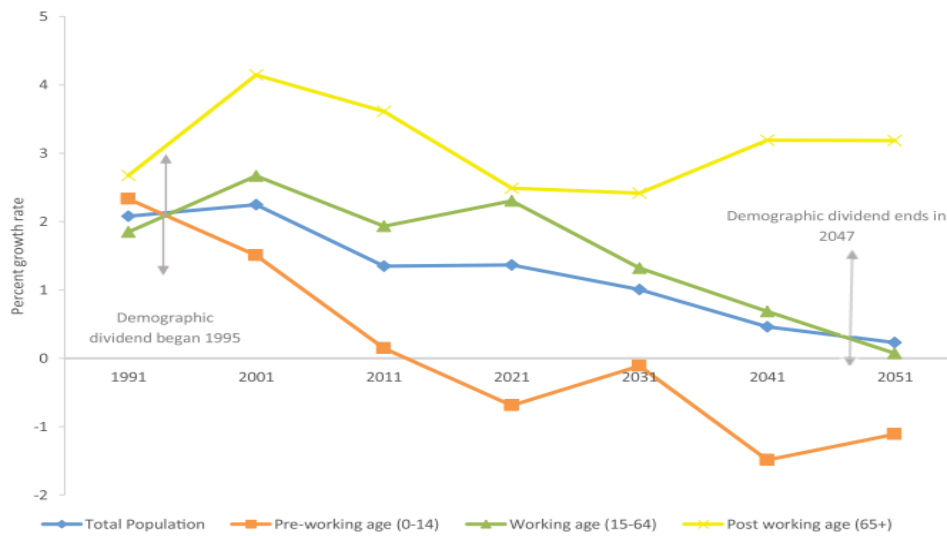


Chart 11: Demographic dividend of Nepal

Since the demographic dividend has begun in Nepal, with the growth of the working age population becoming higher than the growth of total population, Nepal must prioritize investment in education, work skills, empowerment, and employment for young people to reap the benefit of the demographic dividend.

There has been a remarkable shift in the structure of the economically active population in the last 30 years and the changes are also visible over the last 10 years. Census data reveal that economic activity rates have been gradually declining over the intercensal periods. Crude activity rates have declined from 46% of the total population of 10 years and over in 1981 to 42% in 2011. The trend is similar across regions, ecological belts and by sex. The rate in urban areas is lower than in rural areas, and is lower for females than males. The proportion of the employed population in the primary sector, mainly in agriculture, is gradually declining. But the proportion in the tertiary sector has increased from 6% in 1981 to 24% in 2011. Sixty per cent of the employed population reported

agriculture as their main occupation. Among the employed population 27% were employees, 2% were an employer and 66% were own account workers, while 4% of the employed population reported that they had only worked for less than 3 months.

5.2 URBAN CENTERS

The country has witnessed immense reforms in the political and socio-economic scenarios. The effect of the same can be seen in the formation of the various administrative bodies over the years. One such perspective is the formation and growth of municipalities. In context of Nepal, the categorization of places into municipalities is the closest classification of urban places. Hence, an overview of the formation and trend of these municipalities becomes essential to analyze the urban centers of the present state.

A brief history of the municipalities guides us towards the initiation of the formation of the urban centers. In the past, there were 58 officially recognized municipalities. A total of eleven of these local bodies were situated in the eastern region. The location of these traditional municipalities are as shown in the Figure 2.

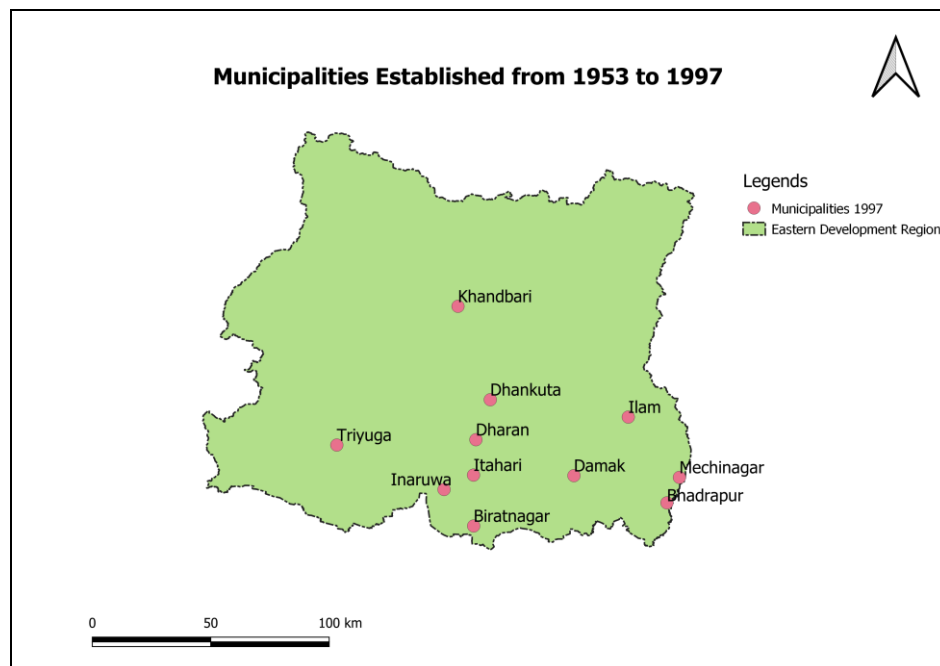


Figure 2 Municipalities established until 1997

Trends towards the development of urban centers have not been uniform for the country as a whole. The pattern of development by mid-2005 showed that the eastern

Terai and Kathmandu Valley were highly prominent with a large number of urban centers followed by the central Terai. (G. K. Pandey, 2013)

The year of establishment and their population as per 2011 census of these urban centers are as follows:

Table 7 Municipalities established until 1997

Year of Establishment	Municipality in the Eastern Region	Population (2011)
1953	Biratnagar	2,04,949
1953	Bhadrapur	18,646
1958	Dharan	119,915
1962	Ilam	19,427
1978	Dhankuta	28,364
1982	Damak	75,743
1986	Inaruwa	28,923
1997	Itahari	76,869
1997	Khandbari	26,658
1997	Mechinagar	57,909
1997	Triyuga	71,405

Source: CBS, 2011

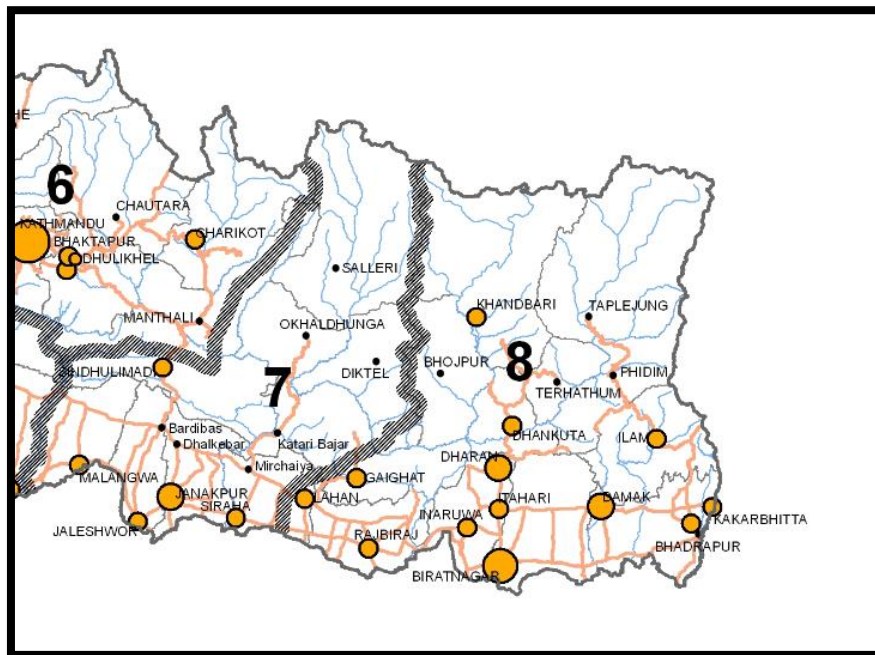


Figure 3 Urban Centers in 2007 (Regional Development Strategy, NPC)

In the preliminary days, Dhankuta was observed as the strategic and economic center of the eastern region and was classified as special growth center. However, the purpose of classification was to develop a system of financial and technical assistance for urban development to towns of different categories. In spite, this classification could not remain functional in later years as the number of municipalities kept on growing and the criteria for delineation of urban areas i.e. municipalities remained mainly political rather than functional.

Biratnagar region including the areas to the east of Sankhuwasabha, Bhojpur, parts of Khotang, Udayapur and Saptari became more functional and economical region over the years. The core economic area comprises the economic centres of Biratnagar-Dharan including Itahari and Inaruwa. The eastwest highway and the Biratnagar-Dharan and Dharan-Dhankuta highways are the major transport spines of this region.

In addition, due to the rise of federalism and the urge to concentrate on local development, the identification of more municipalities started to occur. A total of 133 municipalities were established in 2014 in two segments and an additional of 26 municipalities were added to the list by 2015. Many settlements in the eastern region made it to the list such as Taplejung, Phidim, Uralbari, Myanglung, Bhojpur, Diktel, Katari, Suryodaya, Arjundhara, Kankai, Chainpur, Belbari, Pathari Shanischare, Rangeli, Duhabi, Siddhicharan, Chaudandigadhi, Birtamod, Deumai, Shivasatakshi, Ramdhuni-Bhasi, Pakhribas, Shadananda, Solududhkunda, Gauradaha, Laligurans.

On 10 March 2017, Government of Nepal reconstructed old local level bodies into 753 new local level units as per the new constitution of Nepal 2015. The few of the additional municipalities that were added within the Province One were Mai, Ratuwamai, Sunawarshi, Barakhshetra, Mahalaxmi, Dharmadevi, Panchkhapan, Halesi Tuwachung, Belaka, Surunga and Sundarharaicha.

The increase in the local governance has triggered the development of physical infrastructures resulting in creation of more economic centers than before. In this regards, various sections such as the Mechi highway has defined a sub-region centering around Mechinagar-Bhadrapur more sharply with market centers like Fikkal in the north and Birtamod & Damak in the west complementing to the network.

the province government's plans for the growth of the agricultural, industrial, biodiversity, and hydropower sectors will also influence the functional role of provincial urban centers and as a whole shape the regional urban system.

Hence, the current urban system of the province is more reliant on the specific market centers, trade points, major transport routes, transit points and to some extent tourism & traditional cities.

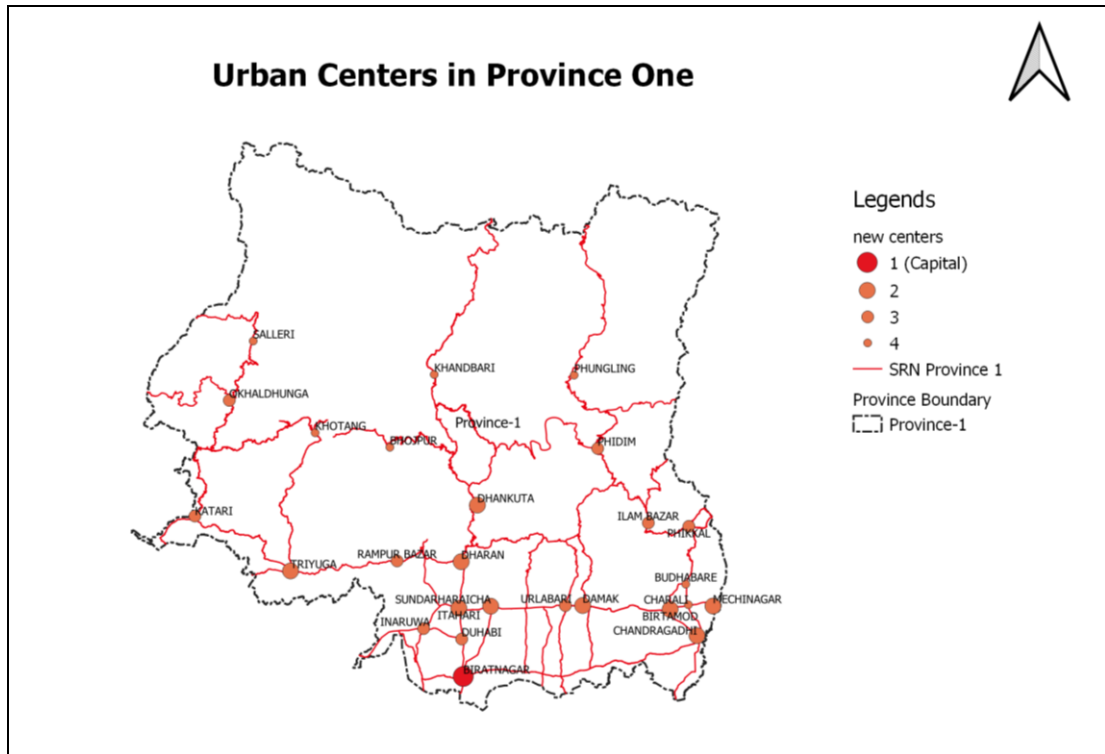


Figure 5 Urban Centers in Province One

The above figure depicts the current situation of the location of the market centers both predominant and emerging in the region. These market centers have been identified through primary observation and are irrespective of the administrative divisions. However, in spite of the restructuring due to federalism, economy flows only in its most profitable way and the administrative divisions alone may not necessarily restrict the flow of economy. It does however aid in the development of the urban centers through its administrative and financial contribution for the infrastructural development.

Perhaps what shall drive the economy of these urban centers is the services it caters, economic infrastructures and production capacity; the primary characteristics of which is the transportation facilities, distribution network and industries.

An analysis of these various upspring growth centers through the aerial photography was done and very remarkable change was observed. The most of the places seen significantly growing were in alignment with the population data as per Table 6. On one hand the well established UCS were increasing in size whereas few areas were constructively growing into a major hub. Few of such example is Birtamod, Fikkal, Duhabi, Urlabari, Patharisanishare.



Figure 6: Google Imagery of Birtamod in 2010

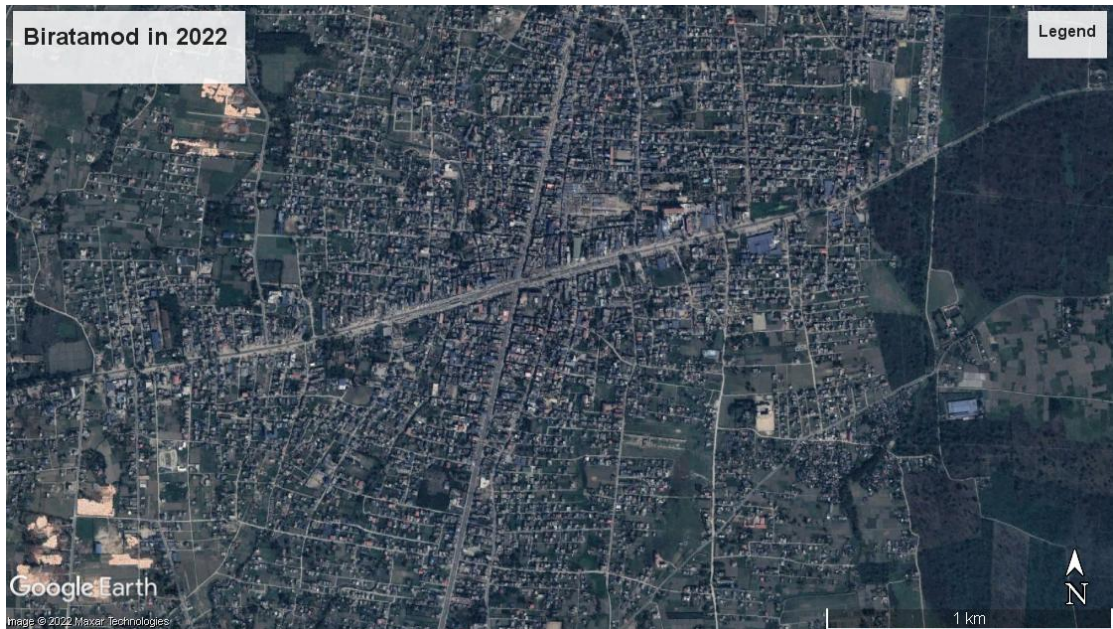


Figure 7: Google Imagery of Birtamod in 2022

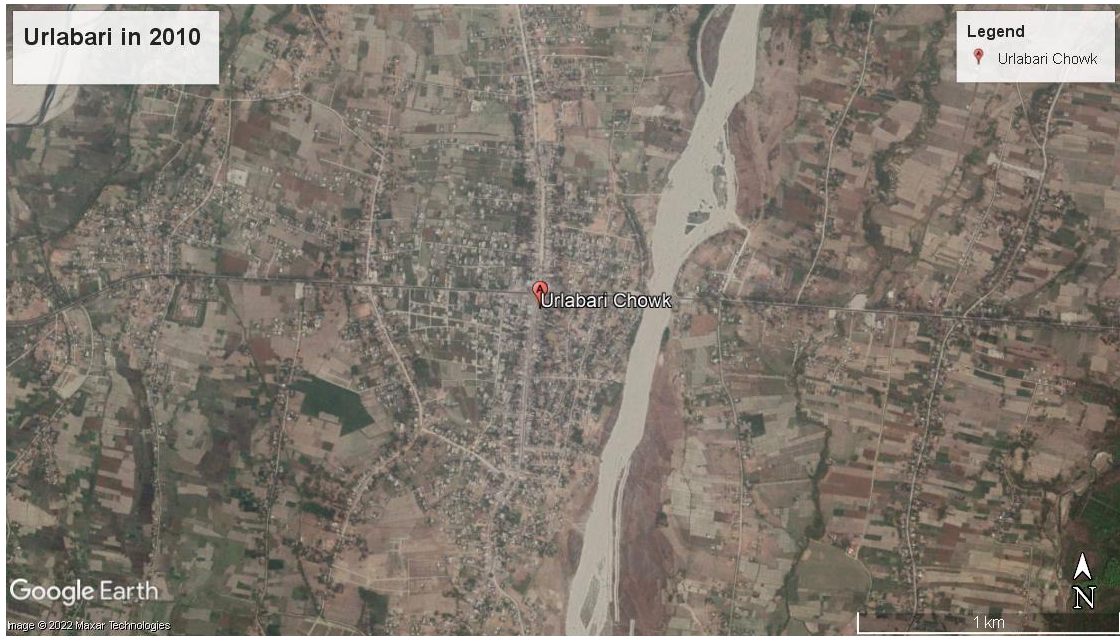


Figure 8: Google Imagery of Urlabari Chowk in 2010

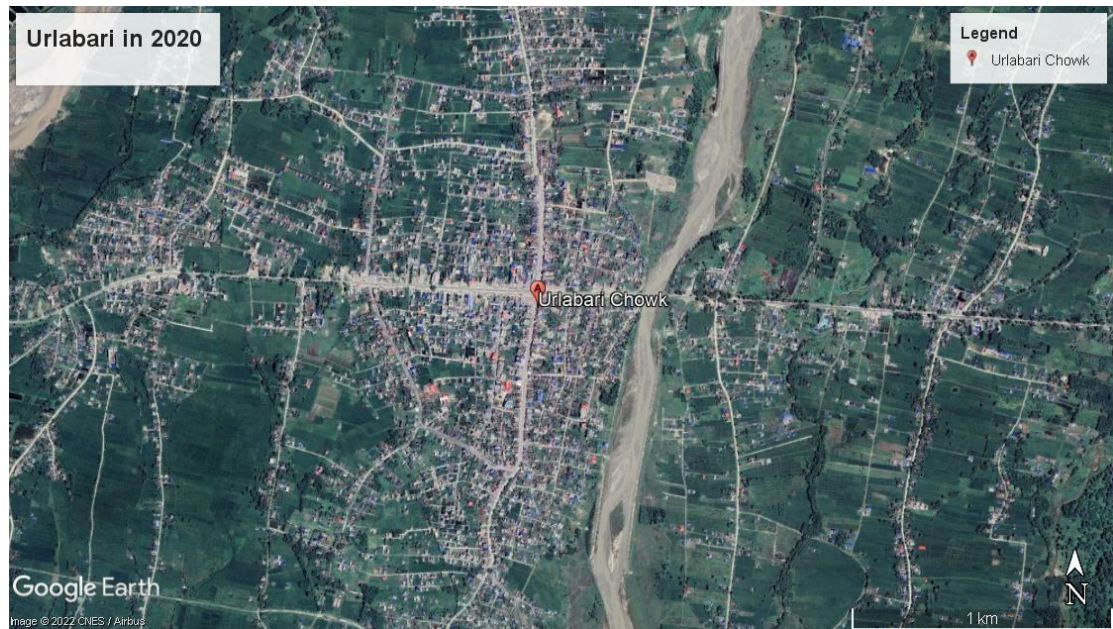


Figure 9: Google Imagery of Urlabari Chowk in 2020

Among the identified emerging urban centers, Uurlabari Municipality has been studied to observe the changes in an urbanizing area. The Uurlabari Municipality has a population of 70,590 spread across an area of 7461.53sqkm. This results in a density of 9.46 PPH. The growth rate of the municipality is 2.69%. The ward no one has the highest share of the population.

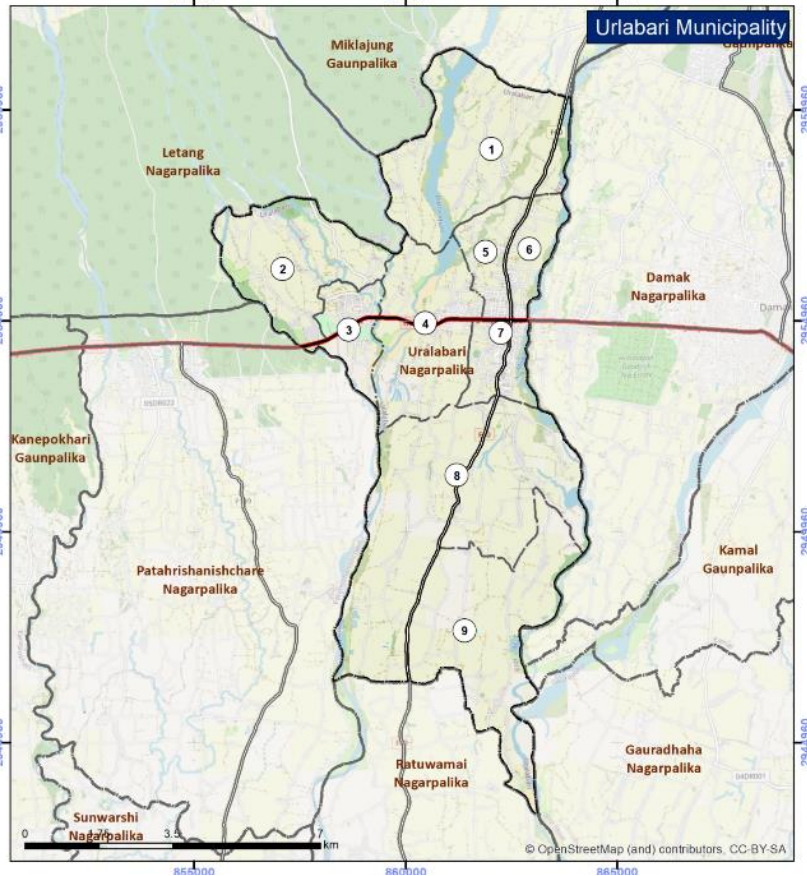


Figure 10: Uurlabari Municipality

The settlement area in Uurlabari increased from 295 Hectare(in 2000) to 391 Hectare (in 2010). There was a significant increase in the settlement area by 2022, which expanded upto 1730 Hectares, which is more than four folds increase from 2010.

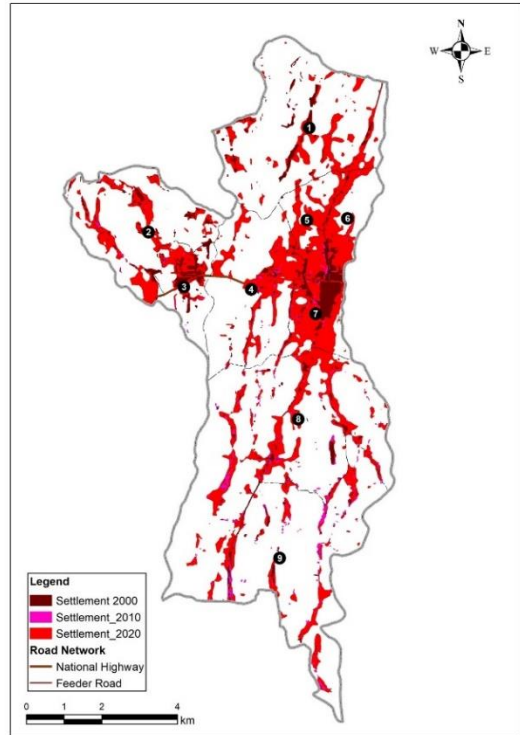
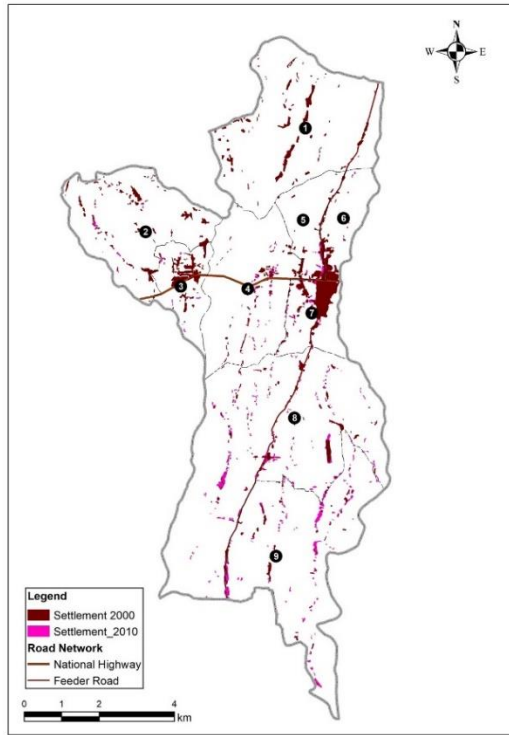


Figure 11: Settlement Area of Urlabari in 2010 Figure 13: Settlement Area of Urlabari in 2022

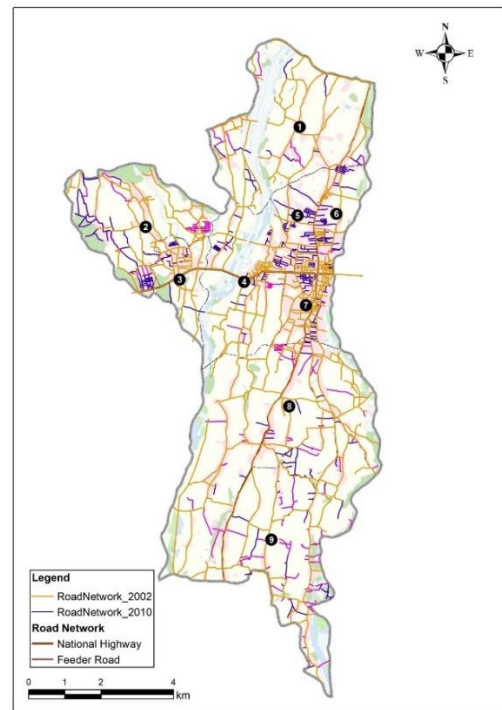
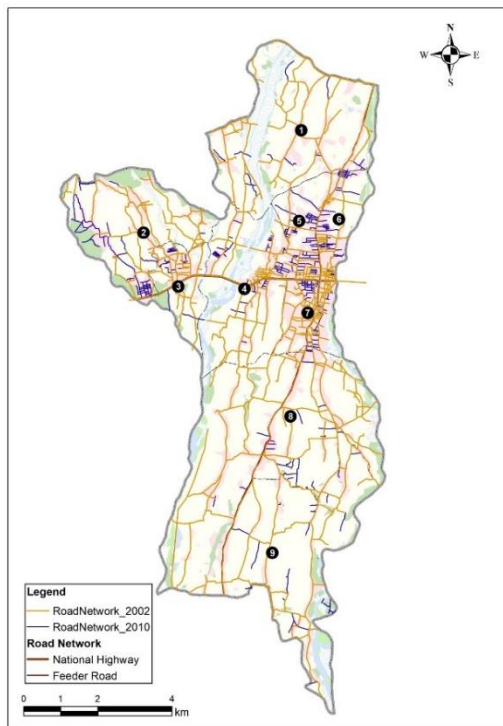


Figure 12: Road Networks of Urlabari in 2010 Figure 14: Road Networks of Urlabari in 2022

Source: MTMP of Urlabari

The road network in Urlabari increased from 238km (in 2000) to 302 Km (in 2010). There was a minor increase in the road length in contrast to the settlement by 2022, which was limited upto 344km. This suggests that the increase in the settlement fostered after the development of the road network along with other factors such as economic activities.

The interaction held in the market area suggested that the trade link with the eastern hilly area and the production distribution linkage to the plains had the effect of creating the area into a trade point. The waypoint through Madhumalla towards the link to various hilly pockets such as Bajho, Sakfara, Rabi, Chamaita, etc created a short route to facilitate the small scale and local cottage industries to sell their productions which are mainly dairy and agricultural products. The link reaches upto Phidim creating a shorter route to the provincial capital as well.

Similarly, few other centers have been identified and the main contribution to its evolution has been the economic functions developed over time with the provision of the infrastructures being fulfilled gradually. The ability of the local levels to govern essential infrastructures such as roads has greatly influenced the emergence of the UCS.

5.3 PRODUCTION CAPACITY & INDUSTRIES

Nepal had a strong economy that thrived on trade which reflects from the activities of this province as well. In 1936, after the formulation of the Nepal Companies Act, the Biratnagar Jute Mills was established as the first industry of Nepal but most famously is remembered as the initiation place for democracy in Nepal.

The largest and most established jute mill in Nepal is Biratnagar. It was formed during the term of Prime Minister Juddha Shamsheer Rana and first managed by the government before being turned over to a private business. The factory was given to Arihant Multi-fibre, a division of the Golchha Organization, in 2002 as part of the strategy of privatization. However, due to political interference and labor issues, the corporation was unable to operate the factory. As a result, the government decided to close the factory by compensating its 2,000 employees with NPR 550 million. The mill has a history of repeatedly closing down because of political circumstances. The mill is well known for being the catalyst for the Nepali democracy movement against the Rana regime. A demonstration began on March 4, 1947 under the leadership of Girija Prasad

Koirala, initially, demanding labour rights, but later political trade union rights were also demanded. Hence the mill is also a tourist attraction for locals due to its long history. A few more government-owned industries were opened in the 1950s and 60s, often with support from China and the then USSR.

5.3.1 Industrial Plans, Programs and Policies in Province

The province plans to forfeit its economic needs by 25% through industries alone by the year 2030. Meanwhile, it aims to meet at least 13% of total employment need while doing so. The provision to increase the industrial capital is the major objective of the province. The province plans to utilize the local resources, skills and means and hence create more employment opportunities to the people.

First Provincial Periodic Plan 2076/77-2080/81: Strategies

The province has been exercising the various strategies and plans to reach their goals and objectives. The industrial sector in province has greatly been a concern for the province among other socio-cultural aspects in order to enhance the standard of living as the final goal.

The First Provincial Periodic Plan 2076/77-2080/81 has enlisted the following strategies to meet their agendas:

- Developing financial and infrastructural facilities to enhance export oriented and minimize import-dependent industries.
- Attracting local and foreign aid for the development of industries operational with available local resources.
- Creating scope of increasing the export of agricultural goods by generating healthy competition in the market.
- Developing skilled work force and enhancing industrial performance.
- Cultivating good ethics in industrial sectors

(Government of Province, 2076)

These strategies have been further elaborated in the periodic plan with specific work plans that corresponds to each strategy. The province aims to facilitate the population with two lakhs jobs with a target of adding five more industrial zones and corridors.

Province Planning Commission 2077: Annual Progress Report and Projections

The annual progress report of fiscal year 2075/76 suggests a good progress in comparison to the federal context. The industrial sector has contributed 9,131 crores in the province 1 economy. This has resulted in 101,279 jobs being created in official and unofficial industrial sectors in the province which has been expected to rise to 121,023 in 2076/77 and is aimed at 140,767 by the year 2077/78.

5.3.2 Industrial Zones, Special Economic Zones and Industrial Villages

Dharan Industrial District

The Dharan industrial district was established in the year 2029 with plans to improve the transit point between the hilly economic zones and the terai economic zones. It would also benefit from the industrial corridor in Biratnagar. The total Area Covered by this zone is 202 Ropanies out of which 139.36 Ropanies are leased Out. As of Baisakh, 2076, it has contributed Rs. 147,594,000 to Govt. revenue.

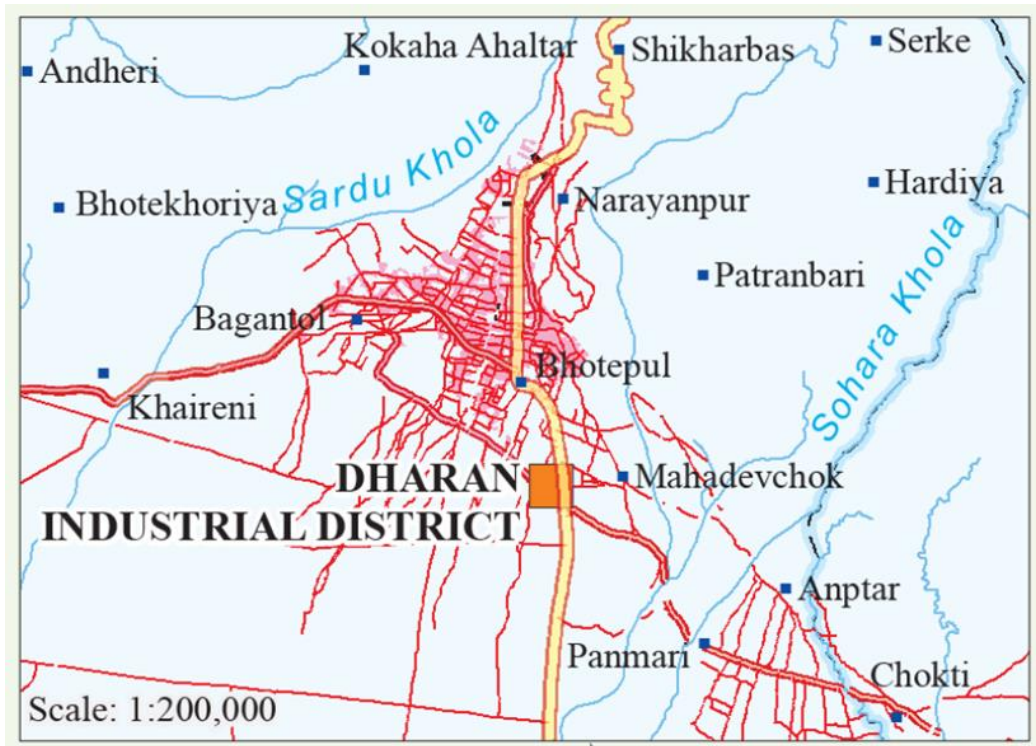


Figure 15: Dharan Industrial District

The details of the industries in this region are as follows:

- No. of industries: 36

- No. of operational industries: 31
- No. of industries under construction: 3
- No. of closed industries: 2
- Road Access: 2.31Km

Damak Industrial Park (Work-in-progress)

- In accordance to “One Province One Big Industrial Estate”, Damak Clean Industrial Park is established with the objective to contribute to the industrial development of Province One.
- Instead of export drivers and investment magnets, they are designed as liberalization platform for diversified economic
- Attract Foreign Direct Investment (FDI) and earn foreign exchange and contribute to exchange rate stability
- Create backward and forward linkages to increase the output and raise the standard of local enterprise that supply goods and services to the zone
- Test key policy reforms in Industrial Park as pilot case for wider application in the economy

Special Economic Zones (SEZ)

Biratnagar SEZ

- Location :- Amaduwa V.D.C of district Sunsari and Biratnagar Sub-Metropolitan city , Morang. About 3 K.M. west from Rani Customs in Biratnagar
- Area of Land:- 200Ha (approx.)
- Present Status: Feasibility study completed and land acquisition work on-going

Jhapa SEZ

- Location :- Ratuwamai Forestry Land, Topganchhi V.C.D Ward no. 5, district Jhapa
- Area of Land:- 300Ha (approx.)
- Present Status: On-going Feasibility study but now under consideration.

Industrial Villages (Proposed)

Among the 56 industrial Villages proposed, 7 lie in Province No.1

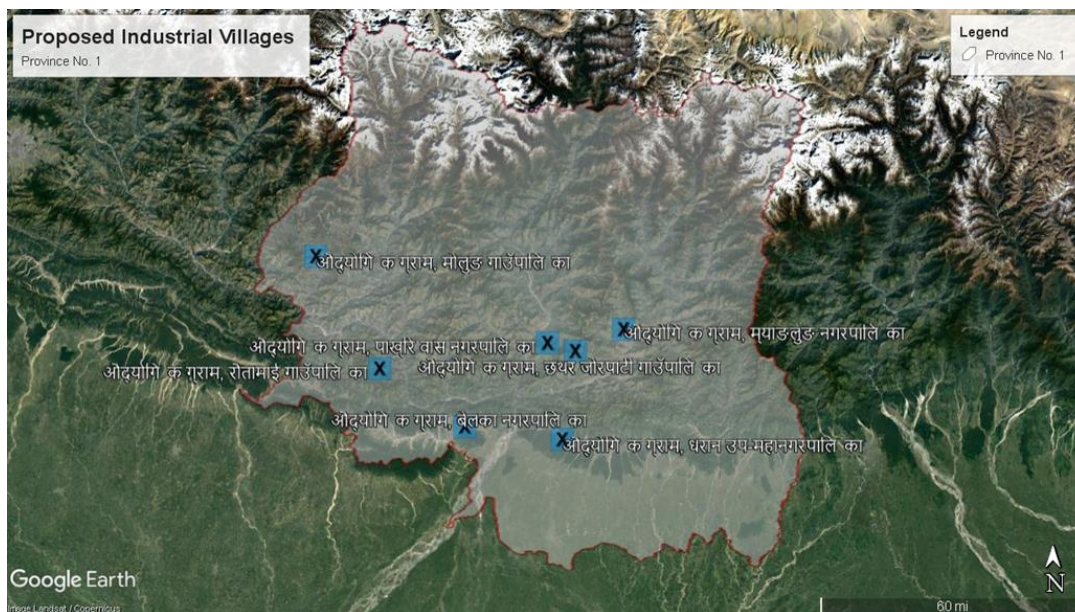


Figure 16: Proposed Industrial Villages in Province One

- Rural Municipality: Molung, Rotamai, Chhatar
- Municipality: Myanglung, Pakhribas, Belaka
- Sub-Metropolitan City: Dharan

The details of the products, labour force and number of industries will be discussed in the following topics.

5.3.3 Industries in province

5.3.3.1 Mapping of industries of province by Location, Type and Sector

Location of industries

The total number of industries in Province 1 is 790, on the basis of the number of industries registered under Department of Industry, up to 2077-09-09. Majorities of the industries are concentrated in 3 districts of Terai Region; Sunsari(20%), Morang(35%) and Jhapa(18%). Morang with the highest number of industries i.e., 279 and Okhaldhunga with the least i.e., only 2 industries. The Morang-Sunsari Corridor and SEZ in Jhapa and Biratnagar is the reason for industries concentration in these regions.

Number of Industries by Districts (Up to 2077-09-09)

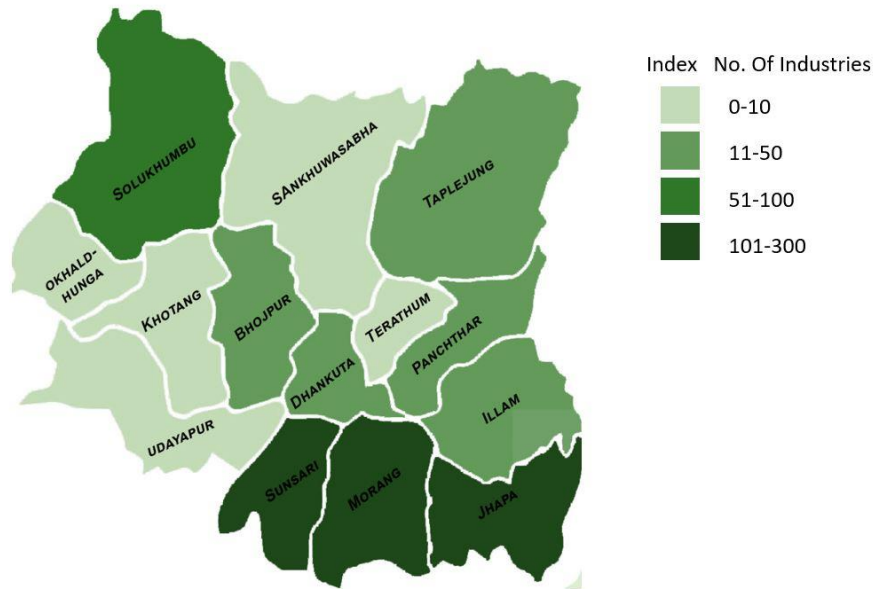


Figure 17: Location of Industries

The three Districts of Terai Region i.e., Sunsari, Morang and Jhapa has linkage with the Indian border. Labour force is also comparatively high as compared to other districts. The ease of transportation, availability of the raw materials and alluvial land for agriculture has made the region suitable for the location of industries.

In the uppermost Mountain Region lack of transportation and unsuitability for the agricultural land has resulted in a smaller number of industries. However, major concentration of Energy based industries can be seen in Solukhumbu District adding the total number of industries to a total of 51.

Number of Industries by Districts (Upto 2077-09-09)

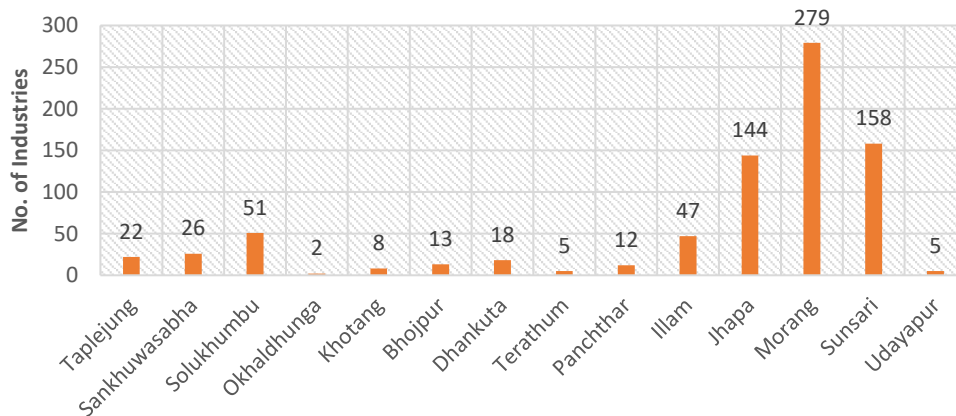


Chart 12: Industries by District

Type of industries

Industries based on type or scale is classified as small, medium and large industries. The shares of small, medium and large industries are 31%, 43% and 26% respectively. Majorly Hydropower accounts for large-scale industry and other Agro, Manufacturing industries accounts for medium and small-scale industry.

Number of Industries by Scale (Upto 2077)

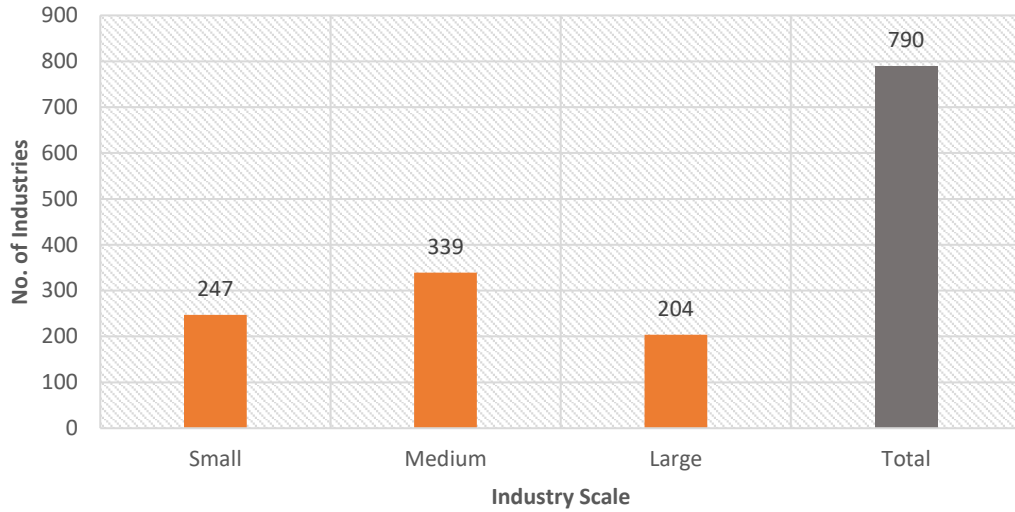


Chart 13: Industries by Scale

Number of Industries by Scale (Upto 2077)

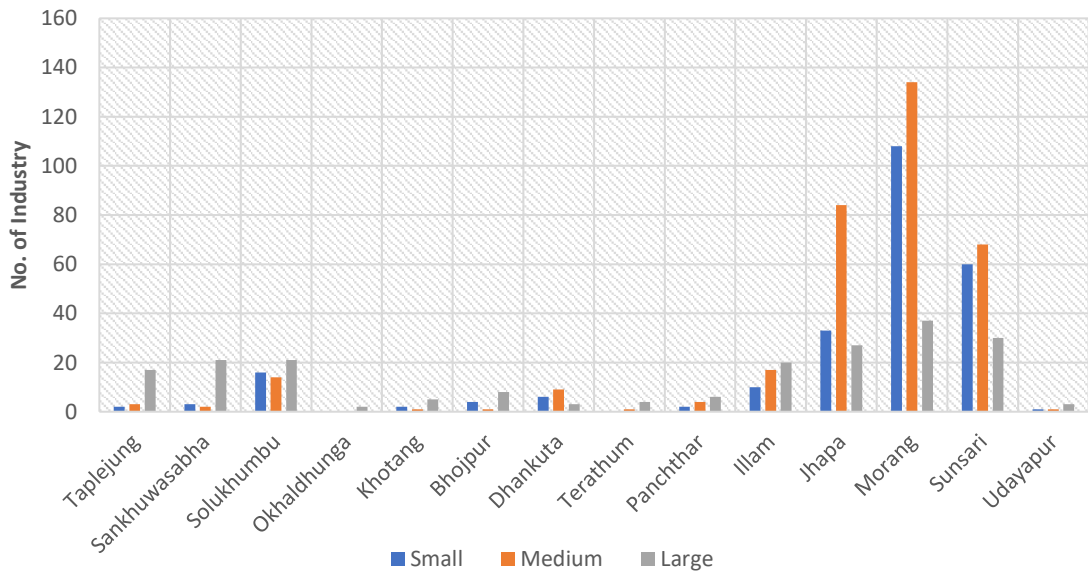


Chart 14: Scale of Industry by District

Taplejung, Terathum and Solukhumbu, the Mountain region of Nepal has predominance of Large-Scale Industry, while Jhapa, Morang and Sunsari of Terai region has majority of Medium Scale Industry. Tamor Hydropower, Arun III Hydropower, Dudhkoshi Hydropower are some large-scale industry of the Province. Agro and Forestry, Manufacturing, Mineral, Service are the major sectors of industry in terai region.

Table 8: Scale of industries based on districts

S.N.	Districts	Small	Medium	Large	Total
1	Taplejung	2	3	17	22
2	Sankhuwasabha	3	2	21	26
3	Solukhumbu	16	14	21	51
4	Okhaldhunga	0	0	2	2
5	Khotang	2	1	5	8
6	Bhojpur	4	1	8	13
7	Dhankuta	6	9	3	18
8	Terathum	0	1	4	5
9	Panchthar	2	4	6	12
10	Ilam	10	17	20	47
11	Jhapa	33	84	27	144
12	Morang	108	134	37	279
13	Sunsari	60	68	30	158
14	Udayapur	1	1	3	5
	Total	247	339	204	790

According to districts, Morang has the highest number of all three scales of industries whereas Okhaldhunga has the lowest number of all three scales of industries.

Sector of industries

Based on the number of industries registered, Manufacturing sector has the highest number of industries, while information and technology have the lowest i.e., only one industry.

Mapping of Industry by Sector (Upto 2077)

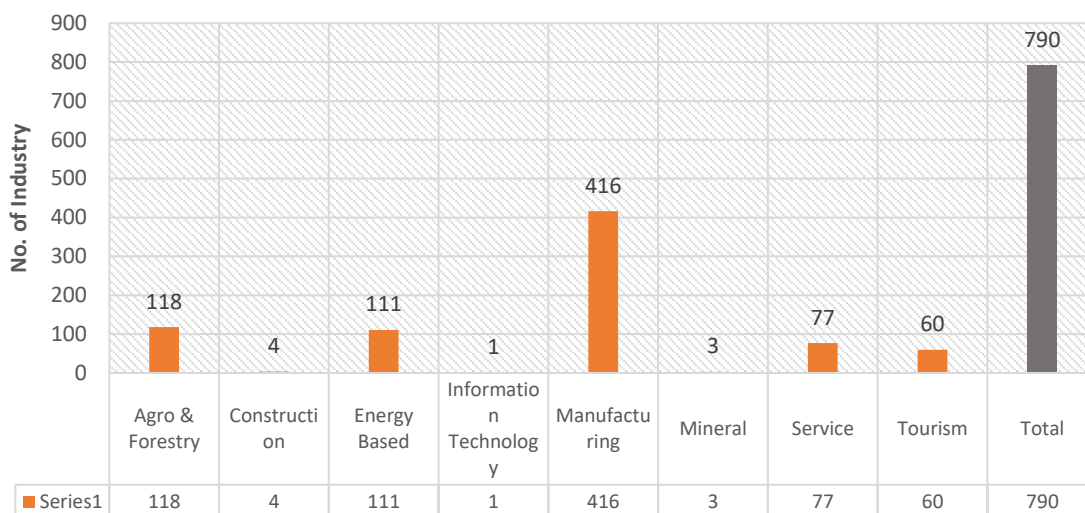


Chart 15: Industry by Sector

Manufacturing Industry: Jhapa-73, Morang-209, Sunsari-111

Availability of the raw materials and easy distribution and transportation in Nepal and India has made easier for the manufacturing industry.

Energy Based Industry: Taplejung-17, Sankhuwasabha-22, Solukhumbu-19

Majority of the hydropower are concentrated in this region.

Agro & Forestry: Jhapa-49, Illam-20, Morang-16, Dhankuta-11

Cultivable lands in the hilly and terai region. Forests accounts for 43.3% of the total area of province and 34% accounts for the agricultural land.

Table 9: Sectors by District

		Sectors								
S.N	Districts	Agro & Forestry	Construction	Energy Based	Information Technology	Manufacturing	Mineral	Service	Tourism	Total
1	Bhojpur	2	1	8	0	1	0	1	0	13
2	Dhankuta	11	0	1	0	5	0	0	1	18
3	Illam	20	0	19	0	6	1	0	1	47
4	Jhapa	49	0	0	0	73	0	15	7	144

5	Khotang	0	0	6	0	1	0	1	0	8
6	Morang	16	2	3	1	209	0	32	16	279
7	Okhaldhunga	0	0	2	0	0	0	0	0	2
8	Panchthar	4	0	6	0	1	0	1	0	12
9	Sankhuwasabha	2	0	22	0	1	0	0	1	26
10	Solukhumbu	3	1	19	0	3	2	2	21	51
11	Sunsari	9	0	4	0	111	0	25	9	158
12	Taplejung	1	0	17	0	0	0	0	4	22
13	Terathum	1	0	4	0	0	0	0	0	5
14	Udayapur	0	0	0	0	5	0	0	0	5
		118	4	111	1	416	3	77	60	790

The table above shows majority of each sectors in each of the districts in the province. Jhapa has the majority of Agro & forestry with a total of 49 industries. Morang has 2 Construction Industries, 209 manufacturing industries, 32 service and 16 tourism industries. Majority of energy based are situated in Sankhuwasabha District. More the manufacturing more is the service sector as can be seen from the table above.

5.3.4 Trend Analysis

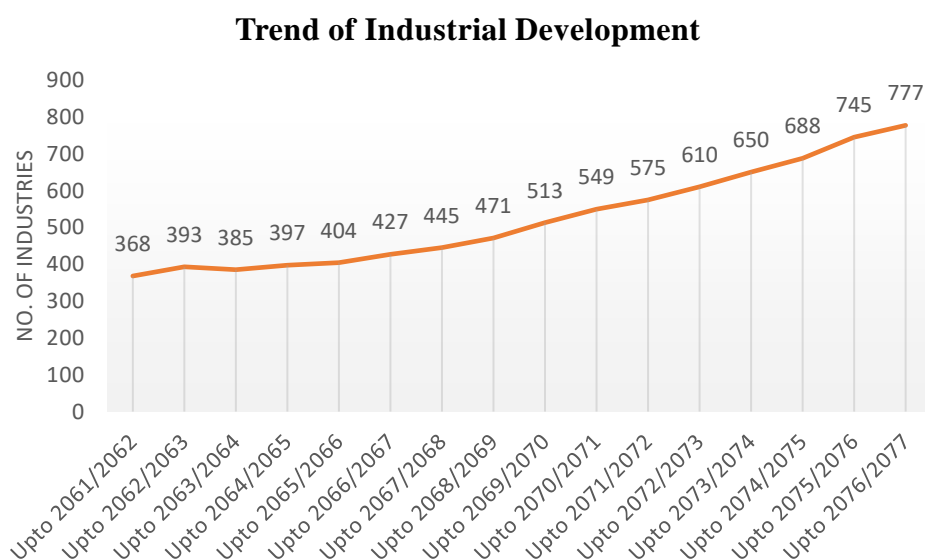


Chart 16: Trend of Industrial Development

In the province, a total of 790 industries had been registered up to 2077-09-09. The line graph shows total number of industries in each year in the province. Steady growth of the industries can be seen from the line graph as shown.



Chart 17: Industries added each year

The line graph above represents industries added each year in the province. The graph shows quite unsteady addition of industries each year in the province. During 2063/64 the number of industries dropped down by 8 which represents 8 industries were shut down and no new industries were added during the time which happened during the Nepalese Civil War. While significant increase of industries can be seen during 2075/2076 which was after the 14th periodic plan and also included Industrial Enterprises Act 2076 and SEZ acts.

5.3.5 Industries and Regional Development

Employment

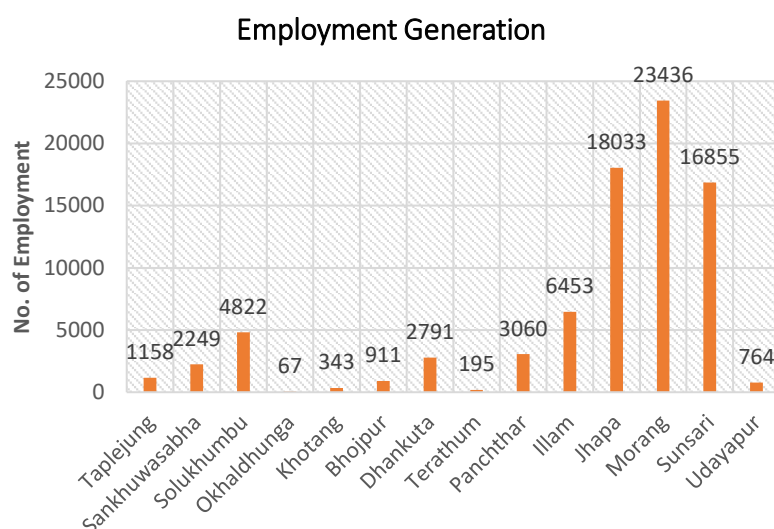


Chart 18: Employment Generation

The total number of employments generated from industrial sector in Province-1 is 81,137. Morang with greatest number of industries serves greater employment

opportunities. More manufacturing and agro based industries requires more manpower which can be clearly interpreted from the chart.

Table 10: Employment generation by number of industries according to districts

S.N.	Districts	No. of Industries	No. of Employment
1	Taplejung	22	1158
2	Sankhuwasabha	26	2249
3	Solukhumbu	51	4822
4	Okhaldhunga	2	67
5	Khotang	8	343
6	Bhojpur	13	911
7	Dhankuta	18	2791
8	Terathum	5	195
9	Panchthar	12	3060
10	Illam	47	6453
11	Jhapa	144	18033
12	Morang	279	23436
13	Sunsari	158	16855
14	Udayapur	5	764
	Total	790	81137

Morang has the highest number of industries and hence provides maximum number of employments. Okhaldhunga has only two industries and provides only 67 employments.

Economy

The GDP of the province is estimated at around Rs 505 billion. Investment of Rs 342 billion, including Rs 10.2 from foreign parties, has been made in 714 factories of the province. The province has great potential to increase its economy through sub national and international trades. However, the delayed upgrades of the roads such as Kimathanka-Jogbani which can serve as a corridor between the two giant neighboring countries has been demotivating. Moreover, the policies and acts play a vital role for the driving the economy of the region as well in which the province has not made significant progress.

Economic Effects of Tea Industry in the Province

In terms of financial assistance and participation in the domestic market, hillside farmers profit from the switch from subsistence cultivation to cash crop growing of orthodox tea. Many traditional farmers have abandoned subsistence farming and have turned exclusively to the cultivation of tea. The money made from selling tea can subsequently be used on basic items at a local market. Small-holder tea growers' rates of poverty have decreased as a result of the transition from traditional farming to cash crops. 70% of orthodox tea produced in Nepal in 2006 was by small farms. Orthodox tea is a profitable crop that is unique to hillside farmers. Forecasts by the NTCDB predict that by 2022 orthodox tea exports will reach 27 million kg, compared to the 2012 figure of 3 million kg. The paired growth in the tea sector will employ approximately 100 000 people. Nepali tea growers will be able to profit from their product's excellent quality and value as a niche good by participating in international markets. The price of Nepali orthodox tea is significantly less than premium in neighboring nations like India. In India, a metric ton of Nepali green tea is worth \$1,180, but in the USA, it is worth \$12,000. Therefore, exporting to nations like the USA, which pay premium prices for the commodity, is necessary for Nepali farmers and producers of orthodox tea to make the maximum money from this crop. (Mishra et al., 2014)

Urbanization

Population Density (Person/Sq.km)

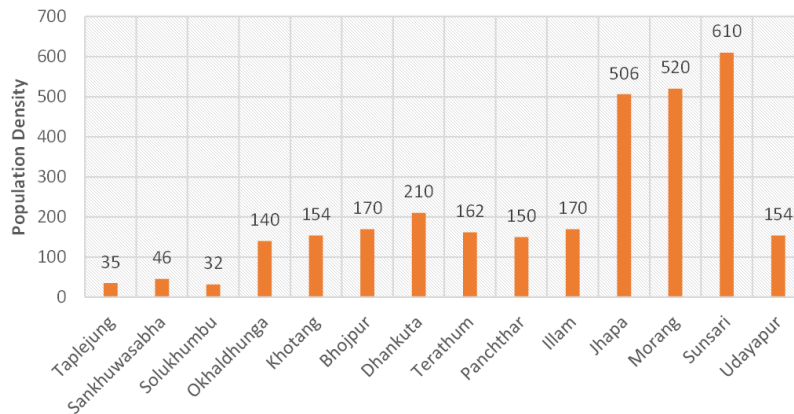


Chart 19: Population Density

Number of Industries by Districts (Upto 2077-09-09)

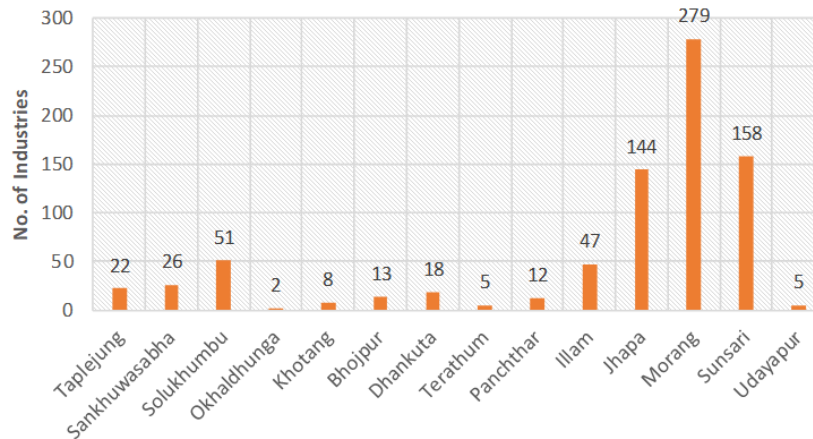


Chart 20: Industries by District

More industries create a greater number of employments hence results in the population agglomeration in that area. Looking at both the bar graphs, Morang has greater dominance of industries as compared to other 13 districts in Province-1 but contrarily Sunsari has the highest population density. This is basically due to the fact that the registration of the industries are conducted in the Morang while the actual industrial plants are situated in various places in the Sunsari district. This further suggests that the Sunsari corridor along the Duhabi-Itahari-Dharan region consists of different industries that have created an opportunity for employment which is not available or limited in the hilly regions. This is the major region why people are descending towards terai. They seek jobs and works to do to be stable and sustain their daily livelihood.

Tourism

The Sherpa-inhabited Mt. Everest region of Nepal has elevated itself to the top of the climbing and trekking world over the past 50 years. Many Sherpas have prospered as a result of the development of tourism. Tourism has however declined in the recent years due to the Covid pandemic. The religious tourism as well as natural tourism has a lot of potential in the province but the management of such potential has been below par. The presence of highest mountain in the world, Mt. Everest has not been capitalized enough. In spite, there has been concerns that tourism was causing widespread deforestation and the continuing use of firewood by inns. The province also has a lot of religious tourism potential such as Barahachhetra, Pathivara and Halesi Mahadev.

5.3.6 Industries closed in the Province

i. Biratnagar Jute Mill

The largest and most established jute mill in Nepal is Biratnagar. In 1936 A.D., it was founded by Prime Minister Juddha Shamsheer Rana. After being initially managed by the government, the mill was later turned over to a private firm. The mill has a history of repeatedly closing down because of political circumstances. The mill is well known for being the catalyst for the Nepali democracy movement against the Rana regime. Due to its lengthy history, the mill is also a popular tourism destination for locals.



Figure 18: Biratnagar Jute Mill

Biratnagar Jute Mill was Nepal's first production factory established in 1936. The mill was run by the government till 1990s. The factory was given to Arihant Multi-fibre, a division of the Golchha Organization, in 2002 as part of the strategy of privatization.

However, due to political interference and labor issues, the corporation was unable to operate the factory. As a result, the government decided to close the factory by compensating its 2,000 employees with NPR 550 million.

The plant was given to Winsome International, a firm based in Kolkata, in 2014. But once more, it was shut. After being shut down again in January 2016, the factory was reopened. In 2017, a private firm wanted to sell the mill's land rather than operating the facility, but the government stopped them. Although the private firm won the Supreme Court case, the sale never took place. (Biratnagar Jute Mill - Wikipedia, n.d.)

ii. Textiles Company

Over the last two decades, textile factories like Ashok Textile, Prabhat, Shaha and Jagadamba Textile were closed down.

Raut said that smuggling of Indian textiles into Nepal was the main reason behind the domestic textile industry's troubles. Traders said that textiles worth more than Rs 4 billion were being smuggled into the eastern Nepal every year. (Bhandari, 2014)

iii. Vegetable Ghee Factories

There are no longer seven vegetable ghee manufacturers that were entirely dependent on the Indian market. They had been made available to take advantage of the Indian government's tariff exemption for Nepali ghee. However, after the exemption was made available to all nations, domestic producers' prices were swiftly surpassed by those of their rivals. In addition, India has placed quantitative limitations on Nepali ghee through the bilateral trade agreement.

Shree Niwas Sharada, an industrialist involved in the vegetable ghee industry, said it suffered a loss of Rs 500 million. Copper, zinc and brass industries have also suffered losses. (Bhandari, 2014)

40 Factories in Sunsari-Morang Industrial Corridor shut down

The Sunsari-Morang Industrial Corridor, one of Nepal's key industrial regions, has been losing factories with 40 units shut down over the last five years, said the Central Bureau of Statistics (CBS). The number of manufacturing units decreased from 295 in fiscal 2006-07 to 255 in fiscal 2011-12. Industrialists have attributed the decline in factories in a significant industrial region to political unpredictability, the energy crises,

labor issues, and Nepali manufacturers' failure to compete on the global market. The hardest-hit factories, according to Shiva Shankar Agrawal, president of Industry Association Morang, were those producing ready-to-wear clothing and textiles. Since the government ceased subsidizing power, jute mills have been closing down as a result of their inability to compete in the Indian market. The industries for copper, zinc, and brass have also seen losses. Owner of Shivalaya Metal Khemchan Jain claimed to have lost Rs 80 million as a result of the factory's closure. As of the 2011–12 fiscal year, the Sunsari–Morang Industrial Corridor reportedly has Rs 30.58 billion invested in it. The factories here produced goods worth Rs 37.58 billion and paid Rs 7.4 billion in value added tax to the government. Member of the Industries Association Morang Nanda Kishor Rathi said that the industrial zone here failed to attract new capital due to the government's failure to assure investors that their investments would be secure. (Bhandari, 2014)

5.3.7 Potential of industries

5.3.7.1 Input-Output Linkage

Import accounts for 85.38% of the total trade of the province, while share of exports stand at a dismal 14.62%. The province needs to bring about transformation in agricultural sector for export promotion. According to data published by the Trade and Export Promotion Center (TEPC), the province has a staggering trade deficit of Rs 115 billion. The province's GDP is thought to be around Rs 505 billion. In the province's 714 factories, Rs 342 billion in investments have been made, including Rs 10.2 from foreign parties. (MoC, 2019)

Raw Materials & Products Reachability

Table 11: Raw Materials and reachability

Products	Major Production Area	Major Export Destination
Cardamom	Taplejung, Panchthar, Ilam, and Sankhuwasabha	India, China, and France.
Ginger	Ilam, Morang	India

Tea	Ilam, Jhapa, Panchthar, Terhathum, and Dhankuta	India, Germany, Russia, Czech Republic, China, Japan
Textiles	Morang	India, South Korea, Turkey, Germany, USA, Australia, Belgium, Brazil
Leather	Morang	Italy, India, China, Canada, Japan, USA, U.K., Israel, and France
Vegetable and Seeds	Terai Belt	India, Bhutan, and Bangladesh
Fruits & Friut Juices	Terai Belt & Hilly Region	India, China, and Bangladesh
Readymade Garments	Morang & Sunsari	USA, Canada, Germany, UK, Switzerland, Spain, Italy, France, Netherlands, Australia, India
Jute Bags & Sacks	Jhapa, Morang, Sunsari, Udayapur, Ilam	India, UAE, and Australia

The province clearly has a great potential as suggested from the data but the practicality has not been the same. The plans and policies have not been formulated effectively and hence the potential has been a waste. For instance, the same quality of tea leaves has been exported being valued at \$1,180 in India, while the same product is valued at \$12,000 in the USA. Such dominance of the neighboring countries has to be renegotiated and necessary reforms has to be made in the system of import-export policies. A good start would be to regulate the monitoring and evaluation of the tea industries, most of which is governed by Indian people, and establish proper acts and policies that benefits the employer, employee and the government likewise.

The political influence on crafting of the policies is another major concern and the unseen corruption practices still prevail usually in the customs department which are yet to be improved.

5.3.7.2 Labour Force

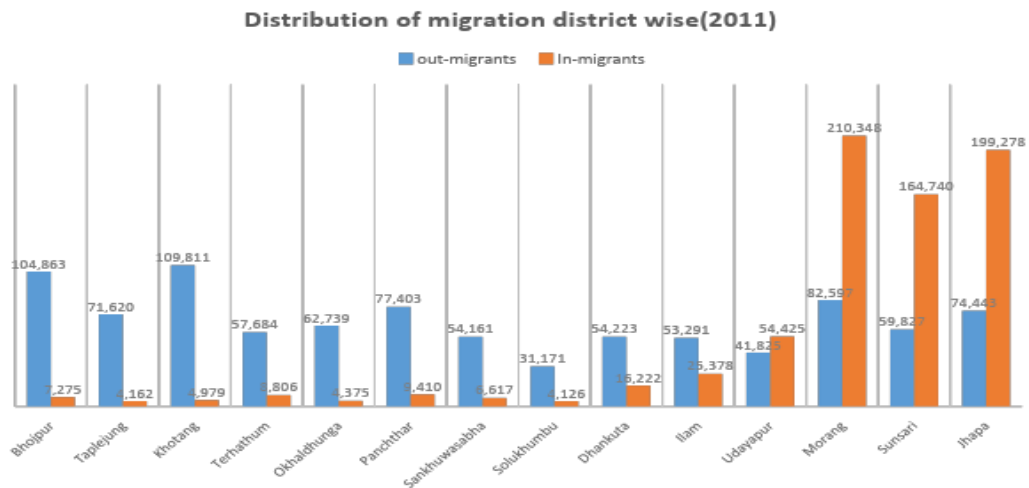


Chart 21: Migration Volume per District

The movement of people from Himalayan & hilly to terai region has quite been the tradition. Such trend has been seen to be reaffirmed due to the industrial development. This has created a potential for the ample availability of the labour force required to fuel the industries located in the terai regions such as Morang, Sunsari and Jhapa, as shown in Figure 17. The migration data has also justified the potential associated with the booming number of industries in these districts. There are also cases of significant migration among the districts in the terai as well. This is basically because the physical industrial infrastructures are located in neighbouring districts due to various reasons such as land cost and local attributes; while official registration remains at adjoining districts due to adjustment of paper works.

5.3.7.3 Potential of Industrial Development in the Province

The province should promote cardamom farming and production in Taplejung and Panchthar districts, orthodox tea in Ilam, ginger in Tehrathum, fruits in Khotang, Chiraito in Okhaldhunga, and livestock farming in Udayapur. “Similarly, Morang should prioritize paddy and Neem, Dhankuta should promote vegetables, while Sankhuwasabha should focus on production of Rudraksha beads, Bhojpur, Jhapa and Sunsari should focus on production of orange, betel nuts and turmeric, respectively. These are only the key sectors. There are dozens of areas for investment in all the districts of the province.

Narendra Khadka, former president of Province 1 Committee of FNCCI, said that the chamber was holding discussion with business experts and other stakeholders to identify areas for investment in different districts of the province. “The government should encourage the private sector by addressing the challenges that the latter faces in doing business,” he added.

Similarly, vice chairperson of FNCCI Province 1 Committee, stated that the government should open information center and establish cold storage facilities, and fruits and vegetables processing centers to promote exports from the province. (MoC, 2019)

Ilam Tea Industry

Today, Nepal's tea industry is dominated by private interests with the first private orthodox factory. Almost 4,000–5,000 tons of tea are exported from Nepal every year as a result of the deregulation that was implemented roughly ten years ago.

On a land area of 16,718 hectares, Nepal now produces about 16.29 million kilos of tea annually. Only 0.4% of the world's total production of tea comes from there. In agroforestry, tea is considered a self-sufficient income crop and is regarded as the most significant illustration of long-term sustainable farming. Jhapa, Ilam, Panchthar, Dhankuta, and Terhathum are the principal tea-producing areas of Nepal. India, Pakistan, Australia, Germany, France, Poland, the Netherlands, Japan, Belgium, and the United States of America are the top destinations for Nepal's tea exports.

The National Tea and Coffee Development Board, which was established under the Ministry of Agriculture, now provides assistance to farmers. The NTCDB introduced a national tea policy in 2000 with the intention of giving tea producers greater access to loans and land. Nearly 20,000 farmers in Nepal are currently sustainably supported by the production of orthodox tea.

Nepal to build four new economic zones on the borders with India and China:

In an effort to create economic corridors that connect the two close neighbors, Nepal aims to construct two cross-border economic zones on the border with India and two on the northern border with China.

Preliminary work has started for the construction of economic zone at Jogbani in Morang that will connect with the economic corridors in India, said the Ministry of Industry, Commerce and Supplies. The special economic zones would be situated in Kimathanka in Sankhuwasabha, close to the northern border with China. The start of construction is anticipated for the fiscal year 2021–2022. In order to increase trade and investment, cross-border economic zone building will begin through mutual understanding with China and India, according to industry secretary Chandra Kumar Ghimire. "Once the cross-border economic zones are constructed, they will attract investment for large and medium scale factories from domestic and international investors," Ghimire said. "It will create a tremendous number of jobs," he added. The manufacturing sector currently accounts for around 5 percent of Nepal's gross domestic product. "We expect that once the cross-border economic zones are developed, its contribution to the country's GDP will double," said Ghimire.

According to ministry officials, jobs will be created in agriculture processing, herbal-based industries, forest-based industries and mine-based industries. After the infrastructure comes online, it will pave the way for foreign trade and investment in the far west and allow it to connect externally, they said. (Prasain, 2021)

5.4 URBAN INTERLINKAGE SYSTEM

Since the urban system relies on linkages with both centers of higher and lower order to function, linkage characteristics are among the most crucial aspects of the urban system. The extent of the dispersion of the population that is economically active reveals the functional foundation of an urban center. The functional foundation also explains the pattern of per capita investment in urban areas. Based on road density and the frequency of public transport service in urban centers, the accessibility pattern is outlined. Urban/market centers play two roles in the mountain eco-region: one is a service hub and the other is a source of off-farm employment. The two levels of interaction are connectivity with lower-order rural hinterlands and urban centers and linkage with higher-order centers. The connectivity is established mainly via road network. However, a significant number of flights connecting different cities is also prevalent practice in the province. However, the aircrafts are not operational in the large freight yet.

The Province One experiences different functional linkages which are driven by either ecological divisions, traditional trade routes or new infrastructural advancements. The presence of Saptakoshi has caused some restrictions in the fluency of the traffic flow.

There is ecological segregation of the accessibility, which is catered mainly by the distant Koshi Barrage. This has caused limitation of the Eastern Urbanizing Corridor (EUC). The EUC itself is home to various river systems. The Koshi, which is nourished by the Himalayan Glacier, is the EUC's largest river with continuous water flow. In the EUC, the Mahabharat and Siwalik Hill range also serve as the source of the majority of other river systems. With the exception of the monsoon, they either discharge little water or are always dry. Hence, the EUC's western border is formed by the Koshi River. The major river systems are the Koshi and Kakar close to the Inuruwa Municipality, the Sardu and Seuti close to the Dharan Sub-Metropolitan City, the Budhi, Seuti, and Tengra Khola close to the Itahari Sub-Metropolitan City, the Budhi Khola close to the Duhabi Municipality, the Budhi/Kashaliya and Singhiya Khola close to the Biratnagar, Bakraha Khola near Urlabari Municipality, and Ratuwa and Mawa Khola near Damak Municipality.

Similarly, the proximity of other urban centers in the Bagmati Province has caused the flow of people towards such directions to fulfil their economic needs. Such orientation can be seen in the urban settlements such as Siddhicharan Municipality (Okhaldhunga), Rupakot (Khotang), Bhojpur and Solu Dudhkunda Municipality (Solukhumbu). Similarly, the people of Katari, Triyuga and Belaka are more inclined towards the UCS of Province Two, mainly Janakpur, Golbazar(Siraha) and Lahan. These destinations are normally seeded for rice and grains and to some extent for business.

The administrative and governance system also influences the linkages to some extent. On one hand, the internal dealership of the goods within a town/sub-city has increased and decentralized creating many small market centers while on the other hand the major official works such as business registration has been oriented towards the province capital. This compulsion has caused major attraction towards Biratnagar and is prominent growing into one of the biggest cities in the country.

5.4.1 Road Linkages

The construction of the infrastructures plays a vital role in the formation of UCS and the resulting establishment of an urban system over time. The major infrastructure to aid in this development is transportation and in our context mainly roads.

The factors that affect the growth of the urban system are (i) network and quality of road infrastructure that links major settlements, and areas of production potential (ii) the complimentary in the flow of people, goods and services, (iii) regional resources and the extent to which these resources are mobilized, and (iv) the policy environment that facilitates the development of economic activities in potential areas. (MoUD, 2017)

The eastern urban-system focused on Biratnagar which functionally links Biratnagar-Itahari-Dharan-InaruwaDamak-Kakadbhitta and the smaller urban centres in the hills and Tarai is one of the two prominent interlinkage of urban areas in the country.

There is speedy development in the road networks that have been established recently. Besides internal district/municipal network roads, there are other various road linkages such as the Damak-Rabi road, Bhedetar- Ilam-taplejung road, Madhya Pahadi Lokmarga, Hulaki marg, etc. This has increased the market sizes in these areas. The listed lengths of the National Highways show that the Province One has a total of 2952km of NH roads which is the highest among all the provinces. (DoR, 2021)

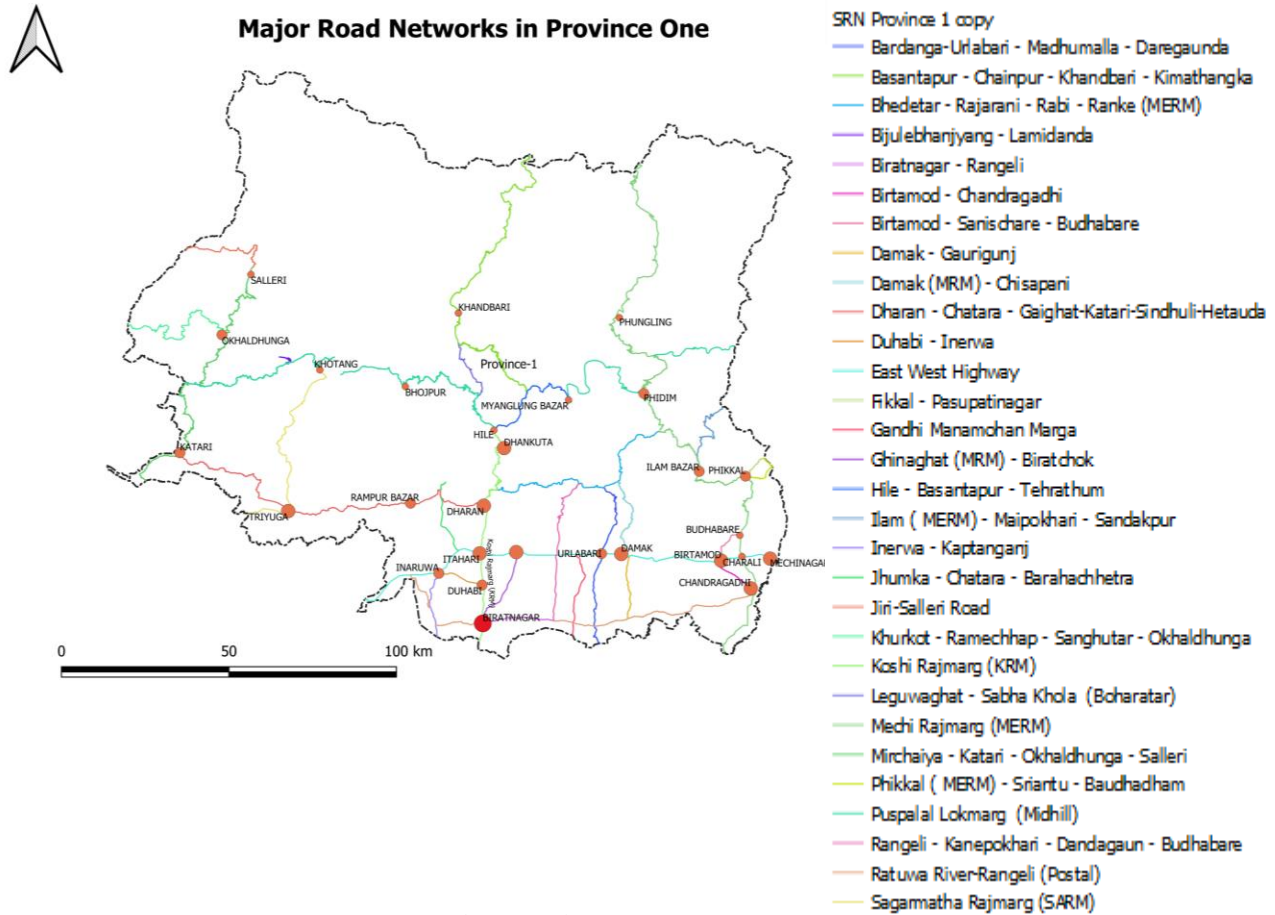


Figure 19: Major Road Networks in Province One

Over the years, the road networks have multiplied, as the physical developments has been the major priority for all forms of government. While the major highway such as the East –West Highway serves as a major backbone for the emergence of urban system in the province one, there are other feeder roads contributing to the linkage of distant market centers as well.

A good example in the recent years for the trade practice is the Fikkal bazaar. It is linked to India via Pashupatinagar which is a mere 11km from their major market which thrives on the touristic attraction of Kanyam which falls in the Mechi highway. Such proximity has been advantageous for trade purposes and local businesses.

The Madan Bhandari Rajmarga is one of the latest highways being constructed which is Approx 30km north of East-West and 25-30km south of Madhya Pahadi Marg. Its stretch from Dharan-Chatara-Gaighat-Katari that falls in the province is near completion and currently serves as an alternative route to the east-west highway for certain segment. However, the economic impact of the road is yet to be witnessed with Gaighat being the major market center so far.

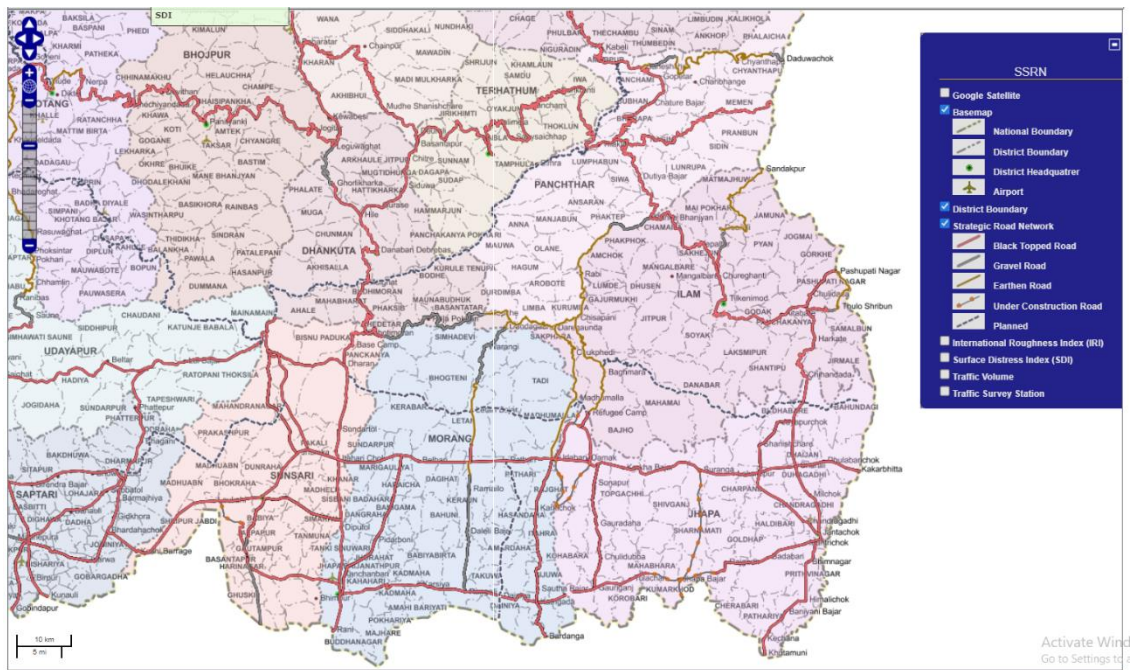


Figure 20: Surface condition of the Major SSRN in the east (Source: DOR, 2015/16)

Similarly, the Bhedetar-Rajarani-Rabi-Rake road links the smaller market centers in the hilly area. This stretch of road is also being accessed from Uurlabari in Morang via Madhumalla road which has created a potential for the interlinkage between the hilly towns with production capacity with the major settlement areas in the southern terai. The traffic volume of the same has also changed over the years and is currently high as shown in figure below. Although being a small stretch, it does resemble the much established Mechi Highway and Koshi Highway in terms of traffic volume.

5.4.2 Traffic Volume Analysis

The traffic volume based on traffic count of the various vehicle category can be analyzed for understanding the movement scenario in the various growth centers. The trend of the vehicle count in the different nodes can be observed to identify the emerging transit points, market centers and attraction points with a higher flow of people.

The change in the traffic volume in the national highway corresponds to the feeder roads and hence the traffic data is a significant indicator for the identification of the UCS.

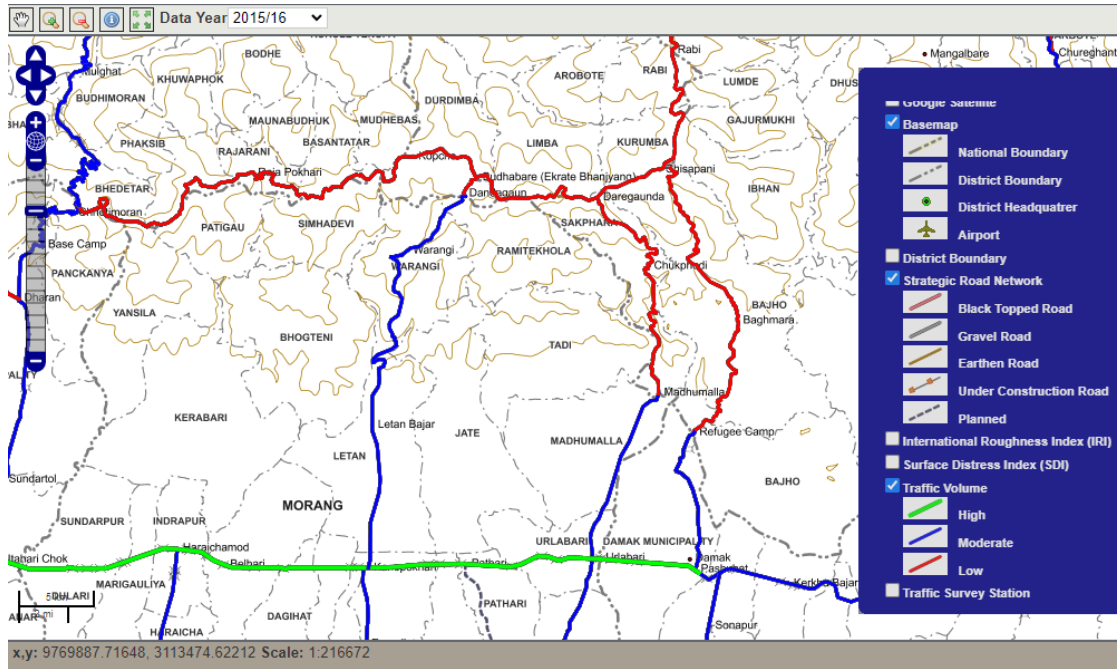


Figure 21: Traffic Volume of the Umlabari-Madhumalla Road in 2015/16 (Source: DOR)

The feeder roads to the national highway such as the Umlabari-Madhumalla road were the potential road linkages that would take advantage of the emerging trade routes. Such roads started to link the hilly areas with the persisting urban centers and started creating certain growth centers while doing so. Such roads had started to increase the business along its alignment. The relations with the prime centers started to grow stronger with the increase in the frequency of the trades.

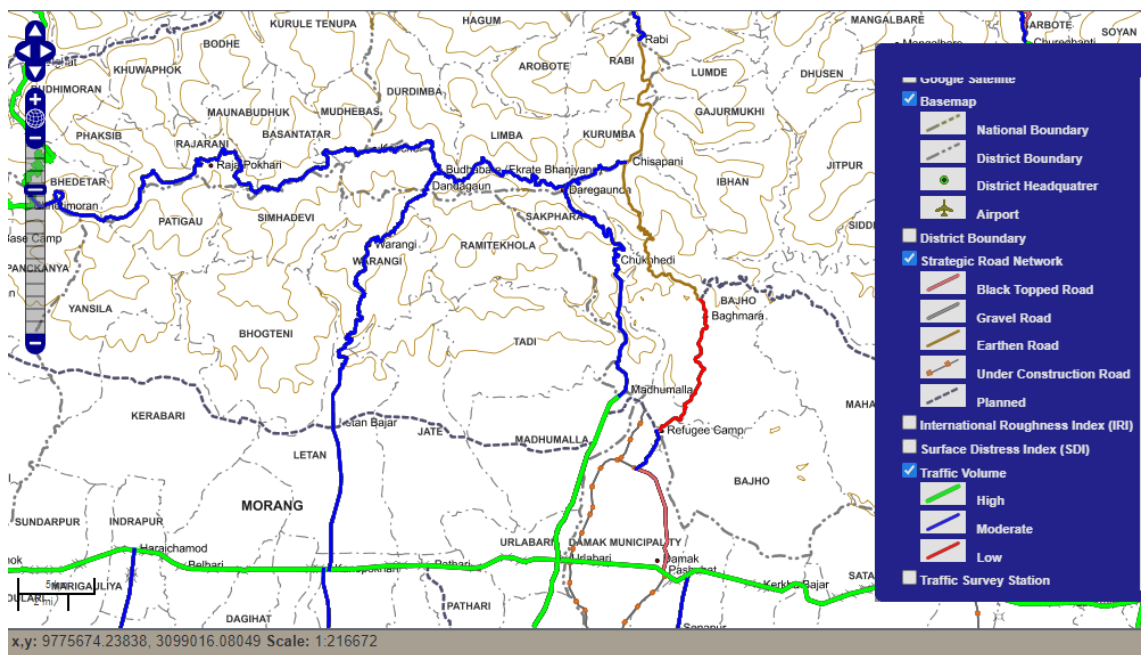


Figure 22: Traffic Volume of the Umlabari-Madhumalla Road in 2021/22 (Source: DOR)

As a result of the growing movement towards the north from Urlabari, the road has been classified under the road with high traffic volume. This supports the fact that the Urlabari region is experiencing an evolving status of its market and the movement of the people.

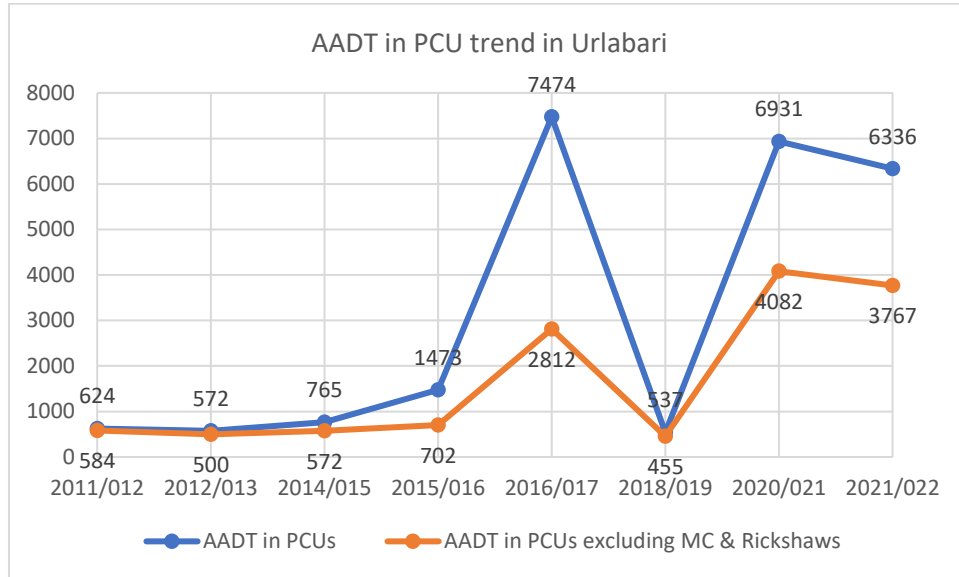


Chart 22: Traffic volume trend of Urlabari South region based on AADT in PCU

The traffic volume towards the south of Urlabari is also seen to be increasing with the connection to the Indian border at Bardanga. Similarly it serves as a link road to Hulaki marg in the south.

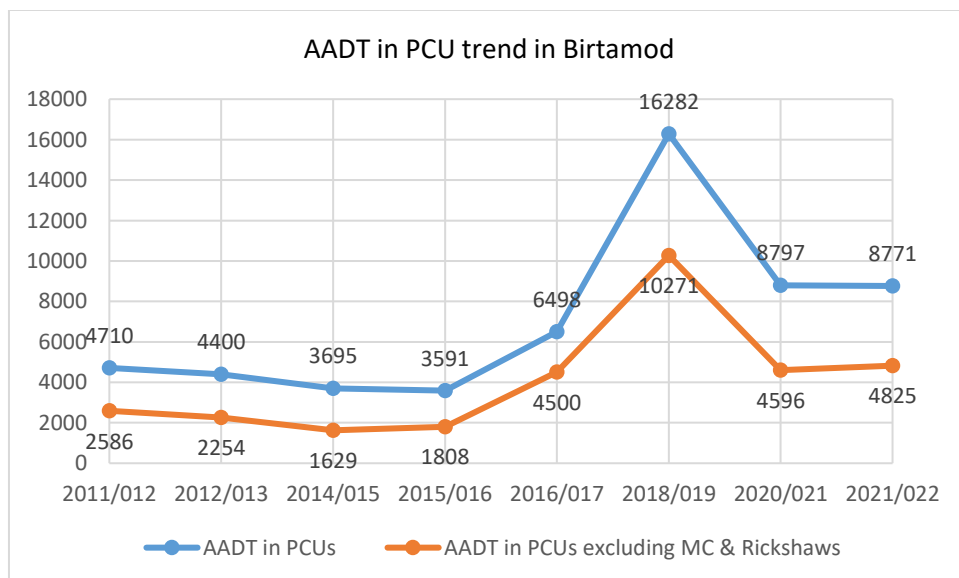


Chart 23: Traffic volume trend in Birtamod South region based on AADT

A similar scenario can be seen in the traffic volume of the Birtamod south region with the most of the traffic linking to the old town of bhadrapur which also has the easternmost airport of the country.

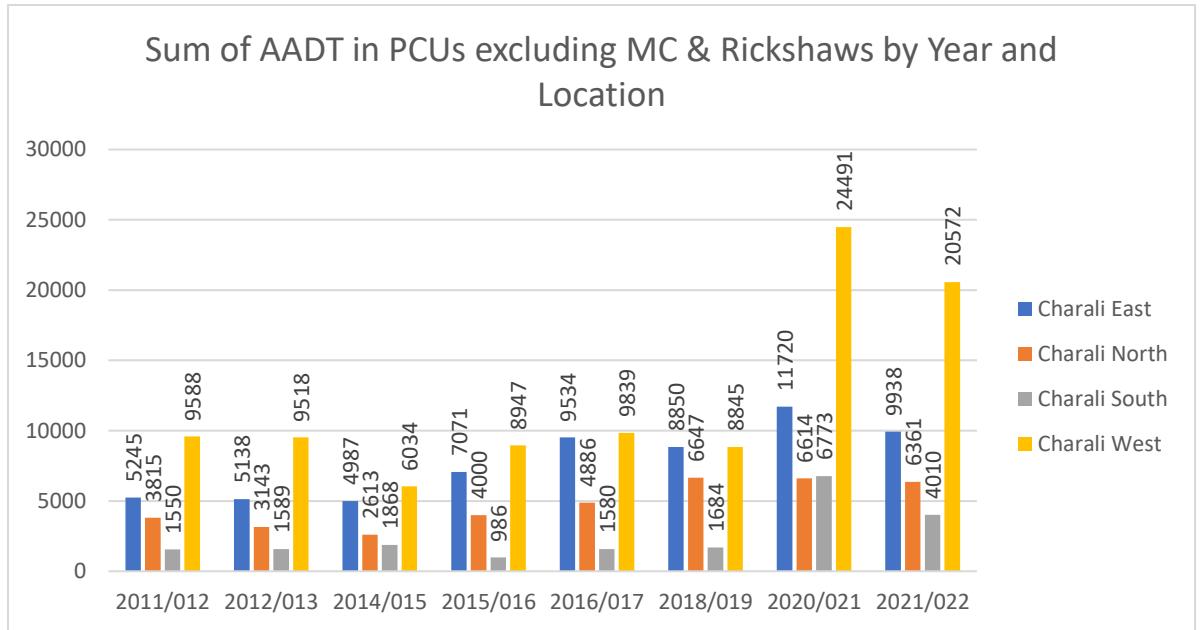


Chart 24: Traffic volume trend in Charali Chowk

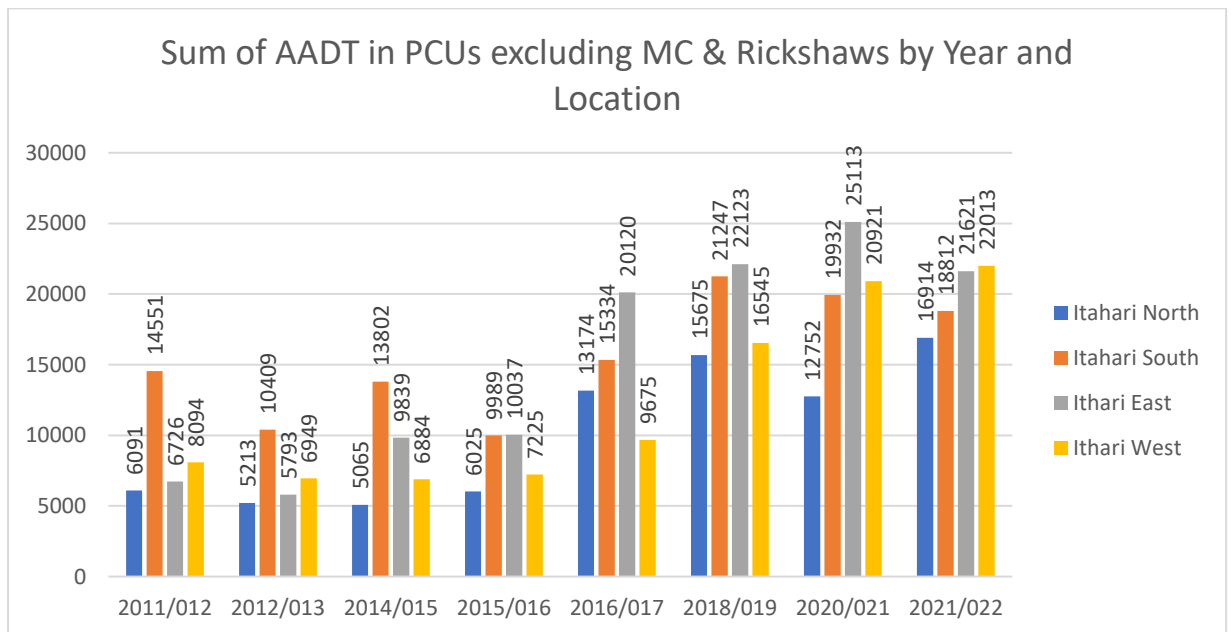


Chart 25: Traffic Volume Trend in Itahari Chowk

The trend of vehicle movement in Itahari is very high as it serves as the major transit point in the province. The junction serves as the major access to the provincial capital,

Biratnagar in the south and industrial city of Dharan in the North. It is also one of the main junction along the East-West Highway.

6 RESULTS AND DISCUSSION

The various primary and secondary data has helped to carve out results and some discussions regarding the same. The different linkages were observed and the various hierarchy of the urban centers were studied.

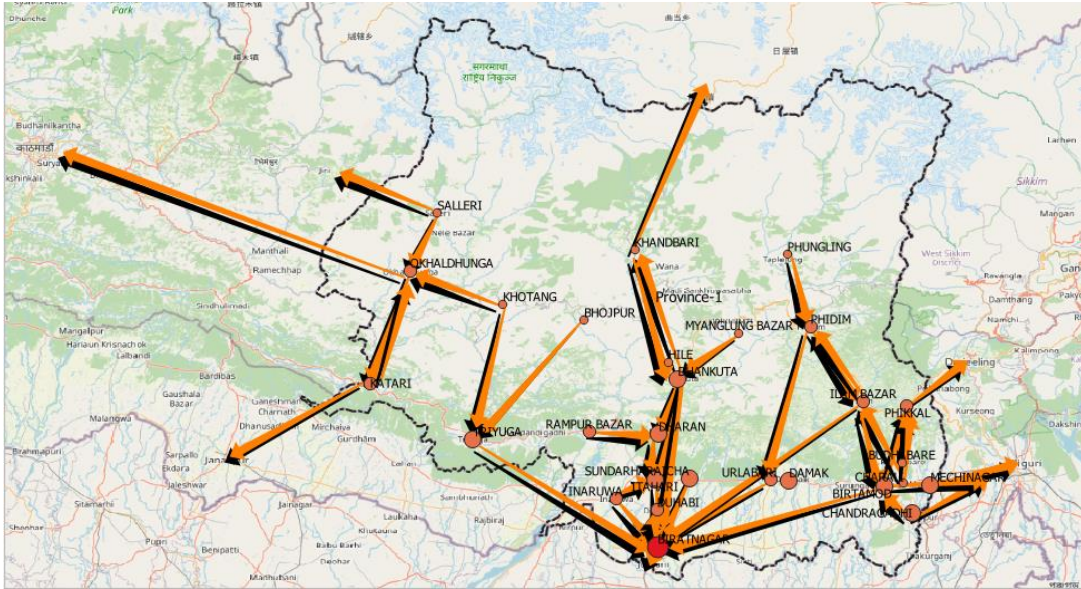


Figure 23: Flow of people and interlinkage between urban centers

The emerging urban centers were identified through population parameters and their production capacity. The majority of the existing towns that possess the potential to grow into an urban center were found to be on the Terai region. Few of these emerging areas are currently sub-urban areas and towns that are interlinked to neighbouring urban areas through sales of agricultural and other primary products creating a forward and backward linkage. These emerging areas were found to be in the proximity of the major highways.

The various linkages were identified in terms of road and traffic volume. Such linkage was more dependent on the closeness of the facilitation creating regional clustering. Similarly, there were cases of linkage which were prominent more towards centers of the neighbouring provinces. Since the proximity of the urban centers of the neighbouring province is more feasible and practical to the residents of places such as Salleri, Okhaldhunga, Khotang, Triyuga, Katari, etc. the people tend to travel away from the province. This further establishes that the administrative divisions alone does not guide the movement of people but are rather only a catalytic factor.

The municipalities such as Sundar Haraicha, Fikkal, Duhabi, Pathari Sanischare, Inaruwa, Bhadrapur, Belbari, Shivasataxi, Ilam , phdim, etc have remained fairly populated and with potential to grow.

In addition, the employment opportunities play a vital role in movement of the people. Declaration of the municipality alone does not necessarily create flowing economy. Hence, the generation of job opportunities is necessary for the economy of any region to foster. This is one of the reasons why the primacy of the provincial capital is growing and is now one of the biggest cities of Nepal. However, during the transit walks and study of various data and interactions during KII, it was found that Biratnagar was turning into a business hub rather than an industrial hub. It was also seen as the major educational and health service center of the region. On one hand, the different level of the institution consisted majority students of the neighbouring municipalities and districts while on the other hand, the health services provided in the city catered patients from as far as towns of India.

However, few complications still exists in the region such as the open border serving as a gateway for smugglers. The lack of quality testing at borders is also a drawback for exporting Nepalese goods which in turn fuels the corruption. Similarly, other legal aspects such as company registration(>10crore) not being available locally or lack of exhibition space and the growing cost of land in cities have created operational difficulties in such cities. The slow development in the infrastructures is also a drawback for the region such as the Kimathanka – Jogbani Road being under construction or maintenance for over 30 years. However, the completion of Chatara Bridge which provides an alternative route to cross the Saptakoshi can be considered a silver lining.

The requirement of proper policy guided development is hence required for the development of the region and the province should act as the heart of it. Various urban structure, SEZ, marketization and product branding should be enhanced and opportunities such as tourism industry should be explored. Proper acts and policies, industry categorization and subsidies, tax regulations and exemptions and proper decentralization practice is highly essential for regional development in the federal setting.

7 CONCLUSION

The federal system with the implementation of the restructured local bodies have created a decentralized system of governance and such change can trigger the growth of market centers. However, the development of urban centers is not instantaneous and depend on majorly the economic practices. There has to be a significant growth in population to create an economically active force to drive a region towards urbanization. The fulfilment of these situations have created an emerging urban center in Urlabari. Similar trends can be seen in different settlement pockets such as Patharisanishare, Birtamod and Duhabi along the active roads between the well established cities.

Nevertheless, the market regions do not necessarily spring to life only due to access to road. The economy has to be driven by some factors whether it is through business, trade or industries. Some growth centers may even foster as a service centers while some may transform in its functions. Biratnagar itself is a good example of transformation from an industrial city into a trade and business center while also providing wide range of health and educational services making it a service hub in the province.

In some cases, the interaction to market centers of other province or neighboring countries, usually due to the proximity, have created interlinkages accordingly and hence providing an evidence that administrative divisions alone does not restrict the flow of economy.

The lack of growth of urban centers in the hilly area and the stagnant situation of the traditional cities such as Okhaldhunga, Dhankuta and Ilam suggests that there has been a major labor force drain southwards towards the terai. One of the major essence of developing urban system is creating a balanced urbanization throughout all ecological zones. This has been a major challenge in our context and can be addressed by proper policies and guidelines that will generate economic activities and create employment opportunities in the hilly areas as well. The construction of roads alone is not going to hold the population in such places and will rather act as a catalyst to migrate southwards. Hence, the potential of various towns has to be exploited and strategies should be developed with diverse perspective for the economic growth.

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ANNEXES

ANNEX-A: QUESTIONNAIRE

Tribhuvan University
Institute of Engineering
Pulchowk Campus

M Sc Urban Planning Program



Questionnaire for Interview of Key Informants

Title of the Thesis: “Emerging Urban System in Federal Setting: A Case Study of Province One in Nepal”

Major Objective of the Study: To increase the understanding of the evolving urban system under the restructured regional and local bodies of Province One and to explore the underlying politico-economic relations.

A brief Introduction

In Nepal after 2015, the number of local governments reached 753 in numbers. Although their Administrative Boundaries vary, some of them share the common economic extremities. The rise of the urban centers forming the urban system hence remarks a greater influence in the degree and directions of the urban form of the region.

The research is oriented towards the economic linkages of the major and emerging urban centers. The aim is to identify and document the findings, which shall further aid in the formulation of the regional strategies for balanced urban growth.

Consent from the interviewee

The survey will be conducted completely anonymously. I will group all information I have gathered and analyze to reach logical conclusion for my study. I will use the information and publish in my research thesis and paper. Would you be willing to participate voluntarily in the survey?

Yes No

I shall be happy to clarify any queries about the research, if required.

Name of the Interviewer: _____ **Date:** _____

Name of the Key Informant: _____

Designation/Institution: _____

Gender M F

Age Group 30-40 yrs 41-50 yrs 50-60 yrs >60yrs

Profile of the Respondent

Bureaucrat Politician

Former Bureaucrat Other

Professional Planner

Academia

Questionnaire for All Related Stakeholder Attendees

1. Basic/Regional Data Available to Municipality/ CCI / Province Planning Commission

- 1.1 Which are the major market/trade centers that are driving the economy of the region?
- 1.2 Which are the secondary market centers interrelated to each of these major centers? What are their status and contribution to the economic region?
 - 1.2.1 How many of these commercial pockets emerged after the establishment of federalism? (*Particularly after formation of various municipalities*)
- 1.3 Have you experience any change in doing business in post federal system?
- 1.4 How the business relationship has changed in context of federal structure of the region?

2. Connectivity and Transportation

- 2.1 What is the status regarding capacity and accessibility of the roads in the region that links the various hierarchy of market centers? (*It will be good if you can specify different cities of the region*)
- 2.2 How has the major rivers affected the linkages of urban economic areas?
- 2.3 What are the major movement patterns of the people in the region for the purpose of economic activity?
- 2.4 What are the emerging distribution networks in the region in the post federal scenario?
- 2.5 Which are the major roads providing the transportation of goods? (*Which north-south and east-west roads?*)
- 2.6 From where do people import goods (national city) and who are the consumers or from where do they come?

3. Production

- 3.1 What are the major productions in the region? (agriculture, Tea, fisheries, horticulture, Medicinal Herbs, tourism, non agricultural industrial products)
- 3.2 What are the major industries situated in this region?

- 3.3 What are the locations of Major Industrial establishments?
- 3.4 What are the production possibilities and the requirements for the same?
- 3.5 What are the major tourist destinations?
- 3.6 What are the major tourism products? (pilgrimage, water sports, hiking and trekking, wild life and bird century)

4. Communication Among Economic Institutions and Other Governing Bodies

- 4.1 What are the significant economic institutional bodies that have been introduced in the post federal scenario?
 - 4.1.1 How has Local Chamber of Commerce collaborated with the municipality?
- 4.2 What are the procedures adopted to interact with the businessmen, producers and other stakeholders
- 4.3 Has the process to open business or industry changed?

5. Federalism Achievements

- 5.1 What are the significant effect of the restructuring of the administrative areas and the resulting governance system on economy of the region?
- 5.2 What are the significant progress and urban development works in the economic field that has been achieved in the past **five** years? (*Any new market centers, new linkages, new productions, new policies, new regulations, new schemes, etc.*)
- 5.3 What are the strategies that can be adopted to enhance economic relations for the balanced urban growth?
- 5.4 Please identify
 - Five major trade center of your region
 - Five Major trading route
 - Five Major Products
 - Five Major Challenges for economic growth
 - Five major changes due to federalism

6. Border & International Trade

- 6.1 What is the effect of the international trade on the orientation of the commercial spaces?
- 6.2 How has the trade activity developed during the post-federal scenario?
- 6.3 How has the trade activity revived during the post-covid scenario?
- 6.4 What are the major exports and imports?
- 6.5 What are the major trade link (NAKA) with India?. Has it changed due to federalism?

ANNEX-B: LIST OF COMMENTS IN THE THESIS DEFENSE

The following are the feedback of the jury during the various phases of presentation and the same has been addressed in the corresponding pages.

However, the amendments to the final report are not limited to the contents as listed below:

S.N.	Presented on	Comments	Addressed in page no:
1.	Mid-Term	Review more literature, particularly NUDS	13
		Study similar paper reviews or case studies	14
2.		Methodology framework with parameters	9
3.		Narrow down objective to specific objectives	5
4.	Final Defense	Include KII results in discussion	86,87
5.		Highlight the effect of Koshi river in interlinkage	77, 78
6.		Slightly elaborate the abstract	III

ANNEX-C: IOEGC PAPER