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ABSTRACT

Hetauda was established as a growth center in Central Development Region. It consists one of the largest industrial district in the country. It is located at the cross point of Tribhuvan Highway and Mahendra Highway and is the major link between Kathmandu and Birgunj. Despite of these advantages, Hetauda has not grown as a city with regional influence.

This research is concentrated on determining the urbanization trend of Hetauda and its effect on the surrounding areas, influence of Hetauda on its hinterland and to come up with strategies to develop Hetauda as a city with regional influence.

The research has determined zone of influence of Hetauda, region for the study. Surveys were conducted in 18 VDCs, 9 surrounding VDCs & 9 VDCs at border of the district, customer survey were also conducted to collect additional data. These data and information available were analyzed to determine the development linkage between Hetauda and its influence zones. Trend analysis and SWOT analysis was conducted as part of this study.

Hetauda has performed the role of growth center to surrounding VDCs but its relation with farther VDCs is dependent on presence of other growth center. The farther VDCs are dependent on other growth centers for health, education and trade, as better services and facilities are available in those centers.

To strengthen the linkage with rural areas, strategies recommended mainly focused on upgrading of already existing social and physical infrastructure, prioritizing development of industrial district and new facilities.

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LIST OF ABBREVIATIONS

CDO	Chief District Office
CDR	Central Development Region
CSIO	Cottage and Small Industry Office
DDC	District Development Committee
DEO	District Education Office
DHO	District health Office
DoR	Department of Road
DR	District Road
DTMP	District Transport Master Plan
EDR	Eastern Development Region
ERRRP	Earthquake Risk Reduction and Recovery Preparedness Programme for Nepal
FR	Feeder Road
FWDR	Far Western Development Region
GDP	Gross Domestic Product
HIAML	Hetauda Industry Area Management Ltd.
HQ	Headquarter
ICIMOD	International Centre for Integrated Mountain Development
INGO	International Non Government Organization
IRDP	Integrated Rural Development Program
KVA	Kilo Volt Ampere
LFA	Logical Framework Approach
LPG	Liquefied Petroleum Gas
MFALD	Ministry of Federal Affair and Local Development
MoCS	Ministry of Commerce and Supply
MoE	Ministry of Education
MoH	Ministry of Health
NGO	Non Government Organization
NH	National Highway
NLSS	Nepal Living Standard Survey
NPC	National Planning Commission
NTFP	Non Timber Forest Products

NUDS	National Urban Development Strategy
OECD	Organization for Economic Co-Operation and Development
Qtd.	Quoted
R&D	Research and Development
SADP	Small Area Development Programme
SRN	Strategic Road Network
SWOT	Strength, Weakness, Opportunities, Threat
U.K.	United Kingdom
WB	World Bank
VDC	Village Development Committee
WB	World Bank
WDR	Western Development Region
ZoI	Zone of Influence

Chapter I

INTRODUCTION

1. INTRODUCTION

1.1. Background

Nepal is a landlocked nation with an area of 147,181 square Kilometers and located at South Asia region. It is situated in between the two largest countries, in terms of population, People republic of China and India. Nepal is divided into three physiographic areas: Mountain, Hill and Terai and is divided into 5 development region, 14 administrative zone and 75 districts.

Hetauda is a town located in Makwanpur District, Narayani Zone and Central Development Region. It is administrative headquarters of Makwanpur district and is situated at cross point of two national highways, Mahendra Highway and Tribhuvan Highway. Hetauda is, at present a major link between Terai with Mountain and Hill and connect eastern region to capital city of Nepal. Hetauda is the only link which connects capital to the Birgunj, a major border town of Nepal. Hetauda was declared “NagarPanchyat” in B.S 2026 and was declared headquarter of Makwanpur district in B.S. 2039. Hetauda is the third largest industrial town of the country.

Hetauda is located at latitude of 27°25’ and longitude of 85°3’ at altitude of 300-390 m from MSL. The area of the municipality is 44.50 sq. Km. Hetauda Municipality is only municipality in the Makwanpur district and is divided into 11 wards. The municipality is surrounded by Hatiya VDC in east, Basamadi in west, Makwanpur and Bhainse VDC in north and Churiamai and Padampokhari VDC in south. Its river system consists of two major rivers, Rapti River flowing at west and Karaa River flowing at south of Hetauda city. Hetauda is a centrally located town in cross road of two strategically important road networks and is gateway to capital city and other major hilly urban area of country.

As per 2011 census; population of Hetauda is 84,671 with 19,851 household and is the twelve largest city of Nepal. The rate of increase of population is 2.36% per annum and has population density of 1894 people per sq. Km. The rate of increase of population is lower than of 2001 censuses which was 2.72%. The estimated population of Hetauda municipality will be above 100000 by the end of this decade. Hetauda is one of the fastest urbanizing town of Nepal and is major destination of internal migrant.

65% of total population of Hetauda is economically active. About 50% of total population main occupation is agriculture (Hetauda Municipality City Profile, 2011). Hetauda has one of the oldest and largest industrial estates of country. It covers an area of 2829 ropani. The industrial estate is equipped with infrastructures required for industry, a separate electrical feeder line and waste water treatment plant is constructed within the estate

Hetauda is the major market center in the Makwanpur district. The major portion of rural region in Makwanpur district is dependent on Hetauda for consumption of their product and to get services. Hetauda proximity to major border town Birgunj has supported the export of local production and import of raw material. Hetauda was considered as one of the growth center for regional development by fourth five year plan.

1.2. Rationale of Study

Nepal has very diverse geography and the availability of resources and suitability of activities differ greatly with the region and has important effect in regional economy. Therefore for dynamic development process, development strategy should incorporate regional dimension (Gurung, 2006).

The region based urban development approach seeks to transform the subsistence economy into commercial economy by promoting certain specialized productive activities within the region (Choe and Pradhan, 2010). Urban areas are centers of demands for agricultural product and a provider of services to rural area hence is potent factor to stimulate economic growth.

The urban based and urban led approach for rural development can help to reduce the gap between cities and rural region by strengthening links between them. Rural urban linkage can be basis to accelerate and sustain the economic development and reduce the social and spatial imbalance in a region. Growth is proportional to the capacity of a region to produce goods and services to far flung markets and exports raise financial capacity of a region which impels expansion of infrastructure, facilities and internal markets for its industries.

Hetauda is set to grow into a commercial powerhouse once the country increase pace of development as the existing highways to the capital city Kathmandu passes through Hetauda and is one of major urban center linking east and west of country. Hetauda is situated in cross point of two strategically important road networks. Two shorter earthen road is functional which are being used for light vehicles to carry people which can be more efficient if the road is widen for use of heavy vehicles. This can provide shortest route connecting east and west to capital city and trade route between India and China, which will proliferate importance of Hetauda. Any development plan related to Hetauda do has impact on national level.

Makwanpur district is dominated by rural area, Hetauda is the major municipality in the district and rural area is dependent on the city for consumption of the agricultural product and to get services. Hetauda Municipality comprises largest industrial estate in Nepal, it houses some of the biggest industries in the nation along with cottage and medium scale industries.

Hetauda town has a symbiotic relationship with its dependent settlements lying within its sphere of influence or market zone. This relationship is relied upon the degree of supply and demand between them (Hetauda Market Zone Delineation Study, 1998).

Though, Hetauda role as growth center has stagnant.

1.3. Problem Statement

Nepal has started to incorporate spatial dimension in planning since 1974 but these plan has very low impact and it did not achieved its objectives. Regional imbalance and disparity between region does not decrease but were proliferated in some region. The optimum utilization of local resources was limited to plan.

Hetauda is located at point close to the Chure hills where two distinct types of physiographic, the Tarai plain in the south and the Chure hill region in the north meet. The town has been developed to derive an advantage from natural irregularities like the differential distribution of natural resources, population and agricultural productivity between the mountains and the plain.

Hetauda located at center of Nepal in cross point of two strategic important road networks and established as industrial town which play an important role for the flow

of goods and services between two regions. It has direct connection to and at one hour drive from Birgunj, an important gateway town.

Despite of all this advantage, Hetauda has not been developed as city with regional impact. Due to exponential growth of Bharatpur and Birgunj, impact of Hetauda as growth center has been reduced.

Hetauda as a largest industrial estate has not been able to impact on National economy. Number of industries has been closed due to unfavorable environment within the estate. Hetauda Cloth industry and Colgate and Palmolive Nepal private limited are two of the internationally recognized industry which are no longer operating which has significantly affected Hetauda growth as regional city of Nepal.

Though Hetauda and its fringes has number of important places of historical, religious, cultural and recreational value, its growth as tourism center is not been explore and could be the most devalued region within the country.

The growth rate of Hetauda is low compare to other cities and growth of Hetauda as economic center has stagnant in recent years. The net revenue collected by the municipality is constantly reducing from last four year, lowest in 2068/69 financial year (Hetauda Municipality City Profile, 2011). There is continuous fall in rank of Hetauda as important cities of Nepal in term of regional in term of regional impact.

The different projects, such as Terai Kathmandu fast track, Nijghad International Airport etc. will have significance impact, for and against, on growth of Hetauda as regional city.

1.4. Objectives

The specific objectives of this research are mentioned here below.

- a. To understand the urbanization trend of Hetauda,
- b. To understand the role of Hetauda as a growth center of the region ,
- c. To explore strategies to strengthen Hetauda role as engine of growth of the region by analyzing linkages with its hinterland ,

1.5. Research Question

- What is present urbanization trend of Hetauda?
- How has Hetauda contributed in growth of its influence zone?
- What could be the strategic interventions to develop Hetauda as city with regional influence?

1.6. Limitations

- The study is primarily based on secondary sources of information; primary survey is limited to certain cases. The interpretation and interference is based on availability of accurate data and subjective judgment of limited respondent,
- This study is focused on Hetauda and its influence area as a region and doesn't study other economic center and their impact in Hetauda and its influence area,
- The study has assessed the functional relationship of Hetauda and its influence area in terms of transport, health, education trade; import, export and job. Lack of more detail socio-economic linkage is a limitation,
- The study has focused on Hetauda as a municipality.

1.7. Expected Outcomes

From this research work, the expected outcomes are

- Recommended Strategy for developing Hetauda as city with regional influence.

1.8. Methodology

Research Methodology can be described as the overall method applied to satisfy the aims and objectives of investigation (Holt, 1998). This research begins with the literature review of published and unpublished material like books, report, journals, electronic journal, published papers and articles and research will be further carried out by collecting primary and secondary data which shall be analyzed and interpreted, thereafter conclusions and recommendations shall be made.

1.8.1. The Approach

The study has been done by determining zone of influence of Hetauda; Zone of influence is defined as Region for this study. Zone of influence is determined by analysing effect of Hetauda in VDCs surrounding Hetauda and VDCs at boundary of districts, for this 18 VDCs: 9 surrounding Hetauda municipality and 9 at the boundary were taken.

The study is based on secondary data based on various research and studies in the past and some primary data are also incorporated. The research has adopted both qualitative and quantitative method and has used both deductive and inductive process.

1.8.2. Literature Review and Data collection

For defining the theory related to the study and for collecting data, extensive literature review was done. The literatures are collected from internet, books, journals, official published and unpublished documents, reports and past studies and were reviewed.

For collection of secondary information documents relating to Hetauda and Makwanpur district prepared by government and various organizations were collected and reviewed. Some of the extensively used sources for secondary data collection were District profile, Municipality profile, DTMP, NUDS 2015 etc.

1.8.3. Field Survey for Primary Data Collection

Field survey was carried out within the Hetauda municipality as well as 18 VDCs, 9 VDCs surrounding Hetauda municipality and 9 VDCs at border of Makwanpur districts, were surveyed. Customer survey was done to determine the reason to visit the Hetauda while VDCs market center where surveyed to determine the preferences of people of particular VDCs for trade, health and education.

Information relating to existing infrastructure, development condition, and social infrastructure condition and resource potentiality are determined by observation.

1.8.4. Compilation of Data

Ms Excel was used for compilation of collected primary data. Docear program was used for arranging literatures for theory and secondary data collection. The collected information has been presented in the tabular and graphic form. Charts, photograph, figure and map has been used for illustration

1.8.5. Data Analysis and Presentation

The data and information available were analyzed for development of linkage between Hetauda and its influence zone. Strength, Weakness, threat and opportunities (SWOT) analysis was done. Objectives tree was developed to determine the Regional Development Strategy.

On the basis of data analysis, the findings and recommendations are made. All the matters are arranged in logical and sequential order and reports presentation are done.

Chapter 2

LITERATURE REVIEW

2. LITERATURE REVIEW

2.1. Introduction

The literature review emphasized historical events and current benchmarks which served as a foundation for exploring and examining the phenomenon under consideration (Eartheal, 1993).

In this section, a review of existing literature has been done in order to find the relevance of the study. A survey of various sources for information on the topic is carried out. Study of various theories relating to the topic is done.

2.2. History of Regional Planning

Regional planning was governed by reforming of administrative activity in U. K. at around 1900. It was concerned with creating local resources to manage local affairs and more like local level planning. In 1950s-60s, Regional planning was developed to address regional concern. It was thought as tools to integrate country by balance distribution of development to all parts of country. Regional planning added spatial dimensions in planning process.

Regional planning emerged in both Western Europe and United states in 1930 to assist regions which seem unable to recover from the Great Depression and in the post war years. An expanding series of programs was implemented in an effort to redistribute growth and create balance development from leading to lagging regions. The regional planning was developed as a tool to distribute the development in all regions and reduce disparity between regions.

In context of Nepal, Fourth five year plan introduce regional planning and regional planning received more strategic application. The country was divided into five developments regions (initially four development regions), growth axes and growth pole were developed. It was conceptualized that these growth pole and axes will drive the development to other part of country. The major philosophy behind the regional planning was to reduce disparity between different regions and balance development for integration of country.

2.3. Regional Planning: Concepts and Need

Region has no specific definition, it is a flexible concept. It can be smaller local area to international unified geo-political region. The definition can vary according to purpose and use which a planner or a politicians defines. However, a region can be defined as a spatial concept with an uninterrupted area with some of homogeneity in core. Regions are descriptive tools defined according to particular criteria for a particular purpose. Hence, there can be many regions depending on the criteria defining them.

Regional planning as stated by John Friedmann is concerned with ordering of human activities in supra urban space that is, in any area which is larger than a single city.

“Under the multi-level 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 the national territory with a view to attain social and economic integration in space and facilitate national development.” (Joshi, 1979).

Regional planning is the process of formulating and clarifying social objectives in the hierarchy of activities in an intermediate geographical space and is concerned with the planning of an area with distinct social and economic character, opportunities and problems.

Development of a country is link to development of sub-national region. For sustainable development, a nation should have balanced development of all regions through optimum utilization of local resources and public participation. Regional development is an ideal developmental thought which is an outcome of regional planning.

European Regional Policy (OECD, 2002, p. 15) points out following points to be considered while planning for regional development,

- To reduce unemployment in areas where it is persistently high.
- To reduce the pressure of population in already congested areas.
- To increase the average rate of utilization of national resources.

- To reduce interregional differences in the pressure of demand to relieve inflationary pressures.
- To preserve and strengthen regional cultures and regional identities.
- To achieve a better balance between the population and the environment

But in context of Nepal, According to Joshi, regional development is needed to achieve,

- National Integration
- Inter-regional Balance (Political as well as geographical)
- Environmental Quality
- Poverty Alleviation and Social Equity
- Optimal Location of Economic Activities and
- Optimum Allocation of Resources.

2.4. Urbanization and Regional Development

Cities and towns are engines of economic growth. Urban area is linked with its hinterland and surrounding rural areas as well. A generative urban area will fuel development in its core as well as the region. Joshi (2003) argues that the strong urban economic base leads the development of whole region associated with it.

Urban based development approach seeks to transform subsistence's economy into a commercial economy by promoting certain specialized activities. Urban area act as centre and linkage for consumption of products from rural and hinterland regions which will boost the growth of region when the produce goods and services has high demand from far flung markets.

Urbanization and regional development policies are complimentary where former tries to manage urban growth and tend to take development away from urbanized region whereas later one tries to develop under developed regions (William, 1968).

2.5. Regional Development & Rural-Urban Linkage

Urban Rural linkage is the important basis of development of a region. In fact, an important part of industrial growth in most low income developing countries can be attributed to the forward and backward linkage between rural area, agricultural/natural resources sector and the urban area, manufacturing and services/ infrastructure sector. As argued by the World Bank (2006), ignoring rural urban linkages leads to inefficiencies and causes growth inhibiting inequality.

At the micro-level, rural–urban linkages are important tools for understanding the complexities of people’s livelihoods and their strategies, which involve mobility, migration and the diversification of income sources and occupations. At the macro-level, the demand created by the urban-based markets is crucial for rural producers and it is these same urban-based markets that link rural producers to regional and international markets (Tacoli, 2006). OECD (2013) also adopts the rural-urban partnerships approach for economic development, since they argue that this approach help economic development through enhancing the production of public goods, achieving economies of scale in public services, developing new economic opportunities and capacity building, improving administration, taking into account negative externalities, and dealing with the coordination failures.

Synergies between rural economy and urban based business can enhance development and sustainability of local economies and promote regional development. Clustering rural and urban areas into a regional unit of development can take into account both the diversity and the complementarities that exist between the rural and urban areas in a region and make these rural and urban areas interdependent. It is these relations between urban centers and rural areas, which are more horizontal, interdependent, complementary and reciprocal, that lead to regionally sustainable growth (Akkoyunlu, 2013).

Hence, for developing synergies between rural urban economies, sub region with hierarchy of and proper linkage between settlements need to be develop rather than political and administrative centers. The sub region should constitute market centers and villages in a functional hierarchy of settlement system forming an integrated economic space in the hinterland (Jha, 2000).

2.6. Theoretical Framework

2.6.1. Central Place Theory:

The fundamental terms used in Central Place theory are as follow;

- A Central Place is a settlement which provides one or more services for the population living around it and in the complementary regions Central place are categorized into different hierarchy on the basis of functions performed and size of the population served,
- Simple basic services (e.g. grocery stores) are said to be of low order while specialized services (e.g. universities) are said to be of high order.
- Having a high order service implies there are low order services around it, but not vice versa. Settlements which provide low order services are said to be low order settlements. Settlements that provide high order services are said to be high order settlements. Between these extremes is a wide range of intermediate functions, the population required to support different functions tend to increase as one go up to hierarchy.
- The sphere of influence is the area under influence of the Central Place, large sphere of influence of higher order settlements and small sphere of influence of low order settlement

Walter Christaller developed the theories in 1933. Central places theory tries to explain the spatial distribution of a system of cities. The central place studies determine the extent of the peripheral area required to support town, specifically optimal spacing of settlements and try to organize space suitable to the activities of man (Joshi, August, 1985).

The theory says that spatial structure of a region mainly depends on tertiary activity and its location. The main purpose of this theory is to explain the size, number and distribution of towns. The theory explains extent required of the peripheral area to support a town, the optimal spacing of settlements and tries to organize space for human activities. It establishes the relationship between the rarity of a service and the population needed to support it. However in explaining the process of hierarchical

development of market centres, Christaller started from the top down to develop central place hierarchy, wherein high order centres containing higher order goods are first established and later followed by successive lower order centres, whereas Losch began from the bottom up wherein small centres which provide basic necessities are first established and larger one are created as the demand intensifies (Qtd. in Acharya, 1999, page 21).

The theory assumes that;

- i. The region is plain limitless surface, homogenous in topography; population distribution and distribution of natural resources,
- ii. All settlements are equidistant and exist in triangular lattice pattern,
- iii. Perfect competition and all sellers are economic people maximizing their profits, consumers are of the same income level and same shopping behavior and all consumers have a similar purchasing power and demand for goods and services
- iv. Consumers visit the nearest central places that provide the function which they demand. They minimize the distance to be travelled,

The theory is developed on the basis of the minimum market (population or income) needed to bring about provision of particular good or service, **threshold** and the maximum distance consumers are prepared to travel to acquire goods, **range**.

Under the assumption, the competition among service provider for individual service gives the range of the service and eventually hexagonal market of a central place emerges. The increasing and decreasing of centrality of a place depends on the extent to which it functions for the surrounding region. Distance between centres decrease proportionally with order of centres. The central places are arranged in space in hierarchy to share the market uniformly.

Limitation of Central place theory;

- The theory relates only to service sector, settlements may develop due to other factors such as availability of natural resources but the theory neglect these

factors by assuming an even plain and uniform distribution of natural resources

- The theory is static, explains regional spatial structure of existing settlement on the basis of hierarchy but doesn't explain dynamic of regional spatial structure, evolution in the past and might change in the future.
- It is based on a form of spatial organization of production of goods and services that is strongly conditioned by the requirement of proximity between the producer and its customers, be it because of a marked sensitiveness to transport costs (craft bakery, post office) either because product is perishable (slaughterhouses, market gardening and milk production belts around cities before diffusion of frigorific transport), either because of nature of the provided service (hairdresser, doctor) (Pumain, 2015)

The theory nonetheless maintains its strength, as numerous activities (for example business services, high technology) locate in function of the presence of urban services, and strengthen correlation between level of those services and rank of cities in urban hierarchy, defined according to city population or to production weight (Pumain, 2015). But, in context of Nepal, Joshi (1985) has outlined various factors including national policy, location and hierarchy of existing central places and accessibility, linkages and impulses and articulation of the system, functional dimension of centre and centre's role in national/ regional development as determinants of the system of central places.

2.6.2. Growth Pole Theory

The fundamental terms used in Growth Pole theory are as follow;

- Growth Pole is a central location of economic activity; an urban location where economic activity ignites growth and better quality of life in urban periphery. Poles are likely to be firms or industries or group of firms or industries
- Growth Center is growth poles emphasizing geographic location; are related to the concept of agglomeration.

- Growth axes can be defined as development corridor connecting growth centers. “The diffusion of innovations (developmental impulses) is generally channelized through certain corridors concomitant to the transport and communication network and the resource potential of different growth centers and sub centers. The interaction of lines of forces (influences) between centers of differing ranks in hierarchy of centers will define the nature of the corridor or axes” (Joshi, August,1985).
- External economy exists if a change in the output of one firm or one industry affects other firms. It can be negative as well as positive.
- Linkage is a relation between different elements of the region. It may be forward or backward linkage. If a growth in production in one industry stimulates production in the industries supplying it then that industry has backward linkages. A forward linkage when the availability of the output of an industry makes possible the production of industries using that output.

Growth pole theory was developed by French Economist Perroux. Growth pole theory is based on urban industrial development strategy and on typically large scale and heavy industries. It helps to identify key industrial and urban centres. As per the theory, Growth does not appear everywhere and all at once. It appears at points or development poles with variable intensities and spread along the diverse channels with varying degree of effects to the whole nation.

As per this theory; the concentrations of economic forces would develop in areas having material and infrastructural resources necessary for the establishment, sustenance and growth of key industries. These resources would contribute to the economic growth of the cluster of industries, causing them to become key or “propulsive” industries that could produce an economic thrust in related industries through “fields of (economic) forces”. The thrust would not necessarily be felt in the growth pole’s surrounding region, or even within its country of location.

Perroux and other writers on growth poles try to base the concept on the notions of external economies, agglomeration and linkages. (Darwent, 1969)

Boudeville and other interpreters Perroux's growth pole concept and replaced "economic space" with geographic space and replacing growth pole by growth centre. The idea was readily adopted by regional planners and economic geographers who were inclined towards making economic development plans on a regional scale.

The major difference between growth pole policy and growth center policy is that the pole policy necessitates the development of a selected industrial focus composed of propulsive firms from leading industries whereas the center policy rather entails the concentration of investment in a chosen location of those facilities which will create urbanization economics that attractive to industry (Acharya, 1999). Thus Growth centres are the highest order central places, the next lower ones are service centres and the lowest ones may be termed as the small market centre (Jha, 2000).

The idea was to identify selected nuclei, growth center for industrial growth to stimulate development in the surrounding area by inducement instead of focusing on the underdeveloped region as a whole. Central to the growth pole is a group of dynamic industries connected around a particular resource. These industries are, by virtue of their dimension or negotiation strength, anticipated to have the capacity to innovate and adapt to market conditions. The growth of dynamic industries is anticipated to generate further investment, employment, and distribution of factor payments, including profits that may be reinvested. The growth of dominant industries, in turn, generates external effects that stimulate the growth of other industries due to inter-industry linkages (Speakman & Koivisto, 2013). Albert Hirschman uses the term **trickle down (spread effect)** by Gunnar Myrdal) to refer to positive impact of growth pole.

The regional economy of Paris can be considered to be a growth pole. The attraction of Paris has been so great that it has been extremely difficult to promote any economic development in the area outside of the Paris region. French planning literature refers to this as the phenomenon of Paris and the French Desert. The case of Paris shows that effect of polarization on the surrounding geographic area is not always positive (Darwent, 1969). Albert Hirschman uses the term **polarization (Backwash)** by Gunnar Myrdal) to refer to the negative impact of growth pole.

The general weaknesses of the theories as reflected in literature are over simplification of the development process as a linear process with discernible stages of development. It assumes rapid spatial expansion in terms of the built up area and has limited reference to the qualitative development aspects. The cyclic natures of depressions, crisis and booms that characterize capitalist economies have not been explored (Manyanhaire, Rwafa, & Mutangadura, 2011).

2.6.3. Gateway Model

The fundamental terms used in Gate way Model are as follow;

- Break of bulk point is location where goods are unloaded and broken into smaller units prior to delivery, minimizing transports costs,
- Gateway refers to centres located at strategic entrance to and exit out of an extended hinterland region.

Gateway model is framework for explaining evolution of market centres and hinterland. Gateway centres and national centres are connected through hinterland region. Gateway centre develops at contrasting situation; heterogeneous resource potential. Gateway centre develop as transport centres in the contact zones between areas of differing intensities or types of production.

Gateways have a basis in the spatial, or ‘first nature’, advantage of transport nodality. They evolve through self- reinforcing, ‘second nature’, advantages of population and built environment to establish themselves as centres for commerce and finance (Cronon, 1991; Krugman, 1993 qtd. in Huff, 2012)

“Gateway cities develop between areas of differing intensities or types of production; they are located towards one end of their tributary areas; and they are heavily committed to transportation and wholesaling. It is hypothesized that if the tributary area of a gateway city is large enough and productive enough to support the rise of large central places, then the gateway will be shorn of much of its previous hinterland and will itself come to function as a central place. The rise of gateways is dependent upon the presence of threshold values for distance, and levels of productivity” (Burghardt, 1971). Burghardt’s gateway thesis was built upon the assumption that

different sizes, roles and functions of urban centers constitute hierarchical relations. (Pain, 2011)

According to the gateway hypothesis, after the gateway is established lesser cities emerge in a logically and chronologically distinct, second growth phase. Urban systems develop as the countryside fills in with smaller cities that provide traditional central place functions such as marketing and distribution to nearby producers (Huff, 2012).

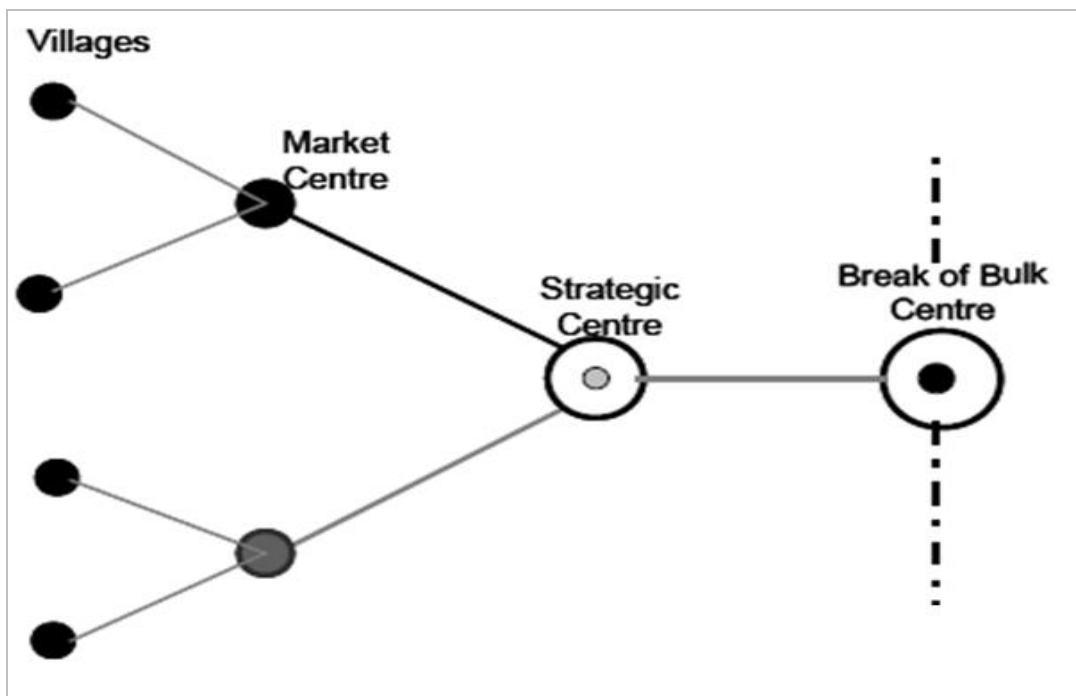


Fig 1 Gateway Centre

Gateway centres tend to develop at break of bulk points or nodes of transport lines in response to long distance trade or the setting of sparsely populated frontier areas. Gateway centres link heterogeneous productive regions; so they derive considerable advantage from long distance trading route. Wholesaling and transportation related work contribute to employment in these centres.

Gateway centres create dendritic market network hierarchy with dependent centres in which all market centres are oriented to the primary gateway centre; several centres with the same size compete with each other to supply services to single large urban centre that has link with national centre.

Gateway model define Hetauda growth though it was identified as growth centre by fourth plan. Initially, it was developed as long distance trading post for exchange of goods and services for between the Terai and the Hill regions (Regmi 1988).

The town plays as an intermediary role for the flow of goods and services for between the two regions and therefore it may be termed as 'secondary gateway town.' Hetauda owns a larger counterpart town such as Birgunj on its south. The latter can be termed as the 'primary gateway town' as it is being developed in sites of considerable transport significance or at the break-of-bulk point in the Terai region along the Nepal-India border (Messerschmidt).

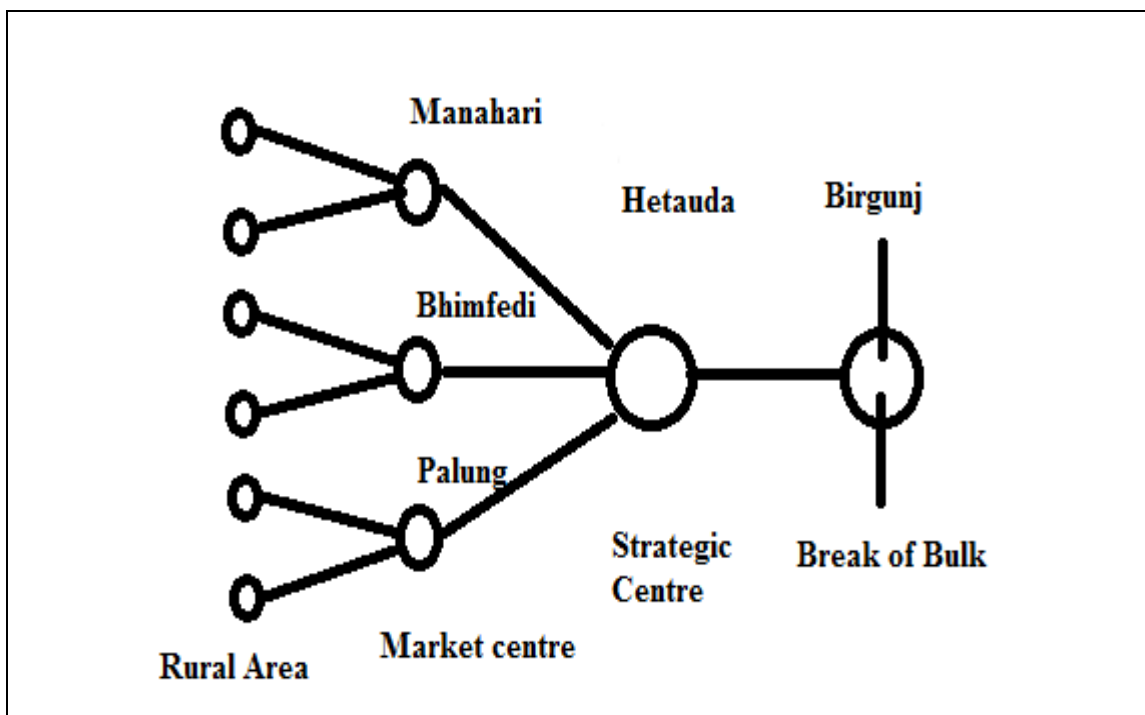


Fig 2 Hetauda: Gateway Centre

Through this border town, the country's major flows of goods in terms of export and import take place. Lying along the east-west highway, Hetauda links this primary town Birgunj with major towns and capital cities road. Apart from the traditional role of long distance trading activity, Hetauda also delivers its own peculiar function to the inhabitants living in the surrounding areas through a variety of activities it distinctively owns.

2.7. Review of Regional Development Policy in Nepal

Regional development policy and planning in Nepal can be divided into three distinct phases;

- **First Phase-** Regional policy and development before 1970s: In this phase the concept of region and spatial dimensions was not introduced in plans and policy. Plans, policy and development were prepared with consideration of whole Nepal without analysing comparative advantages of different regions. Central government exercised all authority; economic and administrative.
- **Second Phase-** regional policy and development in 1970s-1990s: In this phase, spatial dimension was introduced in plan and policy. Growth pole theory, SADP and IRDP were used for regional integration and balance development. But central government was still the key player regarding the plan and policy.
- **Third Phase-**regional policy and development after 1990s: This phase follows the second phase in terms of regional plan and policy but major issue were poverty reduction, human development and achievement of MDGs. The major difference was, in this phase, local governments were given more authority in plan and policy making through different acts and regulations.

2.7.1. Regional Policy and Development before 1970s

Regional development approach was first introduced in the second plan (1962-1965) in Nepal; the country was divided into several development and administration regions. The third plan (1965-70) divided the country into three regions on the basis of watershed area of Karnali, Gandaki and Koshi River. This was done for balance development through maximum use of available resources (Joshi, 2006, p. 34). Hence, spatial dimension was introduced in the planning.

Till 1970, regional development was in the initial stage. There were no additional developments policies and plans prepared in the field of regional development in Nepal. But Regional planning was introduced in 1972 fourth five year plan (1970-75).

2.7.2. Regional Policy and Development in 1970s-1990s

Fourth Five Year Plan (1970-1975): This plan was instrumental in establishing regional planning in periodic plan of Nepal. The main concern of this plan was to reduce disparity among geographical regions and balanced development in all regions. Concept of growth centre and axes also emerged, "The main growth pole hypothesis was to establish the north south linkages in the movement of goods, services, trade and people with the view of coordination and integrated development activities within the country as a result, four growth axes were conceived to link the diverse regions" (Dahal, 2005).

The plan dealt with the regional distribution of population and resources, physical infrastructure and social services and investment. It also stressed on the need of economic relationship between hills with food deficit and Terai with food surplus. Transportation, communication and social services got high priority in the plan.

The five objectives as envisaged by this plan were:

- i. Reduction of inter-regional disparities,
- ii. Integration of the national economy,
- iii. Breaking the vicious circle of no road, no development,
- iv. Elimination of imbalances between projects,
- v. Analysis of the regional economic structure.

Table 1. Regional Growth Centre

Growth Poles	Regions	Development Centres
Biratnagar- Dhankuta Hetauda	Eastern(Koshi) – Central(Kathmandu)	Biratnagar, Dharan, Dhankuta, Hedanga Birgunj, Kathmandu Valley,
Kathmandu Bhairahawa- Jomsom	Western(Gandaki)	Hetauda, Barabishe, Dhunche Bhairawa, Butwal, Tansen, Shangja, Pokhara, Jomsom
Nepaljung-Jumla	Far Western(Karnali)	Nepalgunj, Surkhet, Dailekh, Jumla

Source: Fourth Five Year Plan (1970-1975), NPC, Nepal

The country was divided into four regions, Eastern development region (EDR), Central Development Region (CDR), Western Development Region (WDR) and Far Western Development Region (FWDR). Growth Centre and their possible hinterland areas were also defined.

This strategy of regional planning has been closely linked to the road construction linking Terai, Hill and Mountain for generating greater interregional circulation of goods, service and people and ultimately with India. This plan does not give importance for circulation of goods on same physiographic regions. “As a consequence hills have become grain deficit and are obliged to export labor to Terai and India” (Dahal, 2005). But the plan contribute for development and expansion of settlement in terai & contributed in economic transition with international community.

Fifth Five Year Plan (1975-1980): Regional balance and integration were the main objective this plan which aimed at the exchange of production between regions using available resources. Small area intensive development programs were planned in order to develop backward areas and areas along growth axes. It was in this plan that, the Far-Western Development region was divided into Mid-Western and Far- Western Development region, with total development region increasing to five.

Although, it talks about regional equity and balance, it lacks policy to ensure project efficiency. The idea of fourth plan of concentrating development activities along growth centre and axes was superseded by diffused activity across region with SADP.

Sixth Five Year Plan (1980-1985): In this plan, Integrated Rural Development Program (IRDP) was launched and regional researches were proposed. The Sixth Plan was focused on the regional development through integration of rural infrastructure development i.e. agriculture, small-scale industries, horticulture, livestock and concentration of the natural resources.

The dispersed and diverse nature of IRDP abandoned the ideology followed by fourth plan in favor of dispersed development of small regions; though the plan was developed for balanced regional development it increased disparity between regions.

Seventh Five Year Plan(1985-1990): For effective implementation of plan and development programs, zones were regarded as functional sub regions and districts were envisaged as basic units for execution and reducing gaps and imbalance,

The Seventh Plan proposed a regional structure of regional development plan under three dimensions:

1. To develop development centres and services centres established in the sub-regions in each development region e.g. towns and market centres.

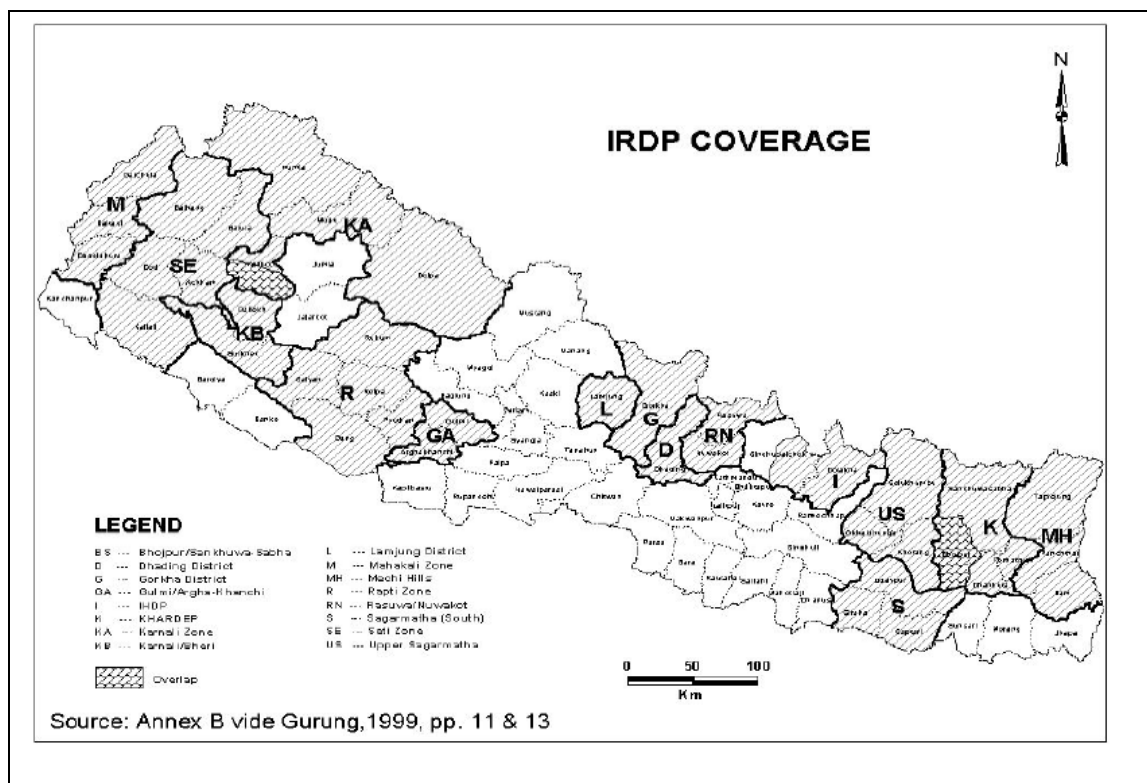


Fig 3 IRDP coverage

2. To make the regional level plans practical and effective regional development projects should be carried out at different levels/tiers i.e./DR, Sub-region and District, and
3. District Development Plans formulated under the decentralization policy will conform to regional development plan; Sub regional will be identified recognizing the existing zones as they are. The district will be the third tier of development region (NPC. 1990)

2.7.3. Regional Policy and Development after 1990s

Eight Five Year Plan (1992-1997): Among the principal objectives, reducing regional imbalance was one in this plan. This plan stated that “Poverty in Nepal has acquired a spatial dimension” and acknowledged that disparities between rural and urban area and between development regions have increased. The plan specifically set target to reduce regional disparity and efficient use of scattered resources to increase regional and national output.

The Ninth (1997-2002) had poverty alleviation the only objective. Balanced regional development was seen as important aspect for poverty reduction. Ninth plan also focused on the regional development through three tiers of hierarchy i.e. Development Regions, Sub Regions and Districts.

The Tenth plan five year plan (2002- 2007) had focused on the balanced regional development through utilization of potential resources in different regions, Three core regional strategy were prepared to reduce regional imbalance;

- Increased people’s participation in social and political decision making process,
- Inter regional economic relations among rural, urban and backward regions through infrastructure development particularly transport and communication,
- Resources allocation in view of reducing regional imbalance,

Three Year Interim Plan (2007/08-2009/10): The long term vision of this plan was to strengthen the urban rural interrelationship. The plan has specific strategies to develop large urban centres in the country as regional economic centres and to link them with medium and small centres through roads and other infrastructure and thereby strengthen rural urban inter relationship. The plan has envisaged strengthened of interrelationship among large cities, medium and small towns and villages.

Three Year Interim Plan (2010/11-2012/13): The plan aimed at creating opportunities for reputable and beneficial employments, reducing economic inequality, attaining regional balance and improving living standard of entire Nepalese people by

eliminating social discrimination and bringing poverty below 21% through sustainable economic growth.

Thirteen Three Year Plan (2013/14-2015/16): The ongoing plan has aimed to bring about a direct positive change in the living standards of the general public by reducing the economic and human poverty prevalent in the nation. The main goal is to decrease the proportion of the population living below the poverty line to 18 percent.

Though the plan does not have direct mention of regional development policy; it has linked poverty reduction to regional development. It has strategy to achieve inclusive, broad based and sustainable economic growth by enhancing the contributions of the private, government and cooperative sectors to the development process, developing physical infrastructure, protecting natural resources and environment, developing tourism, industrial and trade sectors, promoting good governance which relates to regional aspect.

The plans following Fourth Plan has followed the idea and objectives of Fourth plan. Reduction of inter regional disparity and balance regional development have been mentioned frequently in most of the following plans but basic theory followed by Fourth plan was left out. “ Subsequent plans, including the fifth plan in which regional development policies were spelled out have veered away from the basic propositions of the regional development strategy (Gurung, 2005)”.

“Four basic distortions to the original strategy can be identified;

The idea of concentrating development activities along the growth axes and in growth centres, thus laying the foundations for the radiation effects to the outlying areas and providing the basis for the inter;

1. The idea of concentrating development activities along the growth axes and in growth centres, thus laying foundations for radiation effects to the outlying areas and providing the basis for the intergratio of Terai and Hill economy, was abandoned in favor of dispersal of projects by development regions,
2. There was no coordination of sectoral activities at the regional level.

3. The focus was shifted from the overall analysis and design of the growth axes and identification of key investment areas to dispersed rural development efforts through, first Small Area Development Programme (SADP), and later the integrated Rural development Programme (IRDP),
4. The emergence of IRDPs as vehicles for fulfilment of basic needs superseded entire concept of integration of national economy, creation of locational matrix by strategic road development and induced urbanization through harnessing of comparative advantage of specific areas on which regional development strategy was anchored (Halcrow Group Ltd. UK; Full Bright Consultancy, 2007).”

The changing strategy of development in every succeeding national periodic plan ensured that a coherent strategy for regional development could not be developed.

In context of Hetauda, Fourth Regional Plan (1970-75) as established Hetauda as a growth centre and was located in Birgunj-Dhunge growth pole, Tribhuvan highway was considered growth axes but emergence of SADP and IRDP in 5th and 6th plan the focus was shifted from Hetauda as well as Makwanpur district. The following plans shifted the focus to poverty reduction hence concentration was on agriculture and rural area rather than urban centre.

Construction and completion of Mahendra highway, created Bharatpur new growth centre. Focus of government shifted from Hetauda to Bharatpur, the cities has been developed to provide different services. This has reduced the significance of Hetauda.

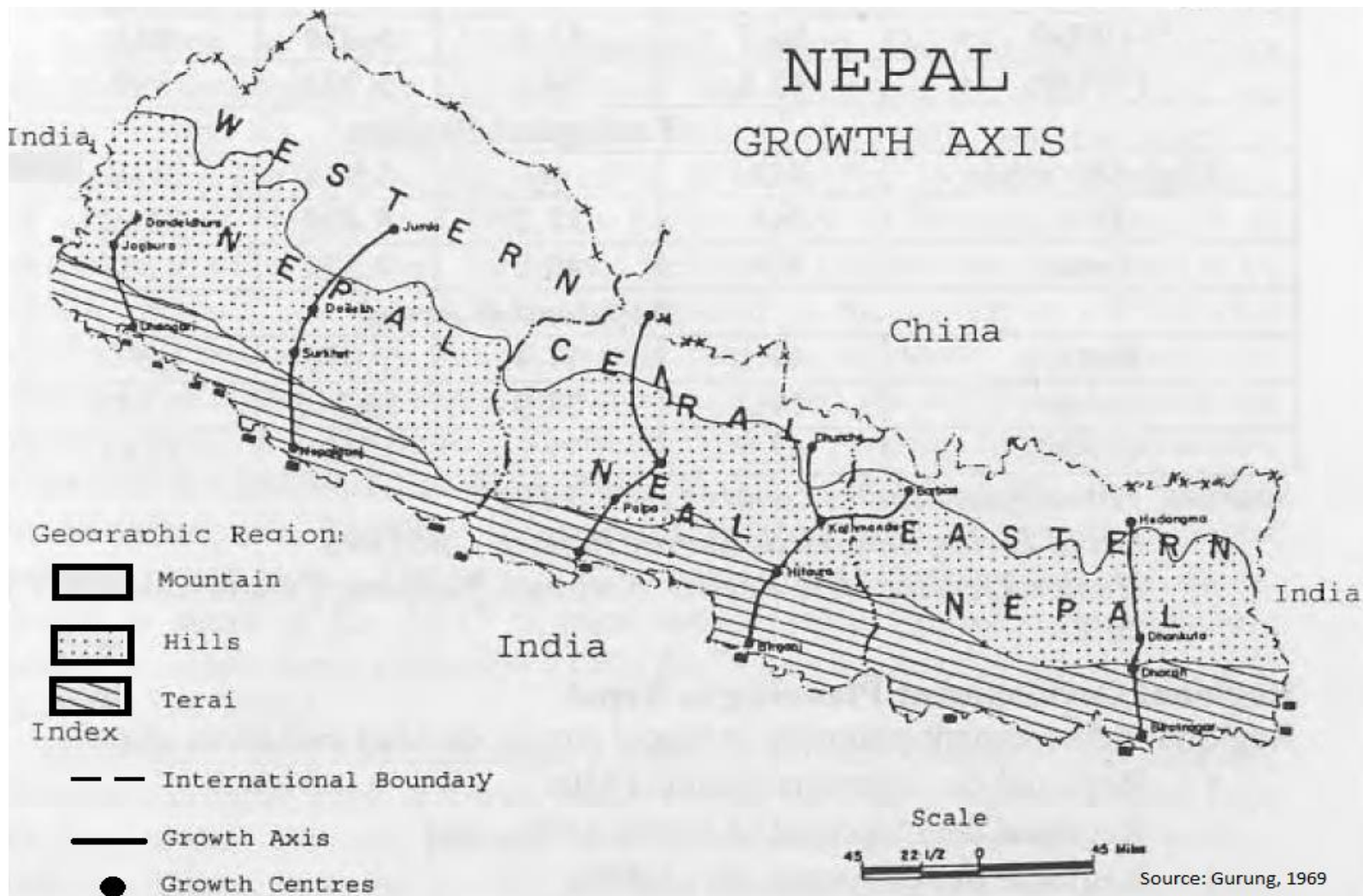


Fig 4: Growth axis

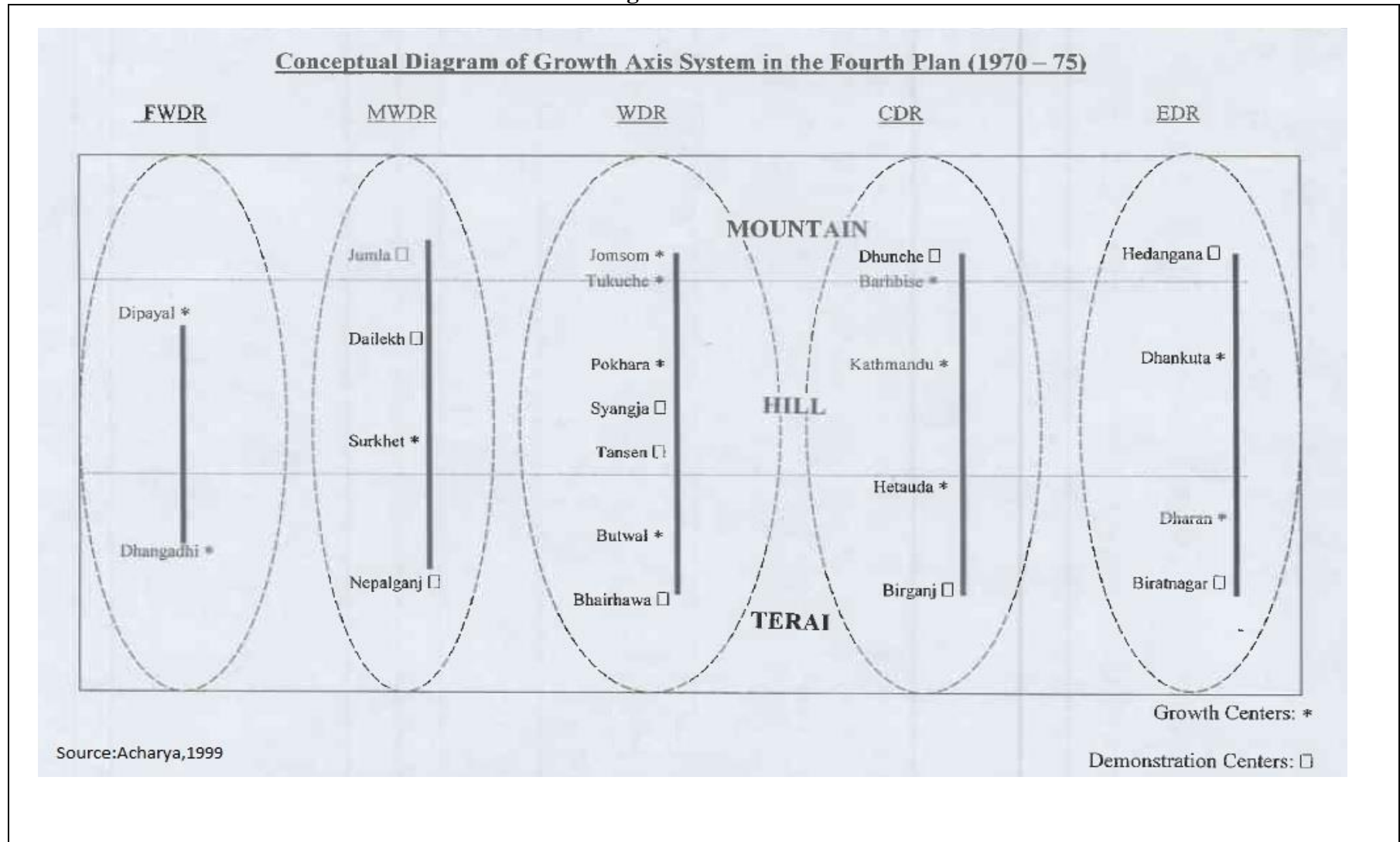


Fig 5; Conceptual Diagram of Growth axis

2.8. Regional Development Strategy, 2007

Nepal is very diverse in geographical, physiographic and ecology. Variations exist; indeed, extreme diversity is a unique quality. Comparative advantages also vary, from north to south, by virtue of the remarkably differing ecological zones and from east to west. Regional development strategy 2007 has divided country into 8 economic regions. The strategy has taken economy as main criteria. Each represents the functional economic hinterland of a main economic center. Regional development Strategy 2007 has divided Nepal into following Economic region and Sub region

- i. Kathmandu region – including the Kathmandu valley and its hinterland from Dolakha, parts of Ramechhap and Sindhuli in the east to Dhading and parts of Gorkha in the west and the Mahabharat range in the south. The core economic are as comprise the economic centres of the Kathmandu valley and possibly Banepa-Dhulikhel. Prithvi highway, the Kodari highway, Lamosangu-Jiri road and the road leading to Trishuli and Dhunche define the influence area of this region.
- ii. Siddharthanagar - Butwal region – includes Nawalparasi in the east to Kapilbastu, Arghakhanchi, Gulmi and southern Baglung in the west. The northern hinterland covers Palpa and southern reaches of Syangja. Siddhartha and east-west highway basically determine the influence area of this region. The core economic areas include economic centers of Butwal, Siddharthanagar and including Ramgram.
- iii. Pokhara region – includes Kaski, Tanahu, Synagja, Parbat, parts of Baglung, Myagdi, Mustang, and parts of Manang and Lamjung. The transport arteries leading to/converging from Baglung, Butwal and Kathmandu defines this region. The core economic area includes the Pokhara valley.
- iv. Birgunj-Bharatpur region – includes Sarlahi in the east to Chitwan and parts of Nawalparasi in the west. The northern reach is defined by the Mahabharat range and the road corridor leading to the western hills. Almost the whole of Gorkha and parts of Lamjung and Manang come within the sphere of influence of this region. These areas, however, are also influenced significantly by the Kathmandu region and to a lesser extent by the Pokhara region. The east-west highway, the Birganj-Hetauda highway, the Bharatpur-Mugling highway and parts of the Kathmandu-Pokhara high way defines the influence area of this region. There are

two core economic areas. The first is the Birganj-Kalैया-Pathlaiya axis. The second one comprises the economic centers of Hetauda-Bharatpur.

- v. Biratnagar region – includes areas to the east of Sankhuwasabha, Bhojpur, parts of Khotang, Udayapur and Saptari. The core economic area comprises the economic centres of Biratnagar-Dharan including Itahari and Inaruwa. The east west highway and the Biratnagar-Dharan and Dharan-Dhankuta highways are the major transport spines of this region. The Mechi highway could define a sub region centering around Mechinagar-Bhadrapur more sharply in the future.
- vi. Janakpur region – includes areas from Sarlahi to Saptari in the south and possibly Solu, Okhaldhunga, parts of Khotang and Udaypur in the north. The hill hinterland of Janakpur may overlap with the sphere of influence of Biratnagar. The completion of the Sindhuli-Kathmandu road could bring Janakpur nearer to the Central sector, but with a more pronounced regional role for the town itself. Janakpur does not appear to be a significant economic centre. The core economic area as it is may include Jaleswar-Janakpur.
- vii. Nepalgunj region - all areas to the west including Doplo, Rukum, Rolpa, Dang and east of the Bheri River are directly influenced by Nepalgunj. The meager marketing and service needs of the large hill hinterland are met through smaller centres of Tribhuvannagar-Tulsipur and Surkhet both of which can potentially develop as core economic regions with better road linkage with the hill hinterland in the future. The east-west highway and the Nepalgunj-Surkhet road are the major transport spines. Presently the core economic area comprises the Nepalgunj-Kohalpur corridor.
- viii. Dhangadhi region – Dhangadhi is not really an economic centre comparable to Nepalgunj and may depend on Nepalgunj for its functional needs. It serves far western region particularly west of Bheri river and derives its advantage due to Dhangadhi-Dandeldhura road link and its extension north and east (Doti).The core economic area centers on Dhangadhi-Ataria road corridor.

Regional development Strategy, 2007 has placed Hetauda in Region 5, Birgunj-Bharatpur region. It has identified Hetauda as a economic centers located inner Terai in cross road.

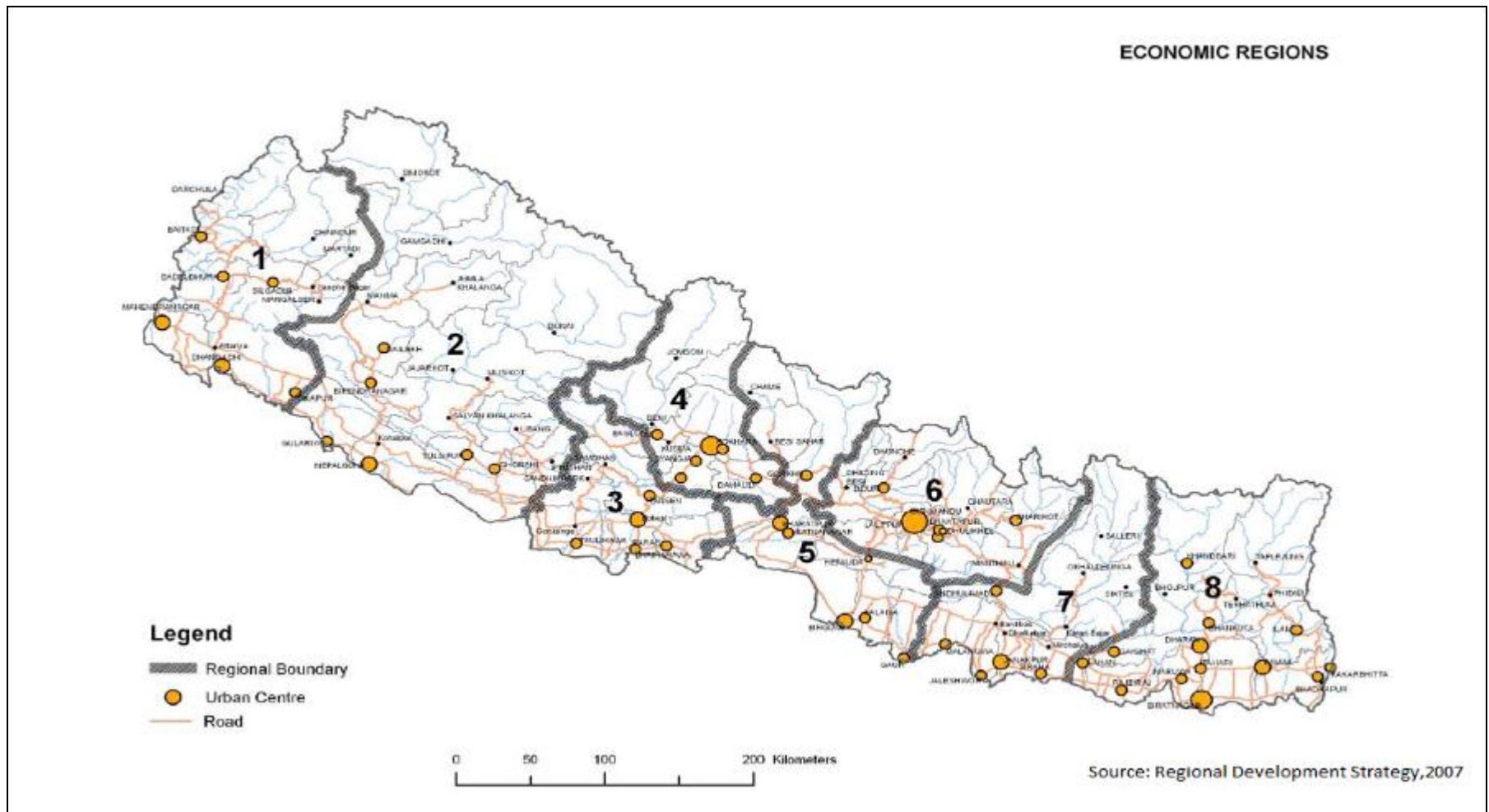


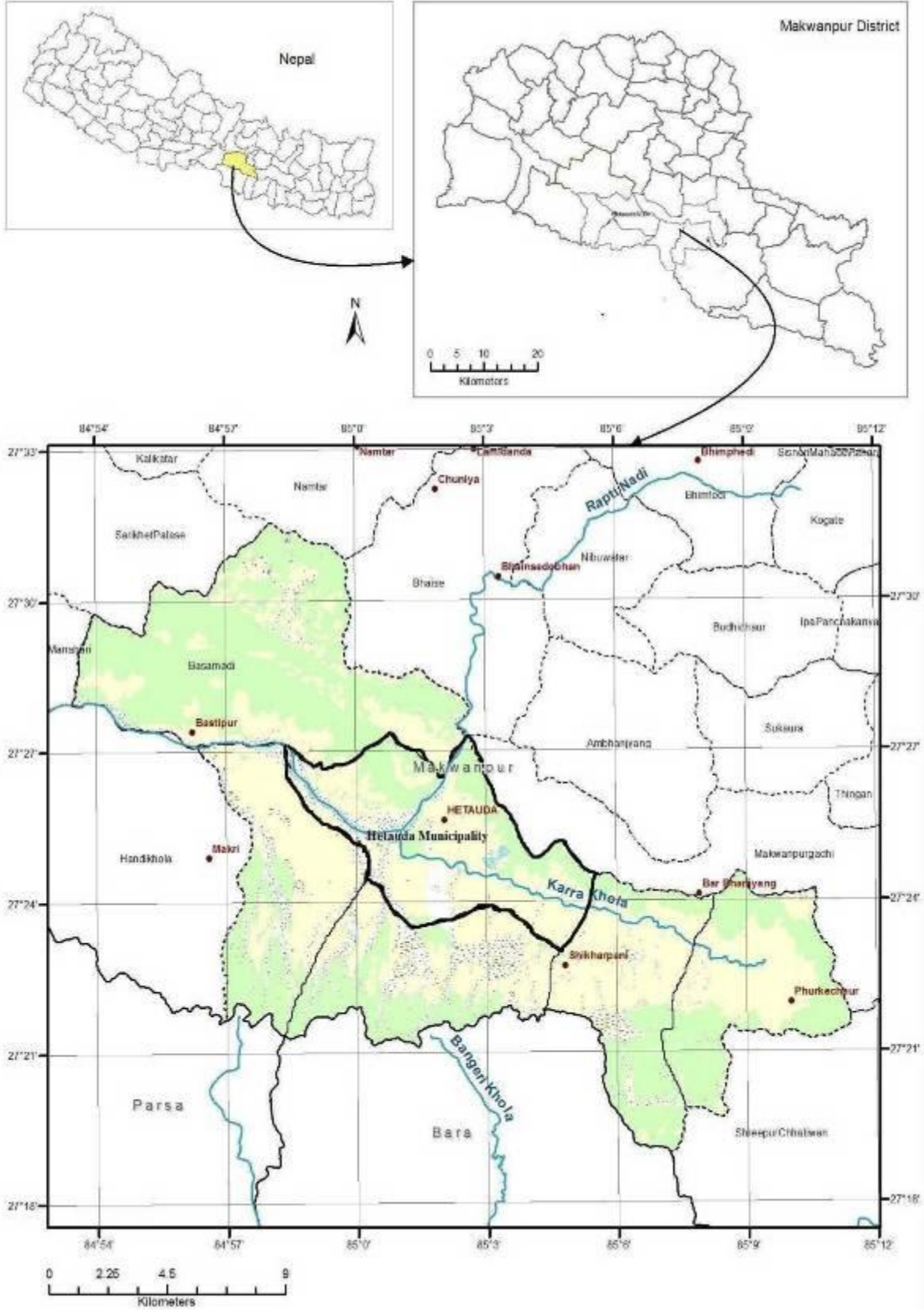
Fig 6 Economic Region: Regional development Strategy, 2007

Chapter –III

HETAUDA: AN OVERVIEW

MAKWANPUR DISTRICT

Hetauda City



3. HETAUDA: AN OVERVIEW

3.1. Hetauda Profile

Fourth Five Year Plan (1970-1975) has placed Hetauda in the Central Development Region, along with major urban settlement, Kathmandu Valley, Birgunj and Bharatpur. Hetauda was identified as a growth center in the growth axes of central development region.

Seventh Five year plan (1985-1990) classified Hetauda into first class urban settlement along with Birgunj and Bharatpur, while Kathmandu was classified as special growth centers within the central development region.

Regional Development Strategy, 2007 has placed Hetauda in Region 5 along with Bharatpur and Birgunj. The Strategy conceives Birgunj, Bharatpur and Hetauda as the economic centers of the region with Bharatpur-Hetauda and Pathliya -Birgunj-Kaliya as the growth axes.

Hetauda was developed as a growth center in Central Development Region. It has played the role of growth center to some extent. It has function as a central place for its hinterland and has been able to spread development as a growth pole but it has not been able to play an important role in the Central Development Region as well as national's economy. In term of population, shows that rank of Hetauda as major town of region is falling and its dominance over other city of Nepal is reducing.

3.1.1. Demography

As per census 2011, population of Hetauda is 84,671 in 19851 household and is the twelve largest city of Nepal. Hetauda is classified as Class 3 urban settlement. The rate of increase of population is 2.36% per annum and has population density of 1894 people per sq. Km. Its growth rate has remained low in the last inter-censual decade and has moderately low population densities.

Table 2 shows the ward wise distribution of population and population density of Hetauda municipality. Population density of ward no. 3 is highest, 21177 people per sq. km while ward no. 6 has lowest population density of 748 people per sq. km.

Table 2 Ward wise Population

Ward No.	Population	Population %	Area (Sq. Km)	Population Density
1	6,003	7.09	2.76	2175
2	7,225	8.53	1.17	6175
3	2,753	3.25	0.13	21177
4	14,970	17.68	1.7	8806
5	11,475	13.55	5.98	1919
6	5,611	6.63	7.5	748
7	4,361	5.15	3.74	1166
8	7,589	8.96	5.8	1308
9	9,602	11.34	3.89	2468
10	7,219	8.53	2.39	3021
11	7,863	9.29	9.65	815

Source: Hetauda Municipality City Profile, 2011, CBS

Ward no.4 has highest population of 14970 while ward no. 3 has lowest population of 2753. Ward no. 3 (0.13 sq.km) is smallest ward while ward no. 11 (9.65 sq. km) is largest in term of area within the municipality. Ward no. 6 and 11 has population density less than 1000 people per sq. km and is comparable to rural population density.

Table 3 Population Growth Ward wise

Ward No.	Area Sq. Km	Population			Growth Rate		Population Density per Sq. Km (2011)
		1991	2001	2011	1991-01	2001-11	
1	2.76	3907	5076	6003	2.65	1.83	2175
2	1.17	5265	5851	7225	1.06	2.35	6175
3	0.13	2961	2897	2753	-0.22	-0.50	21177
4	1.70	6760	10846	14970	4.84	3.80	8806
5	5.98	5947	7924	11475	2.91	4.48	1919
6	7.50	4459	5431	5611	1.99	0.33	748
7	3.74	3038	4004	4361	2.80	0.89	1166
8	5.80	4030	5839	7589	3.78	3.00	1308
9	3.89	7421	8746	9602	1.66	0.98	2468
10	2.39	6497	6103	7219	-0.62	1.83	3021
11	9.65	3551	5765	7863	4.97	3.64	815

Source: CBS

Table 3 shows that during censuses 1991-01 the ward no 3 and 10 has negative growth rate but in 2001-11 only ward no. 3 has negative growth rate and is higher than previous decade but population density is very high and comparable to Kathmandu metropolitan. The population growth rate of ward no 1, 3, 4,6,8,9 and 11 is lower than previous decade, ward no.6 and 9 has growth rate lower than national average.

Population density of ward no. 6 and 11 is lower than 1000 people per Sq. Km. 6 wards have population growth rate lower than average growth rate of municipality and 4 wards have population density lower than average density of municipality.

Table 4 Population Growth Rate

Censuses	Population	Population growth	Growth Rate (%)	Population Density /sq. km
1954	189			3.95
1961	1712	1523	80.58	35.83
1971	16194	14482	84.59	339
1981	34792	18598	7.55	728.32
1991	53836	19044	4.50	1128.63
2001	68482	16646	2.72	1433.58
2011	84671	16189	2.36	1772.47

Source: Hetauda Municipality City Profile, 2011

Table 4 shows trend of population growth of Hetauda municipality. The population growth rate shows that population growth was phenomenal during decade of 60s and 70s as it is due to construction of Mahendra Highway and malaria eradication programme and later reinforced by administrative changes, shifting of district headquarter to Hetauda. During census period of 2001-11, growth rate is minimum though population density has increase two and half times than that of 1981.

Recent decisions of Government to declare Hetauda as Sub-metropolitan city by reclassification (addition of Basamadi, Padampokhari, Churiyamai, Hatiya and Harnamadi VDCs) has increased population to 135745, area has increased to 101.65 sq.km from 44.5 Sq. Km and population density to 1335.5 people per sq. Km decrease from 1772.47 people per sq. km., this shows that added area has population density lower than the existing area of municipality.

Hetauda municipality is only urban center and urban population is contributed by this municipality alone, urban population in Makwanpur district is 20.14%.

3.1.2. Socio-Economic Status

Almost 65% of total working age population of Hetauda city is economically active, of the economically active population within the city, 58% are involved in multi activity as economic source and 15 % is involved in industrial sector for economic source. The industrial estate has been providing employment to about 4000 personal (Hetauda City Profile, 2011).

Table 5 Population distribution in Economic Sector

Censes	Economically Active Population	Population in Primary Sector	Population in Secondary Sector	Population in Tertiary Sector
2001	24485	12548	2500	9462
2011	32136	7234	4332	20570

Source: National Population and Housing Censes2001, 2011, Urban Table

Table 5 shows that in 2011, 22% of economically active population is involved in primary sector, 64 % of economically active population is involved in tertiary sector while in 2001 more than 50% were involved in primary sector while 38% were involved in tertiary sector. In both censes, population involved in secondary sector is less than 15% of economically active population.

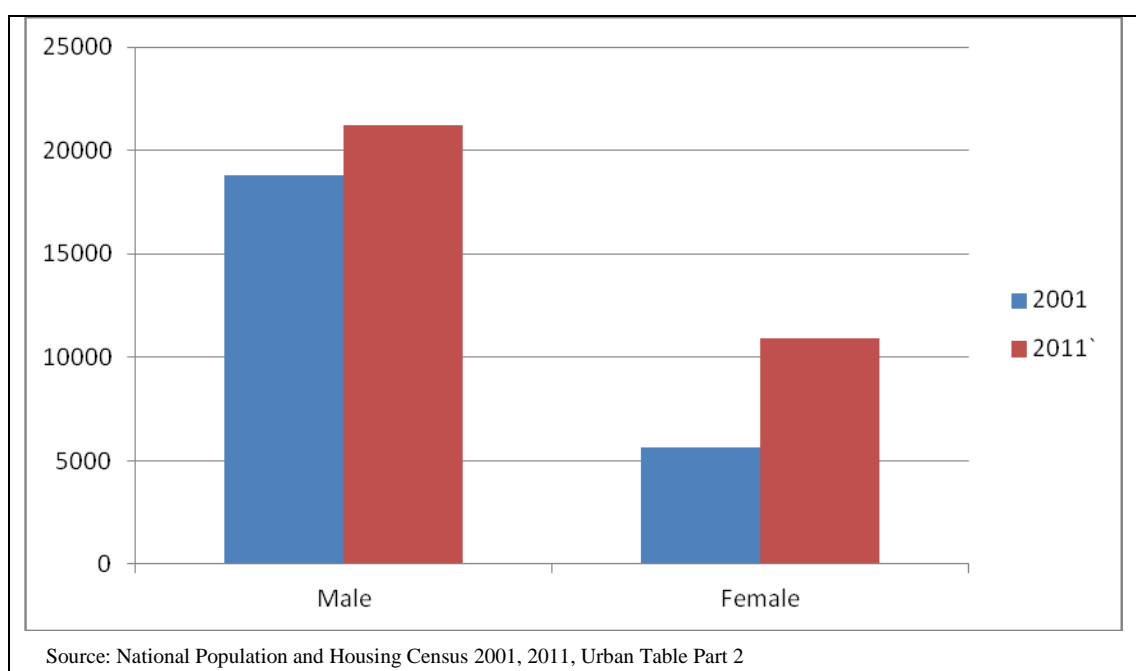


Chart 1 Economically active population gender wise

Chart 1 shows that in 2001, 75% of total economically active population was off male while in 2011 it was 66%. In 2011, the share of female economically active population is 34% compare to 25 % in 2001.

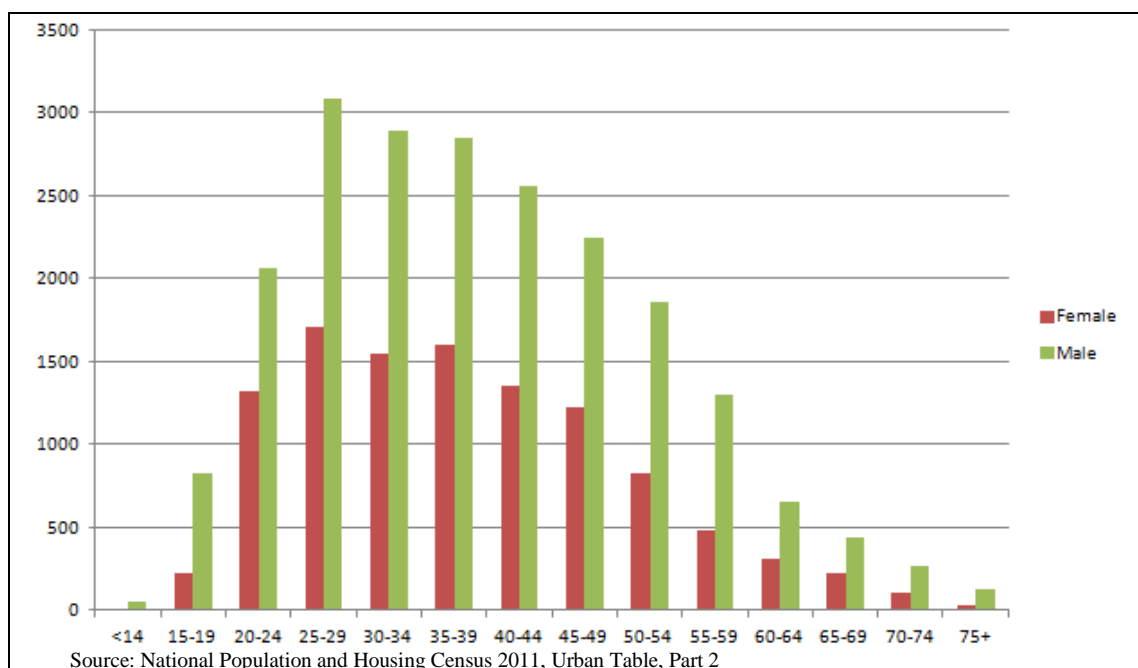


Chart 2 Distribution of economically active population

Chart 2 shows the total economically active population, male population dominate female population, almost two third populations (21201) of economically active population is male. In both gender, 15 -55 age group population compromise major portion of economically active population. Of 32136 economically active populations, 25492 are in between 15 and 50 years of age.

The economic activity in Hetauda municipality is govern by commercial activity, almost three fourth of 1566 economic activity is commercial activity while 15.5% of economic activity is industrial of which 60% is retail service industry and balance activity are instiutional. Retailing / wholesaling, 797 of 1161 commercial activity is major economic activity while production oiriented activities have appeared among least important function (HETAUDA MUNICIPALITY PROFILE, 2014). Four fifth of total economic activity was identified as commercial activity (RUPP, 1998).

Total empolymnt created by economic activity in Hetauda municipality is 10015 of which 4000 is created by Hetauda Industrial Estate, commercial activity contribute 55% of total employment. Total annual production of NRs 7.7 billion is generated and capital of NRs 3.3 billion has been invested in the economic activity (CSIO, 2070/71).

At present 70 industries are functioning at Hetauda industrial estate, 13 industries are in construction phase and 7 industries has done land aggrement for construction. Due to different reason 12 indsutries had been closed.

Out of 70 industries, 15 industries; agro, diary and wood products industry, uses 80 to 90% of locally available raw material (within the district), 15 industries; tobacco, cement material, food items uses 80 to 90 % of material from within the country and remaining industries import their raw material 50 – 60% form India (HIDML).

About 4 % of total cargo flow in major road network is generated from Hetauda. About 50% of all international trade passes through Hetauda via Birgunj (Choe & Pradhan, 2010). Almost 200 to 400 numbers of public transportation passess through Heatuda which is either originated or end to capital city and either east or west part of country. Hetauda connects east part to west part of country. (National Urban Development Strategy , 2015).

Education

Hetauda municipality has total 61 educational organization of which 26 is govermental and 35 is private educational organization (Hetauda City Profile,2011).

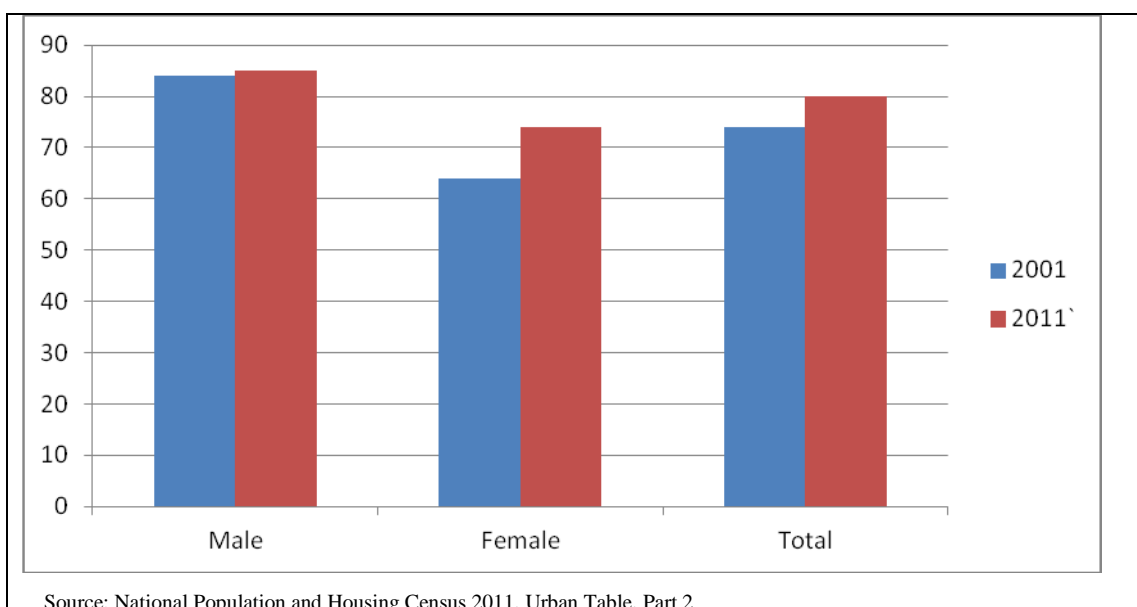


Chart 3 Literacy Rate

Chart 3 shows that in 2011, 80% of total population of Hetauda municipality are literate of which 85% of male population are literate while 73.5% of female population is literate while in 2001, 74% of total population was literate of which, 84% is male and 64% is female.

Chart 4 shows that, percentage of population with higher level education is low. The portion of population decrease with increase of level of education. The percentage of population who get intermidate, graduate and post graduate to the begineer/primary level are 42, 19 and 7 % respectively.

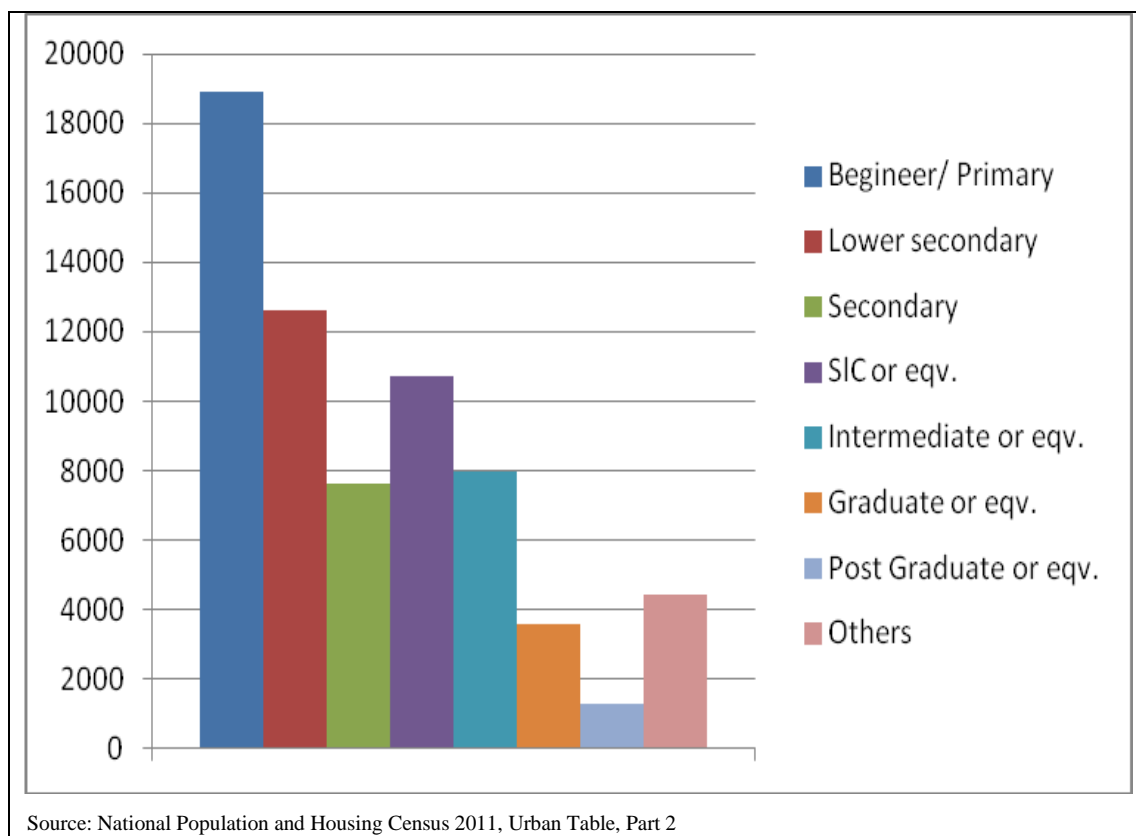


Chart 4 Population Distribution Education wise

Table 6 shows that 61 educational insitiute is functional in Hetauda municipality of which 26 are goverment own and 35 are private own. Of the 61 educational insitiute, 16 are primaray level, 12 are lower secondary, 23 are secondary and 10 are higher secondary.

Table 6 Education Insitiute

S.No.	Description	Primary	Lower Secondary	Secondary	Higher Secondary
1	Government	8	5	6	7
2	Private	8	7	17	3

Source: District Education Office, 2068

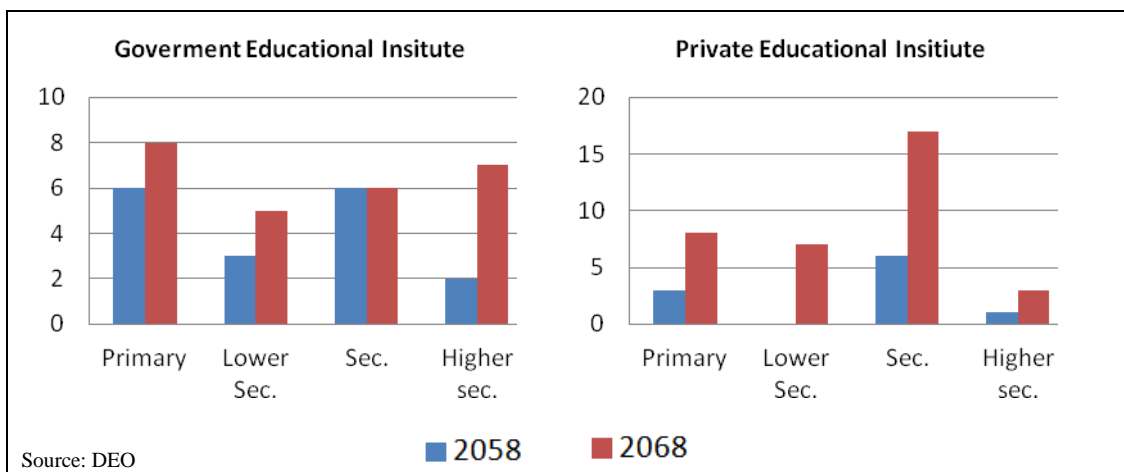


Chart 5 Educational Institute

Chart 5 compare educational institute in 2058 and 2068. The chart shows that rate of increase of private educational institute is higher than government educational institute.

Table 7 shows that ward no 2 and 3 do not have primary level education institute while ward no 7 and 10 do not have lower secondary and ward no. 1,3,5,7 do not have higher secondary level education institute.

Table 7 Education Organization Ward wise

Ward No.	Primary	Lower Secondary	Secondary	Higher Secondary
1	1	1	1	0
2	0	1	3	1
3	0	1	1	0
4	1	1	3	3
5	2	2	4	0
6	2	1	2	1
7	2	0	2	0
8	3	1	1	1
9	1	2	2	1
10	1	0	2	2
11	2	2	1	1

Source: District Education Office, 2068

Table 8 shows that there are 10 number of educational institute which provide higher level of education within the municipality of which 7 are government and 3 are private. Ward no 1,3,5 and 7 doesnot have educational insitute which provide higher secondary education while ward no 4 has highest number.

Table 8 Institute Providing Higher Education

S.No.	Name of Institute	Type	Level	Faculaty
1	Institute of Forestry	Government	Graduate, Post Graduate	Forestry
2	Makwanpur Multiple College	Community	Graduate, Post Graduate	Arts, Science ,Management
3	Hetauda Campus	Community	Graduate, Post Graduate	Education
4	Bansa Gopal Multiple Campus	Community	Graduate	Education, Science, Management
5	Hetauda School of Management	Private	Graduate, Post Graduate	Management
6	Narayani College	Private	Graduate	Management
7	Hetauda City College	Private	Graduate	Management
8	Nirmal Multiple Campus	Community	Graduate	Management
9	Nawodit College	Private	Graduate	Management
10	Mahendra Multiple campus	Community	Graduate	Management

Source: District Education Office, 2069

Poverty

Hetauda municipality is one of the highly prosporeous urban centre of country. The percentage of poor population is 6.07 with poverty gap 1.18 % and severity of poverty 0.35%.

Hetauda has better position than Kathmandu and Birgunj in term of urban poverty indices. Hetauda with same percentage of poor population has ranked 7th and 11th highly prosperous urban center in 2058 and 2068 respectively (District Profile, 2068).

Health

Hetauda is centre for Health services in Makwanpur district. Hetauda has 7 hospital, 1 ayuerbadic hospital, 6 health post, 3 Urban Health Clinic and 3 Dots Clinic (Hetauda City Profile,2011).

Table 9 Health facilities

S.No.	Hospital Type	Number	
		2062	2068
1	Government	2	2
2	Community	0	2
3	Private	1	4
4	Clinic	6	18
5	Blood Bank	0	1
6	Health post	2	6

Source: District profile

Table 9 compares the health facilities available in Hetauda municipality. In 2062 population per doctor was 30200 while in 2068, population per doctor was 20000. (DHO).

3.1.3.Land Use

Land use pattern of Hetauda municipality has been continuously changing but with the construction of Tribhuvan, Mahendra highway, industrial estate, eradication of malaria and shift of administrative headquarter to Hetauda, migrants influxes were very high hence the land use pattern changed rapidly. Forest and cultivation land were converted to built-up area and large part were converted to urban area.

Table 10 Land Use Makwanpur District

S.no.	Land Use type	Area (Hecater)	Percentage (%)
1	Total Forest	144588	59.10
2	Shurb	3757	1.50
3	Agricultural land/grassland	61489	25.20
4	Water bodies	16483	6.70
5	Conservation Area	15125	6.20
6	Industrial Area	1607	0.70
7	Others	1339	0.60

Source: District Profile, 2071

The land use pattern is; 24% forest, 41% agricultural area and 25% urban area and other 10% (Hetauda Municipality City Profile, 2011). Almost half of the total land is used as agricultural land shows the dominance of primary activities in the municipality area.

Table 11 Land Use Change

Land Use	Area (Ha)			Percentage (%)		
	1978	1992	2009	1978	1992	2009
Barren Land, Grass, Industrial Zone	505.65	309.99	587.01	11.10	6.80	12.88
Built up Land	138.11	399.57	632.59	3.03	8.77	13.88
Cultivation	2494.64	2220.21	1910.07	54.74	48.72	41.92
Forest	1254.05	1063.28	1120.70	27.52	23.33	24.59
Water Bodies	111.55	441.21	128.98	2.45	9.68	2.83
Others	53.32	123.30	177.74	1.17	2.71	3.90

Source: ERRRP, Land Use report 2009

On the basis of land use pattern, ward 1, 2, 3,4,5,9 and 10 can be categorized as urban ward with built-up area dominating the land use pattern and ward no. 6, 7, 8 and 11

can be categorized as semi urban ward with large portion of area dominated by agricultural land. Most of large scale industries are located in Ward no. 10 and 11.

Chart 6 shows that the Cultivation land is reduced by same amount as increase in built-up area in Hetauda municipality. The analysis of land use change shows that change in built up area from 1978 to 1992 was 289% while it was 158.25% in the duration of 1992 to 2009 and this is done mostly by converting agricultural land.

The land use pattern shows that the expansion of built up area is around the highway and the built up area is concentrated near the cross of Mahendra highway and Tribhuvan highway. Built up are has expanded for this area. Hetauda is cross-road town and its urbanization is dependent on the functionality of these highways.

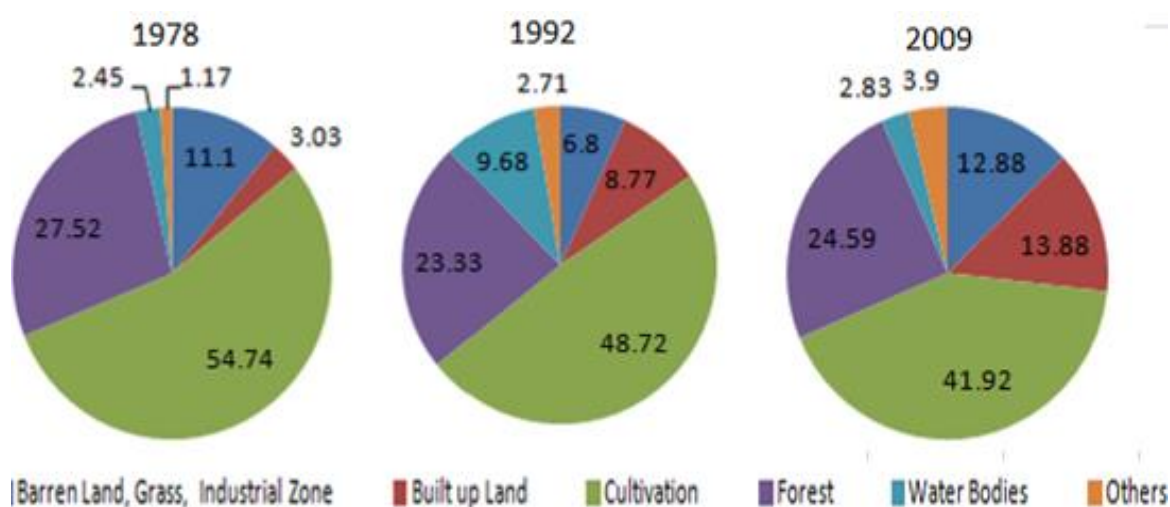


Chart 6 Land Use Patterns 1978-2009

“The rapid urban expansion areas are identified at Nawalpur area along Mahendra highway on either side in NirogDham Marg, Simrik Gali, Pragati galie Surya Gali and Satyawati galli areas in ward no. 11, Pashupatinagar Area in ward no. 9, Nagar bikash area in ward no. 8 and along Hetauda- Hatiya Marga in ward no. 7” (Report on Impact of Settlement Pattern, LandUse Practice and Options in High Risk Areas, 2009).

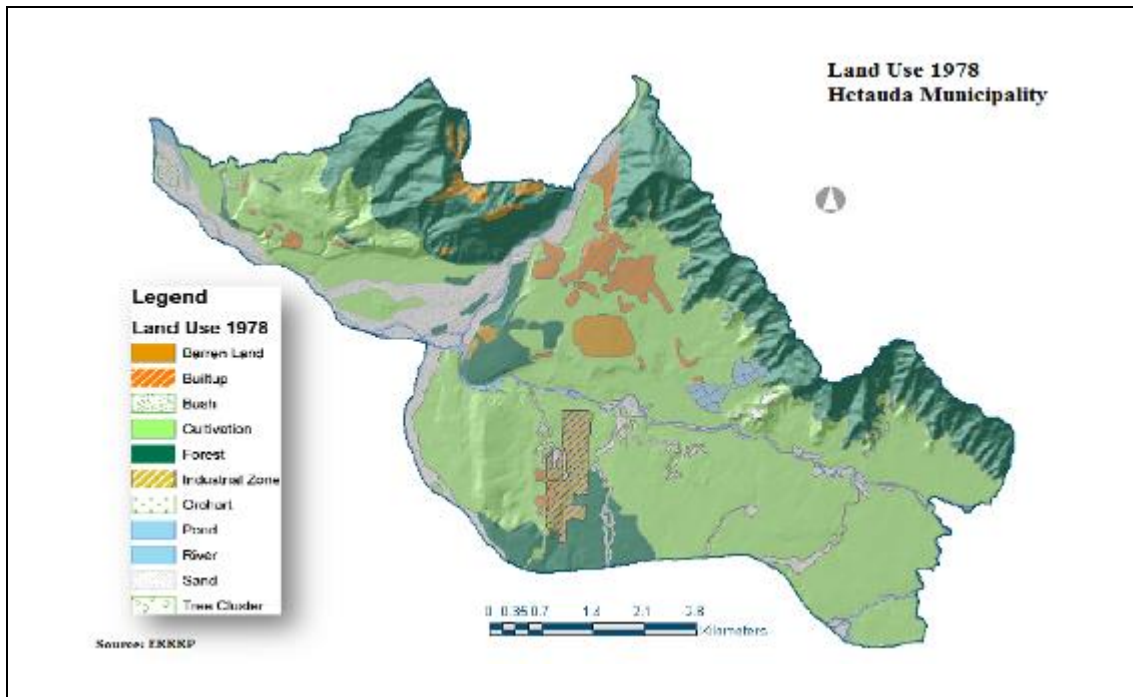


Fig 7 Land Use 1978

Fig 7 shows the land use pattern of Hetauda municipality in 1978. Built up area were concentrated in core area and in industrial district. The land use was dominated by agricultural land.

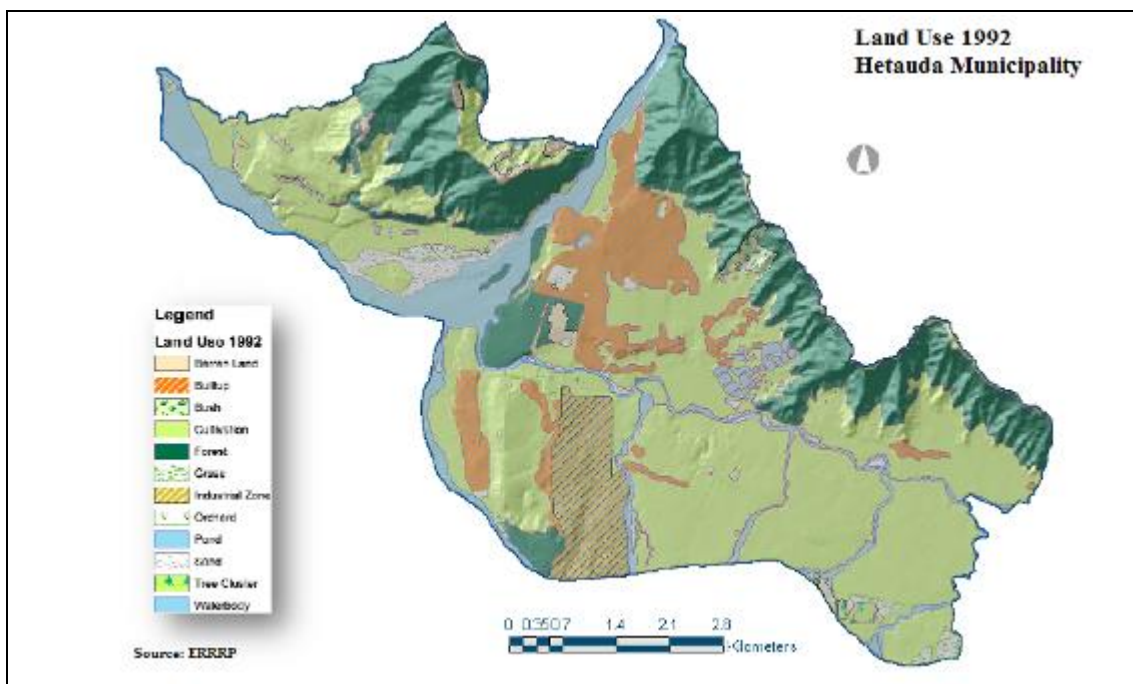


Fig 8 Land Use 1992

Fig 8 shows the land use pattern of 1992, expansion of built up area were in core area and around the industrial district.

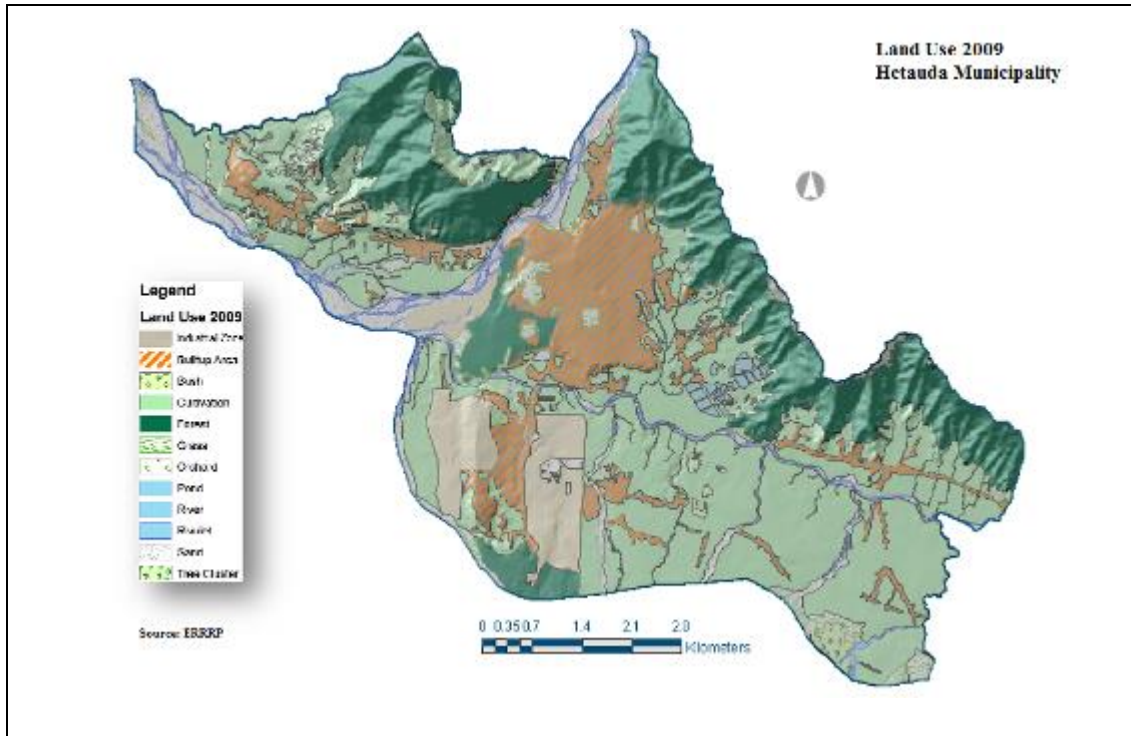


Fig 9 Land Use 2009

Fig 9 shows land use pattern of 2009. The expansion of built-up area is in core area, around industrial district and along the highway.

3.1.4. Physical Infrastructure

Road Transportation: Total road length in the Hetauda municipalities is 237 km of which 103 km is black topped, 105 Km is graveled and earthen and 29 Km is concrete road. 29 Km is footpath. Road density is 5.30 km per Sq. Km and people influenced per km is 357. (Hetauda Municipality City Profile, 2011).

Table 12 shows that ward no. 2, 3 and 4 has high road density and population influenced. These three are core urban center in Hetauda municipality with very high urbanization. Ward no. 6, 7, 8 and 11 has lowest road density as well as population influenced by road is very low. These are least urbanized ward which is reflected by the date.

The entire wards are linked with each other by road transportation. 738 vehicles connect all wards of Hetauda Municipality of which 602 rickshaw provide services around core urban center while other connect core urban center with periphery of Hetauda municipality (District Traffic Office, 2070).

Table 12 Ward wise Road Distribution

Ward No.	Area	Population	Road Length	Road Density (Km/ sq.)	Population influenced
1	2.76	6,003	16	5.80	375.19
2	1.17	7,225	10	8.55	722.50
3	0.13	2,753	3	23.08	917.67
4	1.70	14,970	15	8.82	998.00
5	5.98	11,475	30	5.02	382.50
6	7.50	5,611	35	4.67	160.31
7	3.74	4,361	20	5.35	218.05
8	5.80	7,589	28	4.83	271.04
9	3.89	9,602	20	5.14	480.10
10	2.39	7,219	20	8.37	360.95
11	9.65	7,863	40	4.15	196.58

Source: DDC, Hetauda Municipality City Profile, Censes 2011

Fig 10 and Fig 11 compare the road infrastructure between 2001 and 2011. Total road length in 2001 is 177.35 Km of which only 55.57 km was black topped, 121.78 km was graveled or earthen road (Hetauda Municipality).

The road infrastructure in the core urban area were already developed, drastic increase of road are seen in periphery of municipality. Mostly, increase of road is along the MH and around the industrial district.

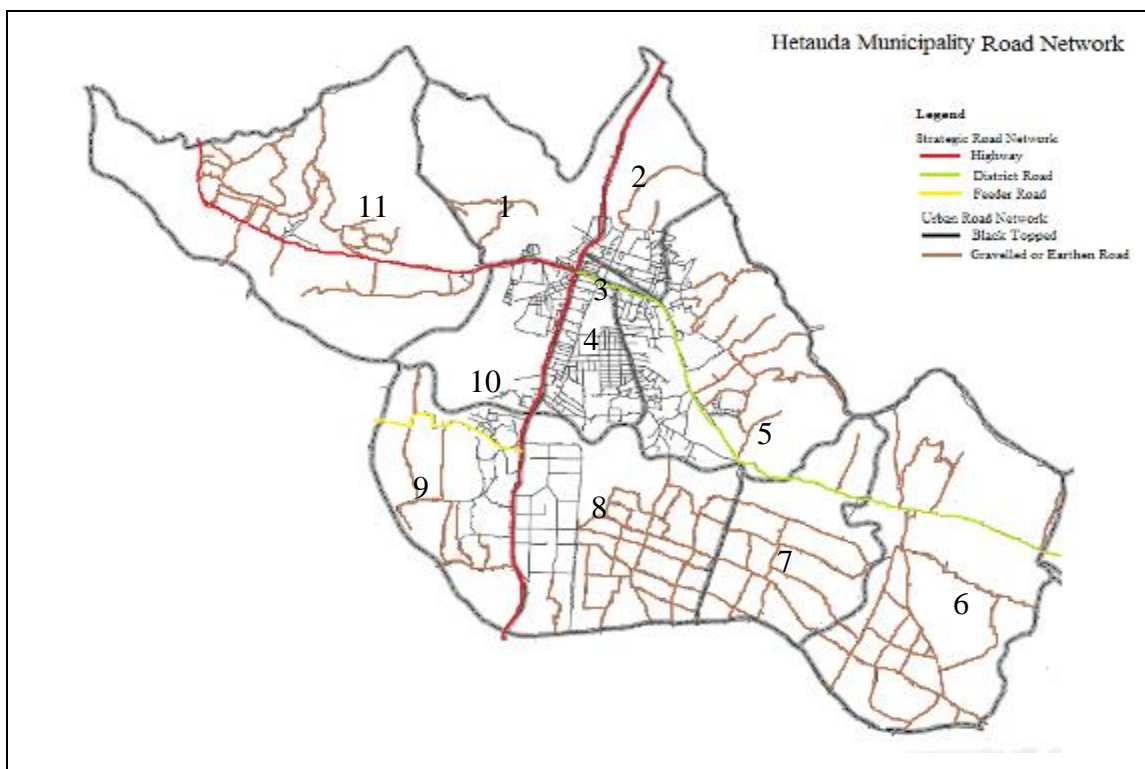


Fig 10 Road Network 2001

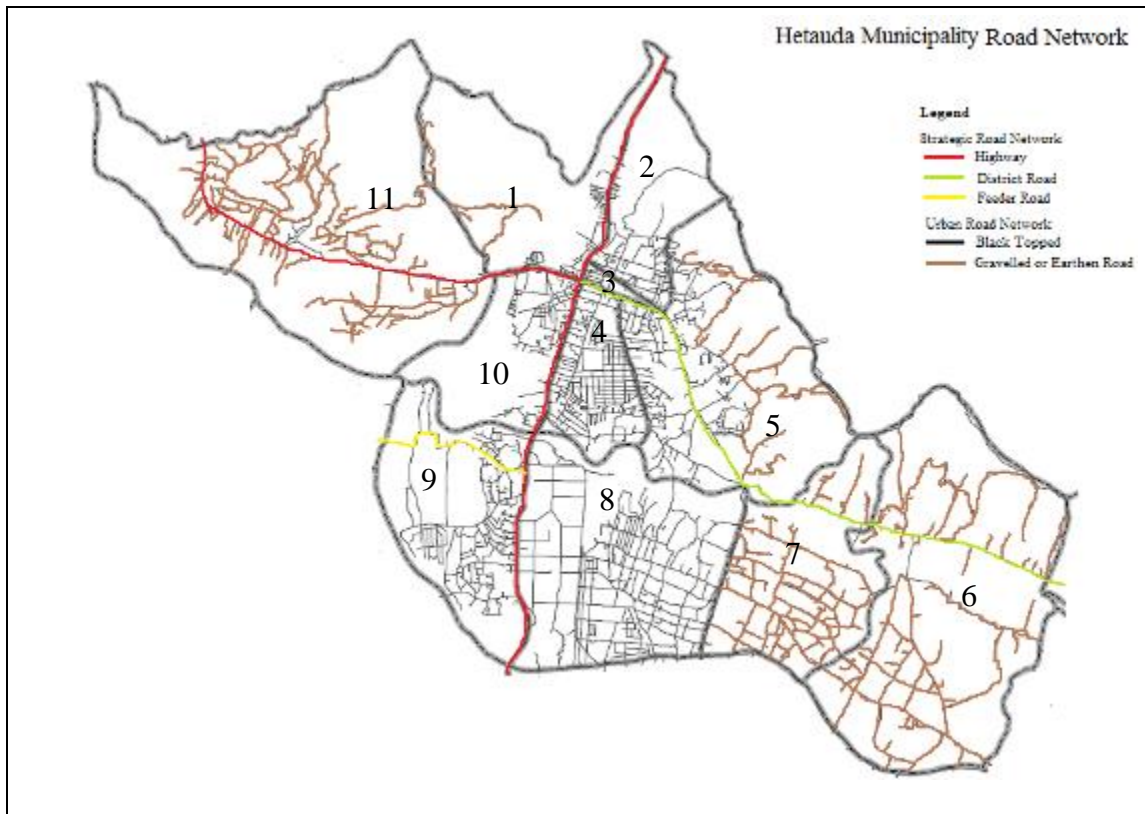


Fig 11 Road Network 2011

Communication and Electricity: Hetauda Municipality is connected to national and international region through telecommunication and internet. It has 5 FM station, a television channel, 10 weekly and 7 daily news papers. (Hetauda City Profile, 2011)

Total telecommunication users in Hetauda municipality are 140765 of which 7423 is land line and 133252 are mobile. Total internet users are 35036 in the municipality. The mobile number shows that people are using more than a mobile.

12224 users have been connected to electricity line; a separate 5000 Kva line is used to supply line to industrial estate. 95% of household has access to electricity. Of the 19851 household, 12885 use LPG gas, 4666 uses wood, 1430 uses bio gases, 459 uses kerosene, 79 uses electricity and 263 uses other sources for cooking (District profile, 2068).

Water Supply and Sanitation

Different sources has been used for water supply, 16388 uses pipe line, 1663 uses tube well, 1171 uses well, 417 uses spring, 8 uses rivers and 8 uses other source for drinking purpose (District Profile, 2071). 10165 household has received private pipe

line while 1915 community tap is in operation (Hetauda Municipality City Profile, 2011). 66.4% of Hetauda population has access to pipe water and water consumption is 73.8 Lpcd (NUDS, 2015).

Table 13 Ward wise Tap Distribution

S. No.	Description	Private Tap	Public Tap
1	Ward no. 1,2,3,4,5 and 10	7326	25
2	ward no. 6	646	
3	ward no. 7 User committee	1430	
4	ward no. 8	1272	
5	ward no. 9	1510	
6	ward no. 10 User committee	1970	
7	ward no. 11 User Committee		
	Total	14154	25
Additional 9241 household use pipe line			

Source: Hetauda Water Supply Management Board, 2068

Of the 19851 household, 3.72% household do not have toilet (District Profile, 2071). Ward no 1, 3, 4 and some part of ward 9 and 10 are connected to sewerage line, 15% of total population has access to sewerage system. A treatment plant has been established in Hetauda Industrial Estate, sewerage is treated in the treatment plant.

Chapter IV

ANALYSIS AND FINDINGS

4. ANALYSIS AND FINDINGS

4.1. Urbanization Trend

4.1.1. Population Growth

Urbanization Trend of Hetauda can be divided into two stages; first stages 1954 to 1971 and second stages 1981 to 2011.

In the period of 1954 to 1971, with eradication of malaria, construction of Tribhuvan highway (1959) and establishment of Industrial estate, very rapid population growth took place. People from different part of country were attracted to Hetauda; mostly from hilly area were attracted. Hetauda was declared Nagarpanchayat in 1970. During this period, Hetauda developed as new urban center.

The second phase, 1981 to 2011, growth rate of Hetauda between 1971-81 was 7.95 which were highest among the urban center only behind Birgunj (12.88%) and Pokhara (8.51%).

After completion of Mahendra highway, new urban center, Bharatpur was created, in 1981-91 census period the growth rate was 4.5 which was slight lower than national urban avg. population growth, 5.81%. During this period Bharatpur had 7.07% of population growth rate.

The urban population growth rate of Hetauda during 1991-2001 was 2.72 which was way below national urban population average which was 6.44% (inclusion of new urban area). This could be due to poor state of industrial estate and non functional state of Tribhuvan highway.

During 2001-11, the urban growth rate of Hetauda is 2.36% while national urban population average growth rate is 3.83%. The low growth rate of Hetauda can be attribute to overall low rate of population growth of country and due to the net negative migration, losing 3.0% of total population each year, by Makwanpur district where as the neighboring district Kathmandu (+ 43.8%), Lalitpur (+25.7%) and Chitwan (+22.7%) are gaining population (Population Monograph).

4.1.2. Physical Expansion

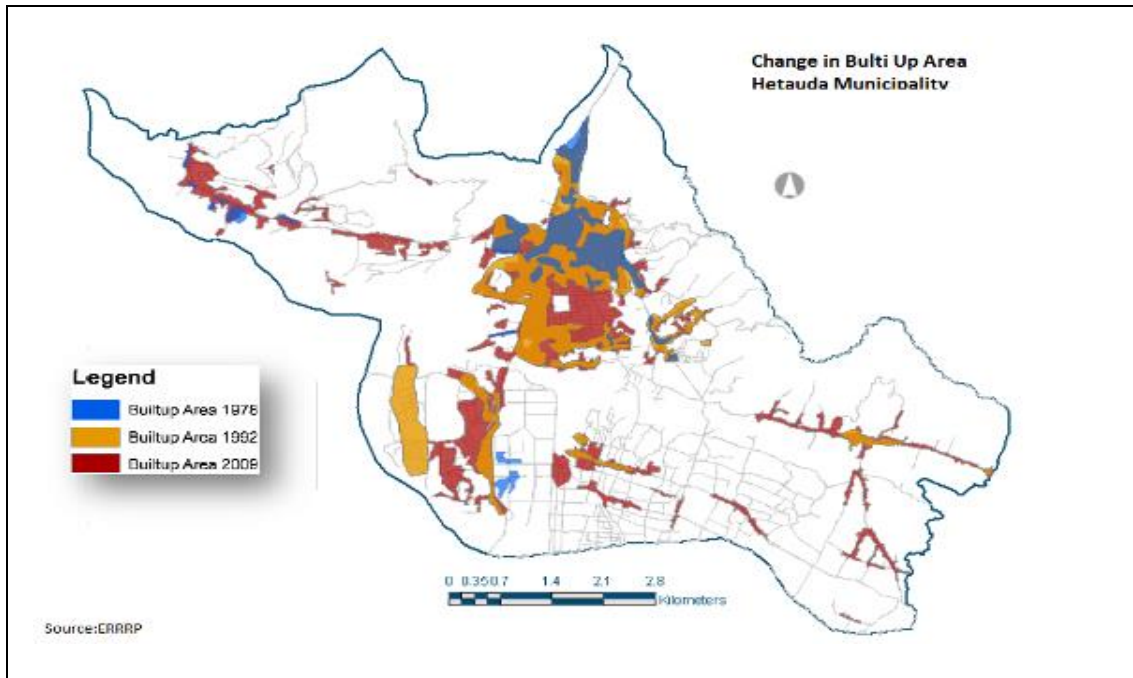


Fig 12 Changes in Built Up Area Hetauda Municipality

Fig 12 shows that up to 1978 most of built up area was concentrated within the center of Hetauda municipality as the area is located in highest ground and alignment of Tribhuvan highway passes through this area. After establishment of Industrial estate and construction of Mahendra highway, the expansion of built up area was in core area as well as around the industrial district and along the Mahendra highway.

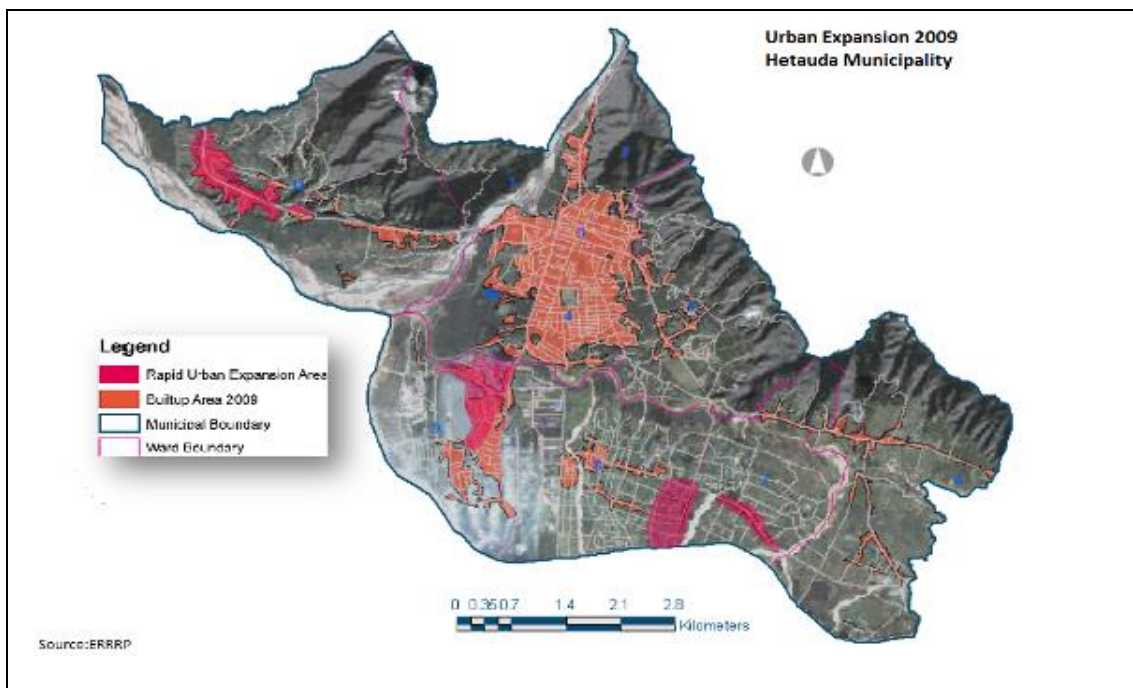


Fig 13 Urban Expansion

Fig 13 shows that rapid urban expansion is along the east west highway, around the industrial area and 8 no ward. Specifically, “The rapid urban expansion areas are identified at Nawalpur area along Mahendra highway on either side in NirogDham Marg, Simrik Gali, Pragati Gali, Surya Gali and Satyawati galli areas in ward no. 11, Pashupatinagar Area in ward no. 9, Nagar bikash area in ward no. 8 and along Hetauda- Hatiya Marga in ward no. 7” (Report on Impact of Settlement Pattern, Land Use Practice and Options in High Risk Areas, 2009).

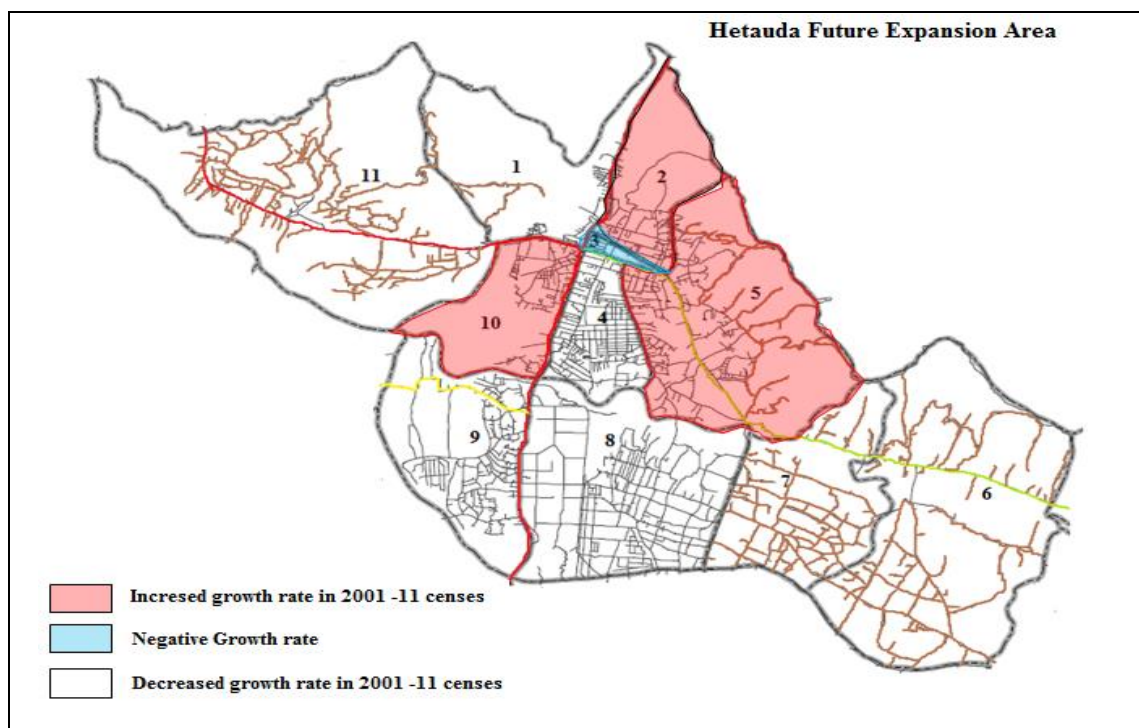


Fig 14 Future Expansion

Fig 14 shows the possible expansion area of Hetauda municipality. In 2001-11 censuses, ward no. 2, 5 and 10, population growth rate was positive and higher than previous censuses which could be due to proximity to core area and availability of services and facilities. Ward no. 5 has population growth rate of 4.48%, ward no. 2 has 2.35% and ward no. 10 has 1.83% compare to 2.91%, 1.06% and -0.62% in 1991-2001 period. In 2001-11 censuses, Ward no. 3 has negative growth rate, -0.50% i.e. the ward is losing the population while the ward no. 1, 4, 6, 7, 8, 9 and 11 have lower growth rate compare to 1991-2001 censuses period. The negative growth rate of ward no. 3 is because of over concentration of population. The ward has population density of 21177 people per sq. km.

The possible area of urban expansion and physical growth are around the industrial district, along the highway and in ward no 2, 5 and 10.

Urbanization; Influence in Rural Area

Hetauda as an urban center has played positive role for urbanization of surrounding rural area, VDCs surrounding Hetauda has higher population growth rate, population density compare to VDCs farther to Hetauda. The 9 VDCs, Basamadi, Bhainse, Padampokhari, Churiyamai, Hatiya, Manhari, Makwanpurgadi, Hurnamadai and Harnamadi with Hetauda share 65% of Makwanpur district population. VDCs farther to Hetauda municipality are losing population, 17 VDCs has negative growth rate.

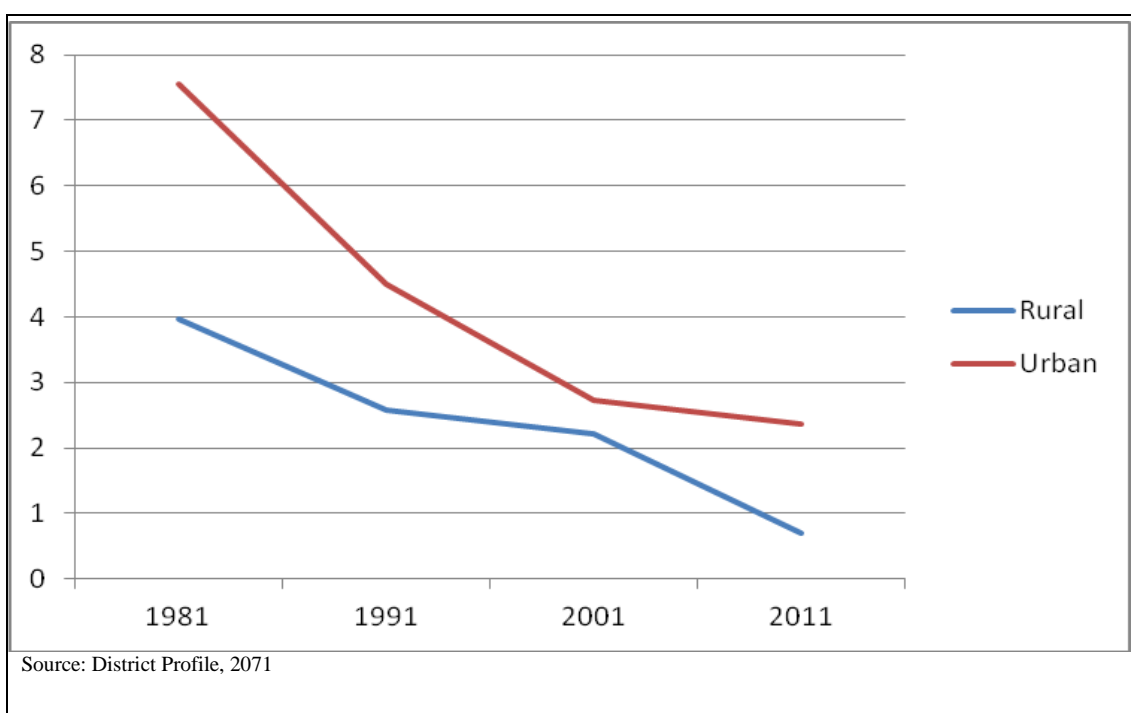


Chart 7 : Growth rate of Rural and Urban Population of Makwanpur District

Chart 7 shows that the difference between urban population growth and rural population growth rate is continuously fluctuating. In 1971-81, the difference was 3.59 which decrease to 0.5% in 1991-2001. In 2001-11, differences increase to 1.67%.

The growth rates of Makwanpur VDCs are low and some of the VDCs have negative growth rate. The VDCs (Basamadi, Padampokhari, Churiyamai, Hatiya, Manhari, Makwanpurgadi, Hurnamadai and Harnamadi) which are nearer to Hetauda municipality has high density, higher population and growth rate than farther VDCs. These VDCs with Hetauda municipality make almost 65% of Makwanpur district

population. 17 VDCs has negative growth rate, 18VDCs has growth rate less than 1% and only 4 VDCs/ Municipality has growth rate higher than national average (1.35%).

Manahari VDC has 4.44 % of growth which is higher than Hetauda municipality this could be due to the proximity to both Bharatpur and Hetauda municipality and Mahendra highway which passes through this VDC. Population densities of all VDCs are less 400 people/ Sq .Km (except PadamPokhari, 421.86 and Bajrabarahi, 435.34).

Fig 15 compares growth rate of VDCs surrounding Hetauda and VDCs at boundary of Makwanpur districts. The VDCs nearer to Hetauda has positive growth rate while VDCs farther has negative growth rate.

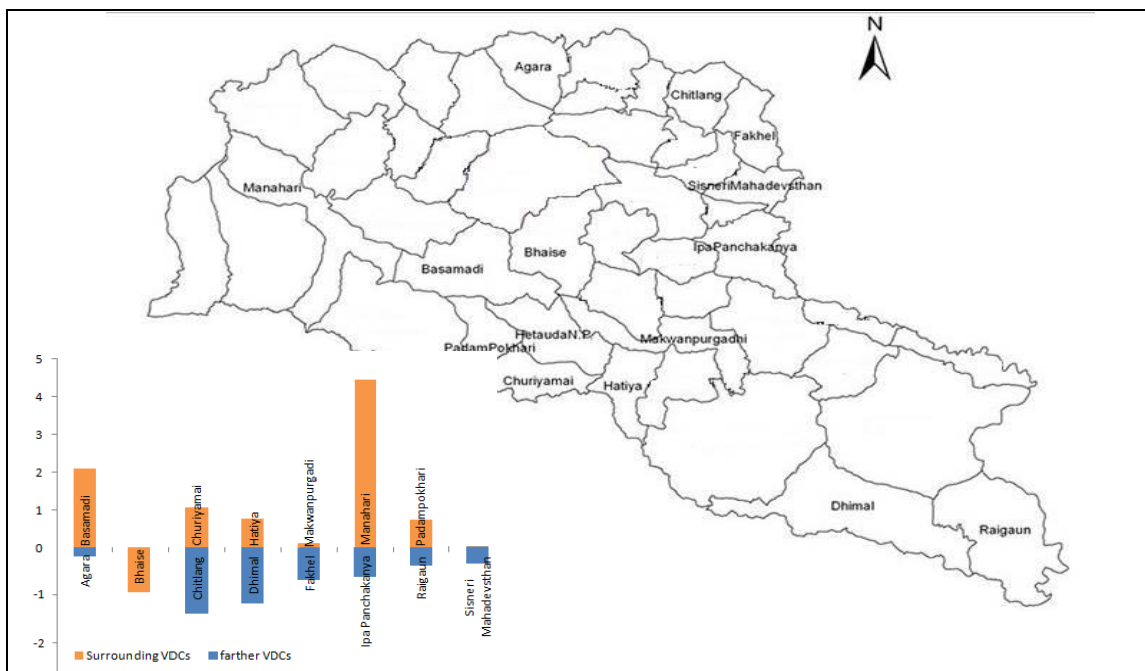


Fig 15: Population Growth Rate of Farther and Nearer VDCs

Similarly, the nearer VDCs have better condition of road infrastructure and education institute than the farther VDCs. Observation of VDCs shows that, VDCs surrounding Hetauda has high road density per sq. Km than the farther district and eastern VDCs. The reason could be that the developments of infrastructure have been influenced by urban center and national highway. Of 23 VDCs connected by all weather roads, 8 VDCs are around the Hetauda municipality and 15 VDCs is connected to national highway.

Makwanpur district avg. literacy rate is 67.85%, literacy rate of 2058 was 54.10%. There are total 597 schools of which 479 are primary level, 87 are secondary level and 31 are higher secondary level (district profile 2068).

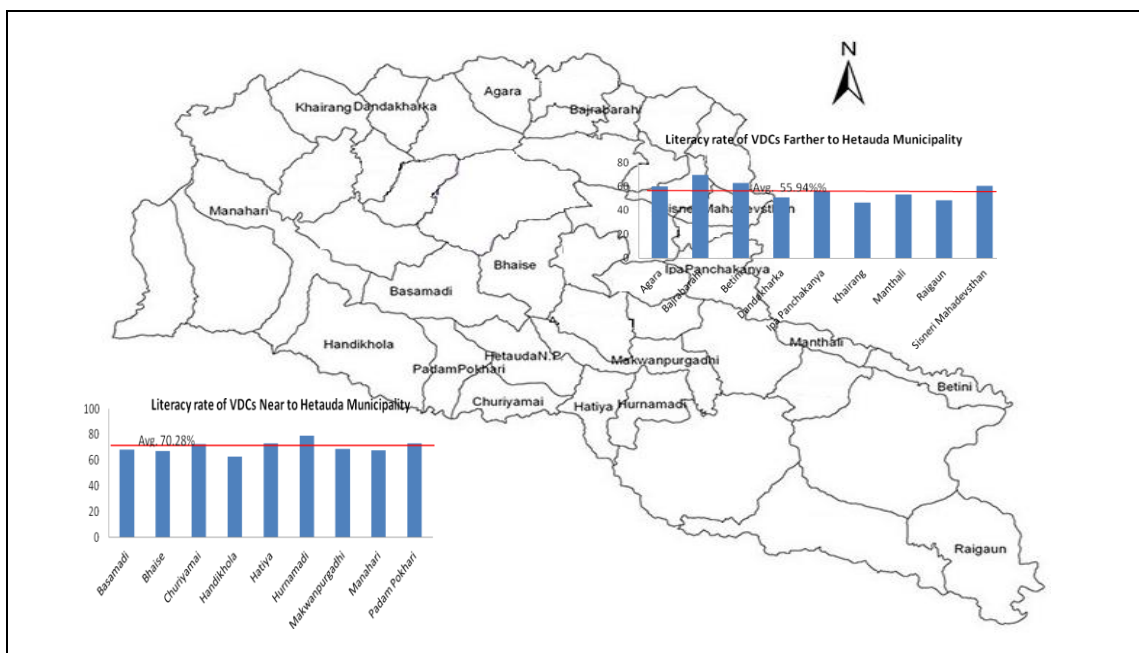


Fig 16: Literacy Rate Comparison

The educational institutes are concentrated in Hetauda municipality and nearby VDCs. 61 educational institute of which 10 are higher educational institute are in Hetauda. Of the total educational institute, 33% of primary, 54.02% of secondary and 74.19% of higher secondary educational institute is within the Hetauda municipality and surrounding VDCs (D.E.O, 2068).

Literacy rate of VDCs nearer to Hetauda municipality is above district average while VDCs farther have literacy rate below district average. Fig 16 shows difference between VDCs nearer and farther to Hetauda municipality which is almost 15%.

4.2. Role of Hetauda

4.2.1. Linkage

Linkage with Kathmandu valley, Bharatpur and Birgunj

Fourth Five Year Plan (1970-1975) has placed Hetauda, Kathmandu, Bharatpur and Birgunj and has identified these cities as growth center. The linkage between these center and Hetauda is analyzed due to; the proximity of these centers with Hetauda as

well as Kathmandu being the national capital and a major growth center and central place, Birgunj being a major border gateway town and Bharatpur is one of the fastest growing growth centers of country.

Table 14 Rank of Town

Census	1952/54	1961	1971	1981	1991	2001	2011
Town							
Kathmandu	1	1	1	1	1	1	1
Birgunj	5	7	11	7	5	5	6
Hetauda	-	-	9	10	11	12	12
Bharatpur	-	-	-	13	10	7	5

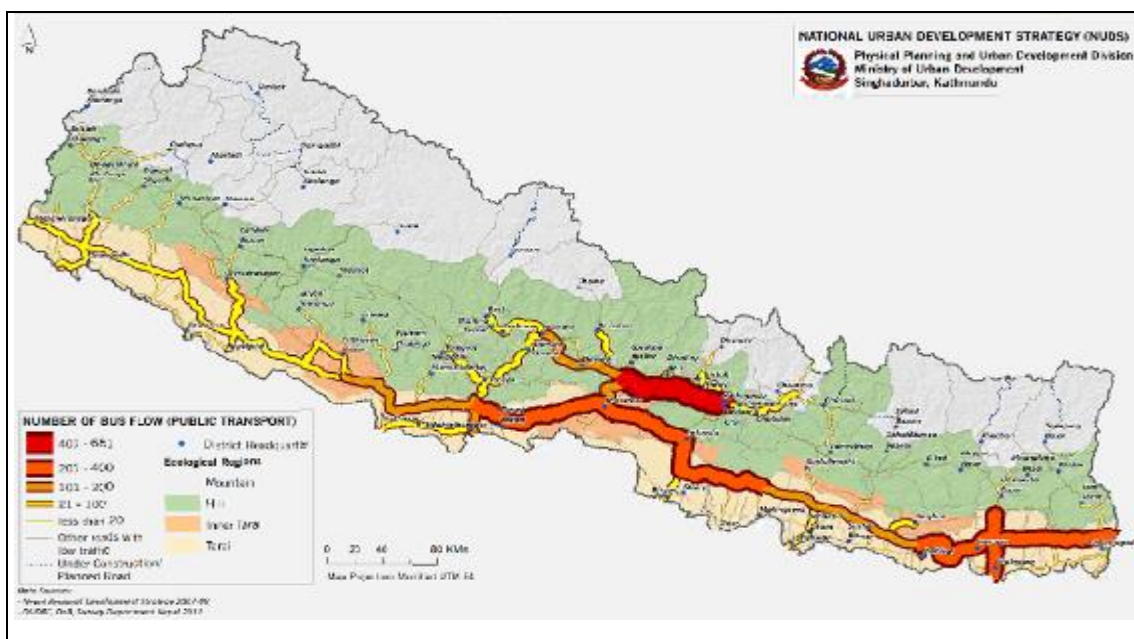
Source: CBS

Table 14 shows that Kathmandu has been dominated city since historical time to till date. Birgunj rank has been continuously changing, while Bharatpur rank has been continuously increasing. Hetauda rank has been continuously decreasing.

The rise of Bharatpur as an important and influential urban center has effected growth of Hetauda due to proximity to each other.

Physical linkage: Road and Airways

Hetauda is connected to all major cities of Nepal through Mahendra Highway and Tribhuvan Highway. Hetauda connects east part of country with west part and to the capital city. Birgunj, major border town and capital city is connected via Hetauda.



Source: NUDS

Fig 17: Bus Flow

Fig 17 shows the bus flow between different urban centers of Nepal. Urban centers of central development region are easily accessible to the people living in this region. Almost 200 to 400 numbers of public transportation passes through Hetauda which is either originated or end to capital city and either east or west part of country. Hetauda connects east part to west part of country.

Table 15 shows road distance between the four major cities in CDR. Hetauda is almost in center to other three towns. There is three alternative roads connecting Hetauda to Kathmandu but very low traffic flow in Tribhuvan highway due to width , gradientfac and sharp bend of road while Khulekhani Sisnari Pharping road is used for light vehicles movement only as the width and condition of road does not permit heavy vehicles.

Table 15: Distance between Towns

Town	Kathmandu (Km)		Bharatpur (Km)		Hetauda (Km)		Birgunj (Km)	
Kathmandu	0		144		221 ¹	104 ²	80 ³	277 ¹
Bharatpur	144		0		77			133
Hetauda	221 ¹	104 ²	80 ³	77	0			56
Birgunj	277 ¹	160 ²	136 ³	133	56			0

Source: DoR

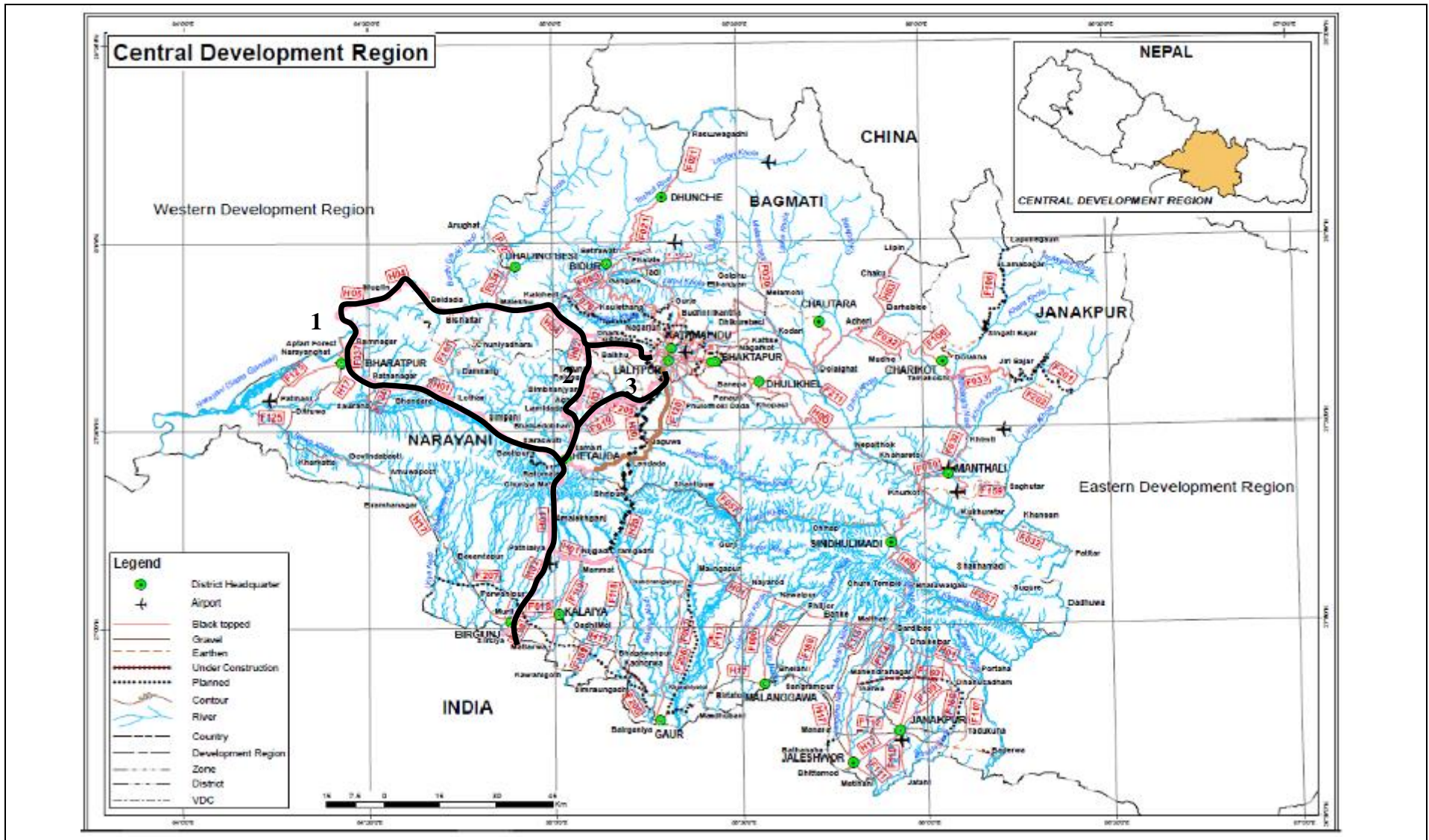
¹ Distance through Naryanghat-Mugling Highway

² Distance through Tribhuvan Highway

³ Distance through Khulekhani-Sisnari-Pharping road

At present, Naryanghat Mugling highway, Road network 1 is only option for transporting goods to/from capital city to/from other three cities. Shorter and faster access through Hetauda can improve the linkage between these cities and can improve vitality of Hetauda in the region as well as national economy.

Upgrading one of these or both roads can provide shorter and faster access to the capital city. Also, Hetauda is connected to Kathmandu by graveled seasonal road with length of 50.2 Km. Fast track road, 76 Km, connecting east part to capital city of country has been planned through market center Nijghad locating in east west highway, 50 Km from Hetauda. Hetauda has short and easy accessibility to Birgunj and Bharatpur.



Source: DOR

Fig 18 Road Linkage

Migration:

Almost half of the total population of Kathmandu metropolitan is comprise of migrants from other district, the proportion of migrants population of Bharatpur is greater than one third of town population. This shows that these two cities are major attraction due to their better infrastructure, facilities and services.

The population composition of the four cities is shown in Table 16; Migrants share in Hetauda's population is almost one third but a decade ago migrant share was only 15% (censes 2001). Most of migrants in Hetauda are originated from the neighboring Terai district. Birgunj has lowest migrants proportion among the four cities. Less than one tenth of city population share is contributed by migrants from other district.

Table 16. Migrant population

S.No.	Town	Population from Same District (%)	Migrants from other District (%)
1	Kathmandu	52.3	47.7
2	Bharatpur	57.0	43.0
3	Hetauda	70.2	29.8
4	Birgunj	92.2	7.8

Source: Censes 2011

The major destination of migrants originated from Hetauda is from Kathmandu valley comprising 55% and Bharatpur, another popular destination, 22 % of migrant. This can be due to proximity and better facilities available in these cities. (Hetauda Municipality City Profile).

Table 17 shows the major reason for migration to different urban centers. Reason of more than half of migrant from Hetauda to Kathmandu is business; education and employment are other major reason for migration.

Major reason of migration to Bharatpur from Hetauda is Health. Most of the migrant from Hetauda prefer Bharatpur for health than other cities.

Table 17: Migration Reason

S.N	Centre		Activity				
			Education	Health	Business	Employment	Others
1	Hetauda	Kathmandu	20.35	3.50	51.25	20.25	4.65
2		Bharatpur	15.50	57.5	12.25	8.55	6.20

Source: Survey of migrant

Major portion of population migrated to Hetauda is from nearby terai district, 75% of population migrated in 2001-11 census period is from Bara, Parsa, Sarlahi and Rautahat district. Majority migrants from these districts are Brahmin and Chhetri, 55%, followed by Newar, 18%, and remaining other caste. (Hetauda Municipality City Profile).

Economic Aspect

Regional Development Strategy, 2007 has placed Hetauda in Region 5 along with Bharatpur and Birgunj. The Strategy conceives Birgunj, Bharatpur and Hetauda as the economic centers of the region with Bharatpur-Hetauda and Pathliya -Birgunj-Kaliya as the growth axes.

This region is Nepal's Major industrial and trading center and also the transit corridor for international trade. Close proximity of major growth centers to Kathmandu and Birgunj (major growth center of Region) being a major gateway town, 50% of all international trade passes through this region, has made the region an important economic region of country.

Agriculture, trade and industry are important economic activities of the region which account for 15% of country's GDP. Over two fifth of the region's GDP share is governed by agriculture sector. Industrial base of the region accounts for 27% of national GDP and contributes highest share of manufacturing activities, 38% of total industrial value. (Choe & Pradhan, 2010)

Kathmandu valley contributes 20% in national GDP while total share of other urban area is only 9.7% (National Urban Development Strategy, 2015). Kathmandu valley accounts for 40 percent of the jobs created while Birgunj accounts for 15% of jobs generated in urban area (Nabil Bank Ltd., 2015).

Table 18 shows that in all four cities, high proportion of population is involved in tertiary sector with almost 86% of total economically active population of Kathmandu being involved in tertiary sector followed by Birgunj, Bharatpur and Hetauda.

Table 18. Population distribution in Economic Sector

Town	Economically Active Population	Population in Primary Sector	Population in Secondary Sector	Population in Tertiary Sector
Kathmandu	359008	7978	45505	305525
Bharatpur	49474	9822	6014	33638
Hetauda	32136	6871	4695	20570
Birgunj	35744	3718	5319	26707

Source: Censuses 2011

Birgunj (15%) had highest population percentage involve in industrial sector followed by Hetauda, Kathmandu and Bharatpur while high percentage of Hetauda (22%) population is involved in agriculture followed by Bharatpur, Birgunj and Kathmandu. Only 2.5% of Kathmandu population is dependent in agriculture.

The flow of trade; commodity between Hetauda, Bharatpur, Kathmandu and Birgunj. Flow of trade between Hetauda, Bharatpur and Birgunj is in range of 1 to 10 billion between each other while between Birgunj and Kathmandu is above 10 billion. (National Urban Development Strategy , 2015).

Table 19. Major Centre supplying Good

S. No.	Name of Centers	Good Supply (%)		Remarks
		1998	2011	
1	Birgunj	28.70	30.35	
2	Kathmandu	28.11	33.45	
3	Biratnagar	13.10	-	
4	India	10.36	18.56	
5	Bharatpur	3.55	10.30	Mainly Agro-products
6	Others	16.18	7.34	

Source: RUPP 1998, MCCI 2011

Majority of merchandise goods supplied to Hetauda is from Birgunj and Kathmandu. Table 19 shows that share of Birgunj and Kathmandu in supply of good had more than half in 1998 which has increased to two third. Bahratpur mainly supply agro products to Hetauda.

Table 20 shows that most of the commodities and goods are supplied to Hetauda from Kahtmandu, Birgunj and Indian cities. Hetauda recives all its goods either from a single centre or in a combination of two centres. Mostly agro products are received from Bharatpur.

Table 20 Goods Supplied by major Centers

S.N.	Supply Centre	Materials
1	Kathmandu	Seeds, pesticides, Ayurvedic medicine, stationery, shoes, film album, readymade garments, Chinese clothing, watch, gold, silver, electronic goods
2	Birgunj	Seeds, agro-vets, shoes, stationery, Kirana goods, drugs, sanitary ware, Ayurvedic medicine, oil, spices, paint, pipe fitting, tobacco, pulses, polythene, plywood, glue, electric fittings, hardware, floor, glass, Pulse, Fruits
3	Bharatpur	Rice, beaten rice, vegetable, fruits, flooring.
4	India	Clothes, medicines, stationery, hardware, glassware, kitchenware, Industry raw materials, watches, motor parts, electric-ware, fruits, cosmetics, medicines, machinery parts, Kirin goods, foot-wares, bags, construction materials, oven, refrigerators, cupboard, agora-vets.

Source: RUPP 1998, MCCI, CSIO

Table 21 shows Hetauda Industrial Estate products are supplied to Kathmandu, Birgunj and Bharatpur. Major portion of goods from the industrial estate are consumed by these three cities.

Table 21: Goods supplied by Hetauda

Origin	Destination	Goods
Hetauda	Kathmandu	Panel Board, Transformer, Paints, Cement, Cast Iron
	Birgunj	Leather, Plastic goods, HDPE pipe, Biscuits, Cement, Cement Block and Pole, Hump Pipe, Furniture, Treated wood, Noodles
	Bharatpur	Gas cylinder, Plastic goods, HDPE pipe, Stone dust, Cigarettes, Cement, Cement Block and Pole, Hump pipe, Animal feed
	India	Leather, Treated wood

Source: HIAML

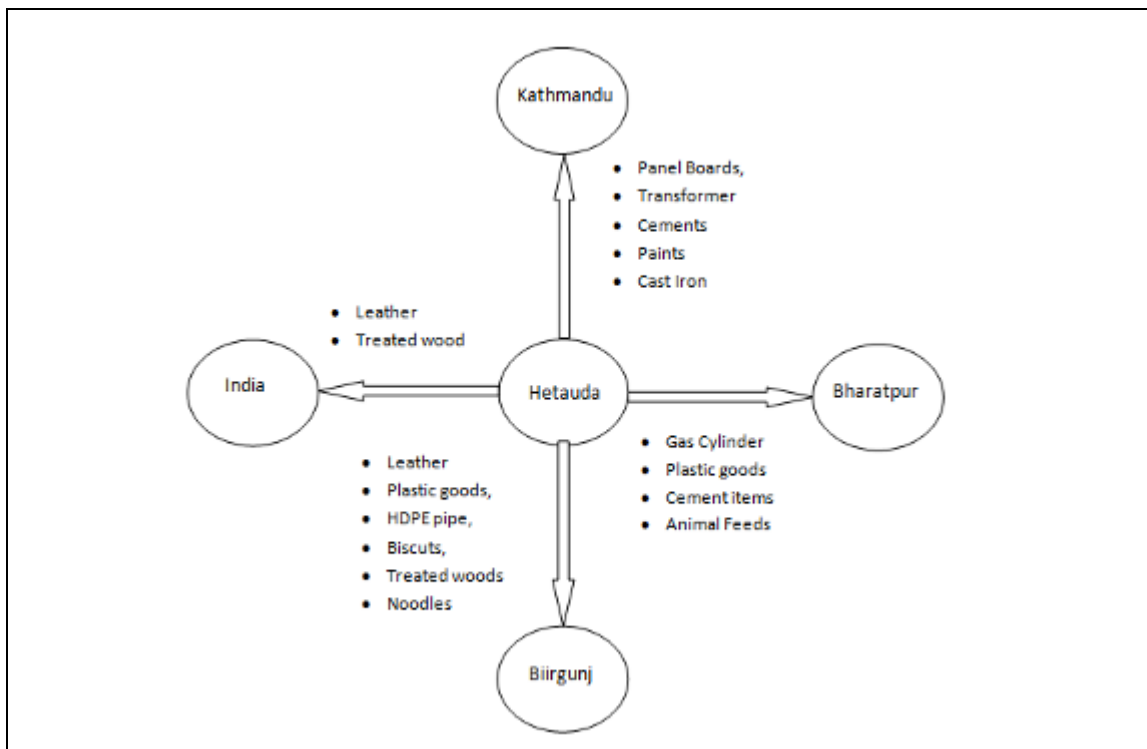


Fig 19 Export from Hetauda

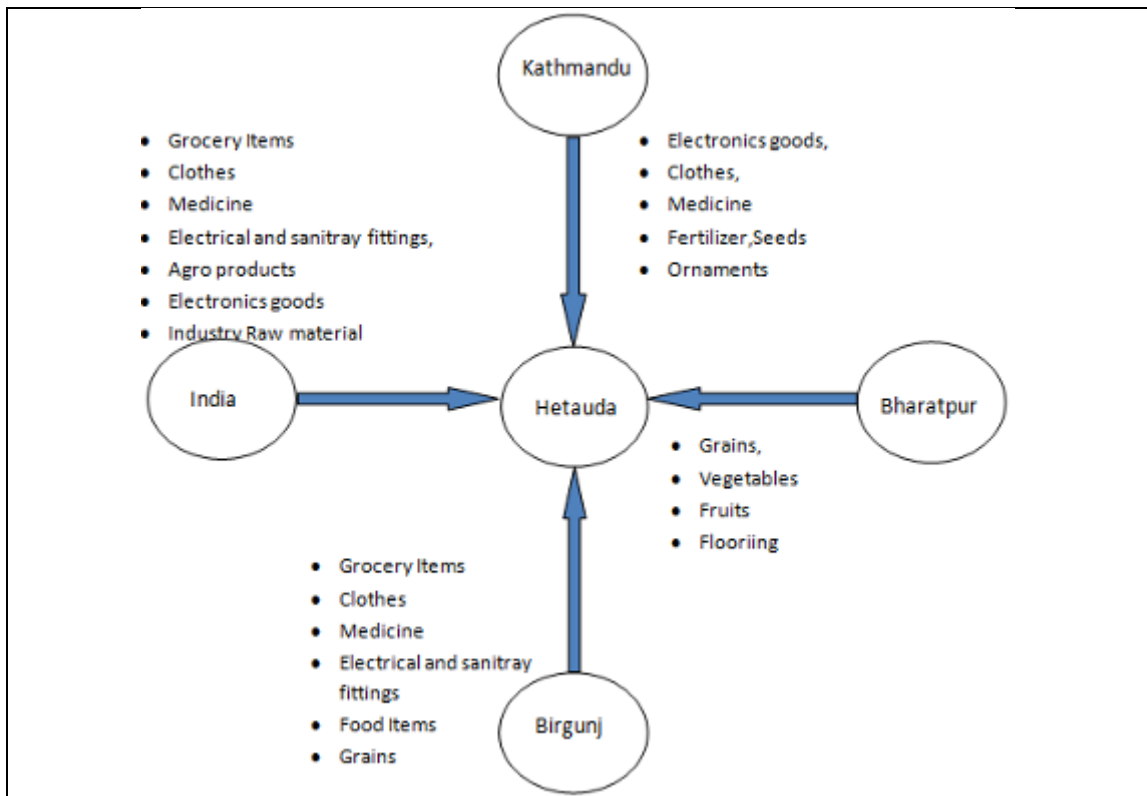


Fig 20 Import to Hetauda

4.2.2. Linkage Within Makwanpur District

Makwanpur is a hill district of Nepal. The district is surrounded by Kathmandu and Dhading districts at north, Chitwan district at west, Lalitpur, Kavre and Sindhuli districts at east and Bara, Parsa and Rautahat districts in the south. The district encompasses 2426 sq. Km (1.26% of Nepal area) hill and plain lands. There are 5 Rivers and 41 Streams/Kholas. Some major rivers are; Rapti Khola, Bagmati River, Manahari khola, Lothar khola and Bakaiya Khola.

Makwanpur district is located at 27°10' - 27°40' latitude and 84° 41' - 85°31' longitudes, altitude vary from 166 m to 2584 m from MSL. 59 % of district area is covered by Shiwalik –Chure Mountain rang while 41% is covered by mid hill. One fourth of total area of district has slope of 5°, south of district and some portion of north has slope of 20° and half of total area has 30° slope which lies in north of district (DDC, Makwanpur).

Geopolitically, Makwanpur is in Central Development region and Narayani zone the district is administratively divided into 4 Electoral constituencies 13 Illakas which consist of 43 VDCs and one municipality (Censes 2011). Each VDC is divided into 9 wards while Hetauda Municipality is divided into 11 wards.

Physical Linkage: Road Transportation

Makwanpur district does not have air transportation. It is dependent on Bharatpur (Chitwan) and Simaraa (Bara) for air transportation. Road transportation is only means of mobility within and inter-district mobility.

The total length of National Highway and Feeder road network in Makwanpur district is 335.14 Km, population influence per km road is 1276 and density of road is 14 Km per 100 sq. Km. Of the total road 193.67 Km is black topped, 100.77 Km is gravelled and 40.70 Km is earthen road. 139.97 Km road within district is National Highway, 171.17 Km road is Feeder Road Network, major and 24 Km road is Feeder Road Network, minor (SRNN 2013/14).

The total length of district road in Makwanpur district is 746.17 km. District road had been classified into A and B on the basis of enroute market grade connection to VDCs/ service centers, linkage to strategic roads, connection to major growth centers

or connection of VDCs with district headquarter. 14 district roads have been classified as A with total length of 250.92Km. 23 district roads has been classified as B with total length of 243.35 Km. 68 roads have been classified as rural road with length of 251.9 Km. Length of urban road within the district is 222.9 Km.

The 23 VDCs/ municipality connected with all weathered road are Churiyamai, Padampokhari, Basamadi, Manhari, Bhainse, Namtar, Daman, Palung, Gogene, Tistung, Bajrabarahi, Chitlang, Markhu, Kulekhani, Fakhel, Sisneri, Bhimpheedi, Nibuwotar, Aambhanjang, Makwanpurgadhi, Thingan, Hatiya and Harnamadi.

18 VDCs Agara, Betini, Budhichaur, Dandakharka, Dhiyal, Faparbari, Handikhola, Ipa Panchakanya, Kalikata, Kankada, Kogate, Manthali, Raigaun, Raksirang, Shreepur Chhatiwan, Sukaura, Thingan and Tistung Deurali has seasonal road services, Kankda and Khairang are two VDCs with no road connection.

National Transport Policy has considered 4 hrs walking distance as the zone of influence (ZoI) for the hilly terrain. Mainly influencing factors such as a) the degree of hill slope, b) existence of rivers and c) existence of river crossing were used in determining the ZoI. The zone of influence area is determined by two ways concerning the road facility viz. all weather and fair weather service.

Table 22 Strategic Road Network wrt Area Coverage, and Population Coverage

Walking Time	Population	Pop. %	Area Coverage	Area %
20 Mins	159398	37	323	13
2 Hrs	146793	34	787	32
4 Hrs	64210	15	587	24
Total	370401	86	1697	69

Source: DTMP 2067/68

From the accessibility analysis, Table 22 and Table 23 shows that approximately 86% of people and 69% of the areas coverage are within ZoI for strategic road network. Similarly, 92% of the areas coverage and 97 % of people are within ZoI for strategic and district road networks. This indicates that at present existing road networks cover almost all areas and population accessible to motor able roads.

However, there are still some area and population mainly of western part of district to be linked by new motor able road network.

**Table 23 Strategic and District Road Network
with respect to Area Coverage, and Population Coverage**

Walking Time	Population	Pop. %	Area Coverage	Area %
20 mins	248356	57	669	27
2 Hrs	145231	33	1194	49
4 Hrs	29879	7	400	16
Total	423466	97	2263	92

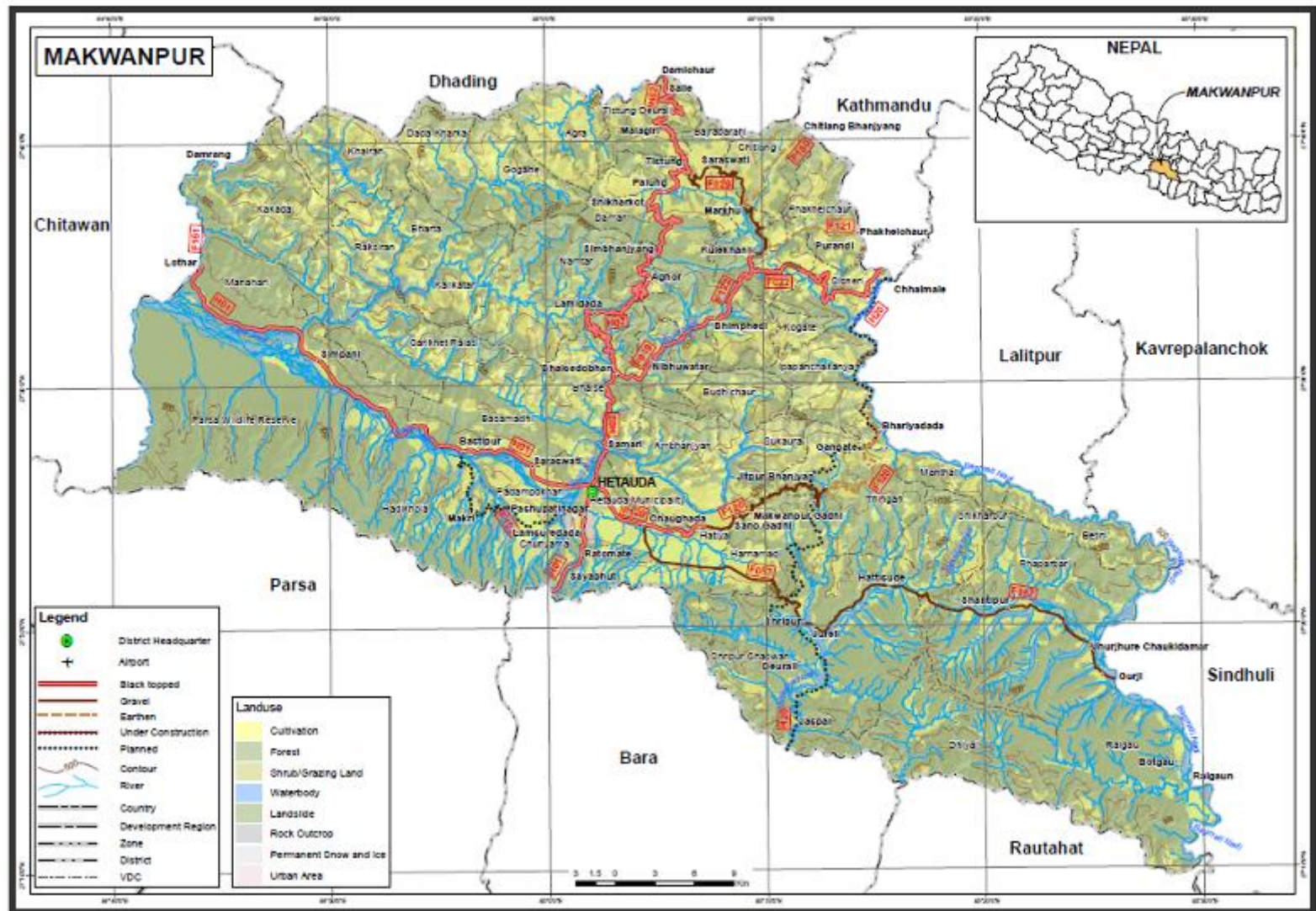
Source: DTMP 2067/68

Table 24 shows that 57% of total population is within 20 mins walking distance from SRN and DRN while only 7% of total population has to walk 4 Hrs. This shows that most of the rural area is connected to Hetauda through road. The entire market centers of Makwanpur district have road connection with Hetauda municipality.

Table 24 Road Network Of Makwanpur District

S.N`	Name of Road	Class	Bitumen	Gravel	Earthen	Total
1	Chure –Ratamate	NH	4.39			4.39
2	Ratamate-Hetauda	NH	5.34			5.34
3	Hetauda -Swarshwati Khola	NH	5.38			5.38
4	Sarshwati Khola-Lothar	NH	35.47			35.47
5	Hetauda-Samari	NH	3.31			3.31
6	Samari –Bhainse	NH	7.90			7.90
7	Bhainse-Lamidanda	NH	18.11			18.11
8	Lamidanda-Simbhanjyang	NH	22.65			22.65
9	Simbhanjyang-Palung	NH	14.84			14.84
10	Palung –Tistung	NH	4.78			4.78
11	Tistung-Sopyarg	NH	17.80			17.80
13	Bhaise-Bhimpheedi	FRN	12.00			12.00
14	Palung-Kulekhani	FRN		20.57		20.57
15	Chhaimale-Kulekhani	FRN	13.20			13.20
16	Gurji-Hetauda	FRN		61.20		61.20
17	Hetauda-Makwanpur Gadai	FRN	13.50	4.00		17.50
18	Makwanpur Bandhi-Bagmati	FRN		15.00	17.70	32.70
19	Pakhelchaur-Kulekhani	FRN			9.00	9.00
20	Bhimpheedi-Kulekhani	FRN	15.00			15.00
22	Chitlang-Bhanjyang- Chandragadhi-Markhu	FRN			14.00	14.00

Source:SRNN-2013/14



Source: DOR

Fig 21 Road Network: SRN

Analysis of Sample Customer Survey

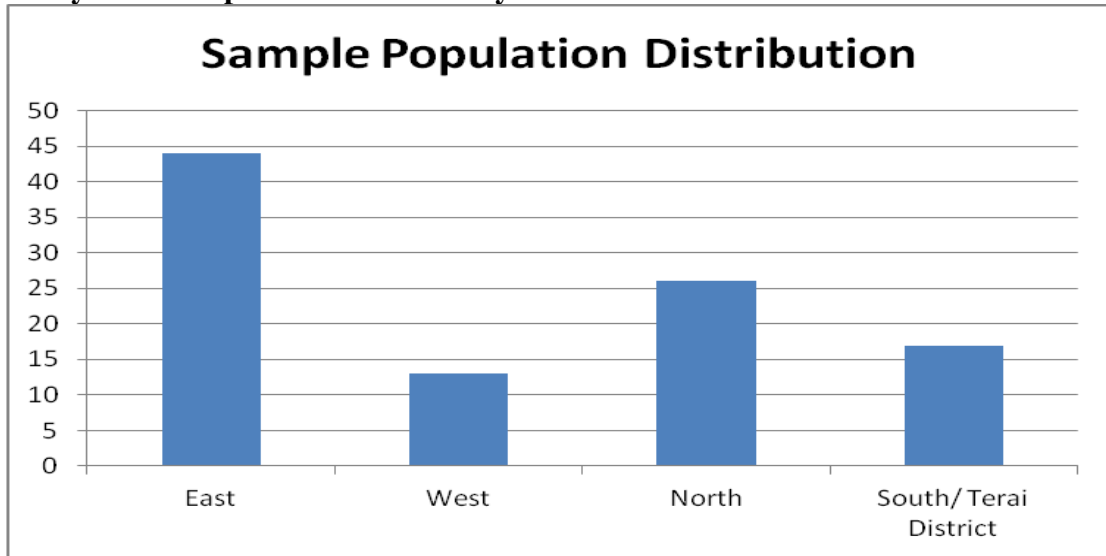


Chart 8 Sample Population Distribution

Distribution of sample population shows that most people are from the East part of the district, almost 45%, 26% of sample population were from North part of district, 17% were from South and 13% were from west part of district/ nearby Terai district.

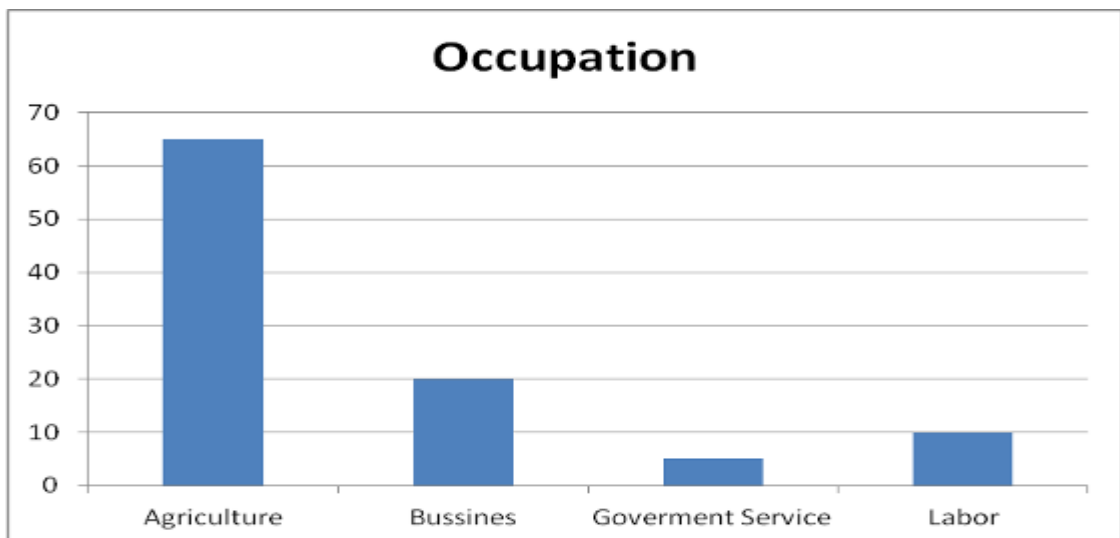


Chart 9 Occupation of sample population

As East part of district has less number of higher hierarchy market centre of same as well as neighbours district thus dependency of population in Hetauda is higher, North part is major agriculture centre of the district hence people visit Hetauda for trade, in case of west and south part of district, Bharatpur and Birgunj is another important market center hence dependency is lower than other part of district.

Most of people in sample survey have agriculture, 65%, as major occupation, business is another major occupation, 20%, almost one third of major occupation of district, 10% were labor and only 5% were on government services. As Makwanpur is agriculture district, the sample survey reflects it.

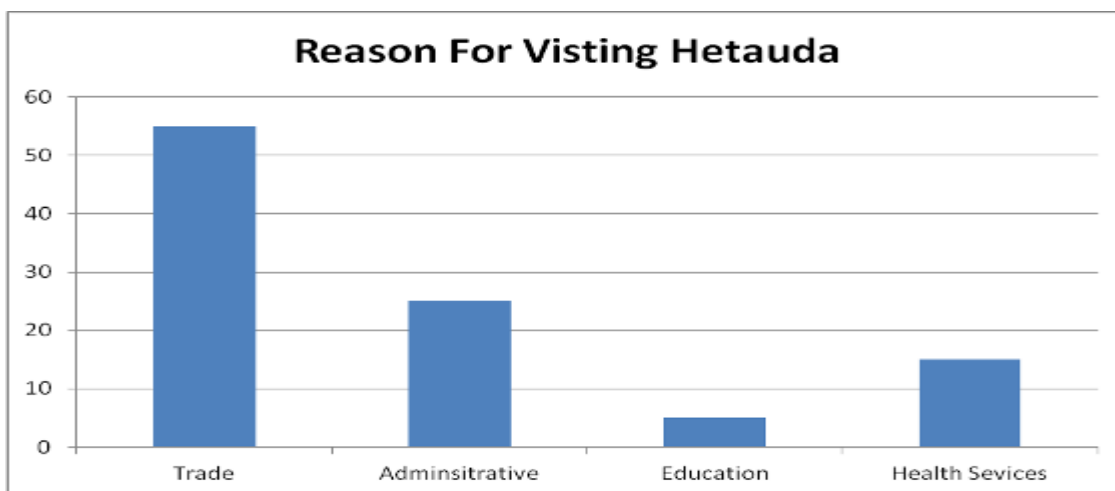


Chart 10 Reasons for Visiting Hetauda

55% of sample populations have visited Hetauda for trade, either selling their products or buying materials of daily uses. 25% of sample populations have visited Hetauda for administrative reason, 15% for Health services and 5% with purpose of education.

The sample survey shows that people of VDCs nearer to Hetauda municipality 53.57% visited Hetauda for trade, while 19.64% for Health, 17.86% for Administrative and only 8.93% for education. While administrative was major reason of visiting Hetauda for people of farther VDCs, 80%&20% visited for doing business.

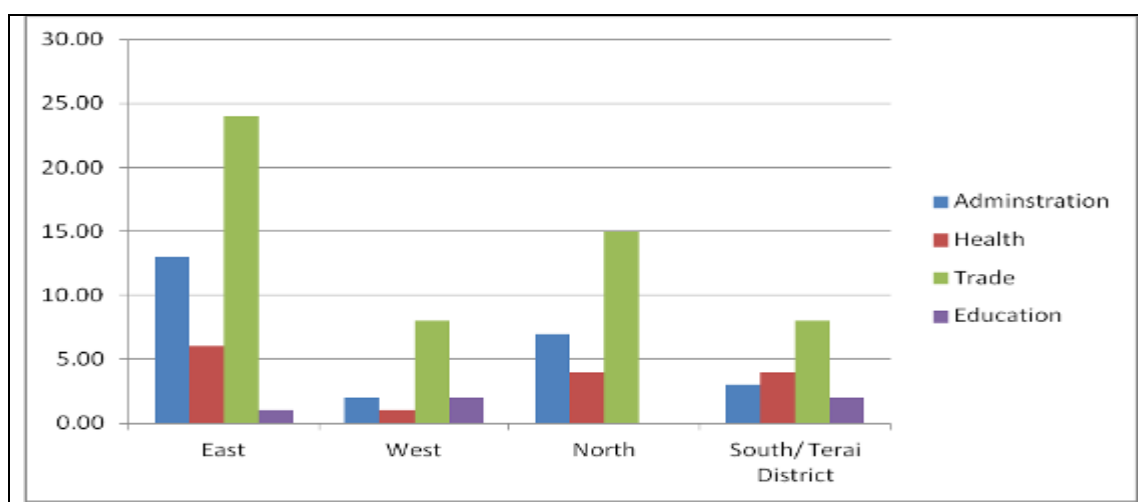
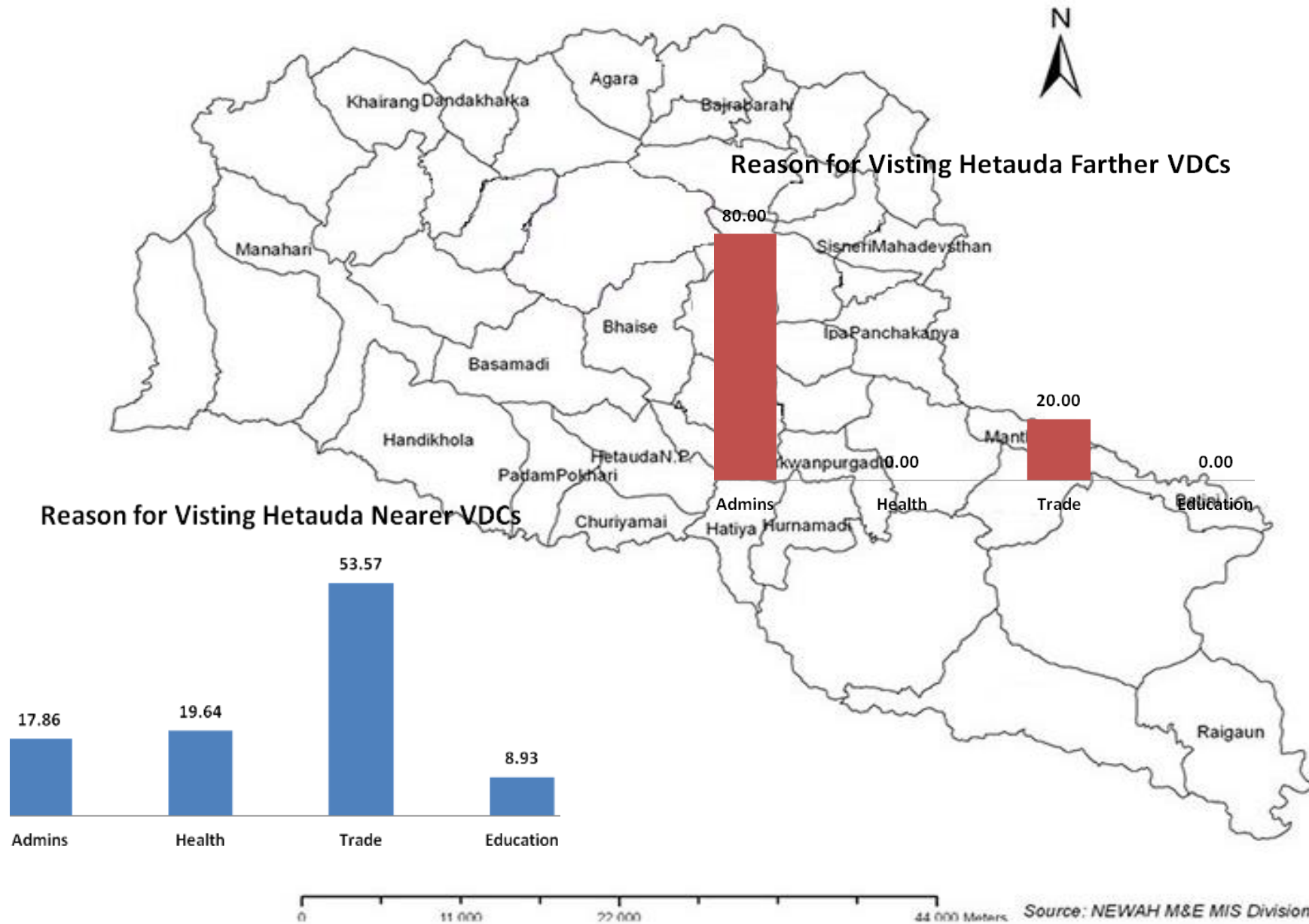


Chart 11 Origin and Purpose of visit



Major reason of all part of district to visit Hetauda is trade and administration. South part of sample population second choice of visit of Hetauda is health, this could be due to the inclusion of people from nearby Terai district while west part of district sample population has health as fourth choice, which is obvious as better health facilities are available in Bharatpur which is close to west part of district.

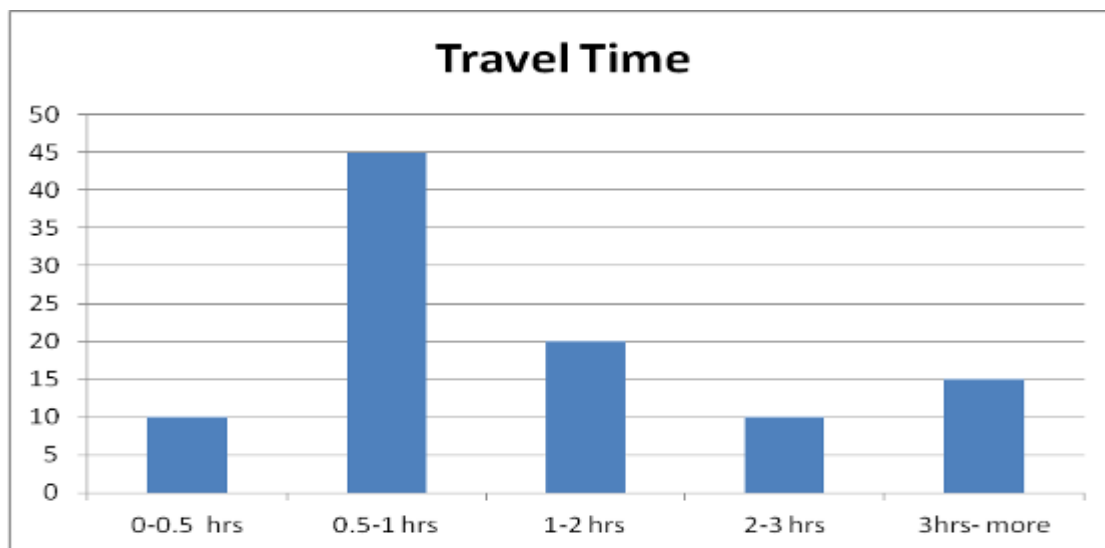


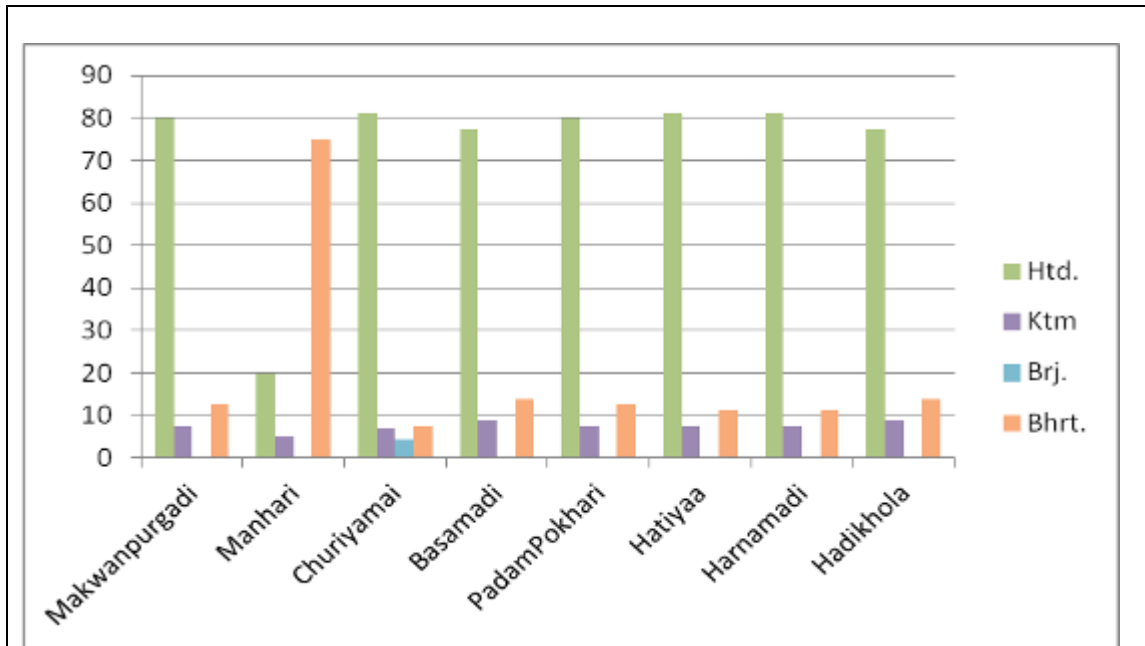
Chart 12 Travel Time

45% of sample population has travelled for half to one hour to reach Hetauda, 20% has travelled for 1-2 hrs, 15% for 3hrs or more, 10% for 2-3hrs and 15% up to three hours and more. 90% of sample population uses motor vehicles to reach Hetauda. 10 % sample population whose mode of transportation by foot are from nearby area most of whose travel time is 0-30 minutes.

56% of total customer are originated from the 9 VDCs, surrounding the Hetauda municipality while 44% are from remaining 35 VDCs. This shows that Hetauda municipality has better linkage with nearer VDCs.

Socio-Economic Linkage

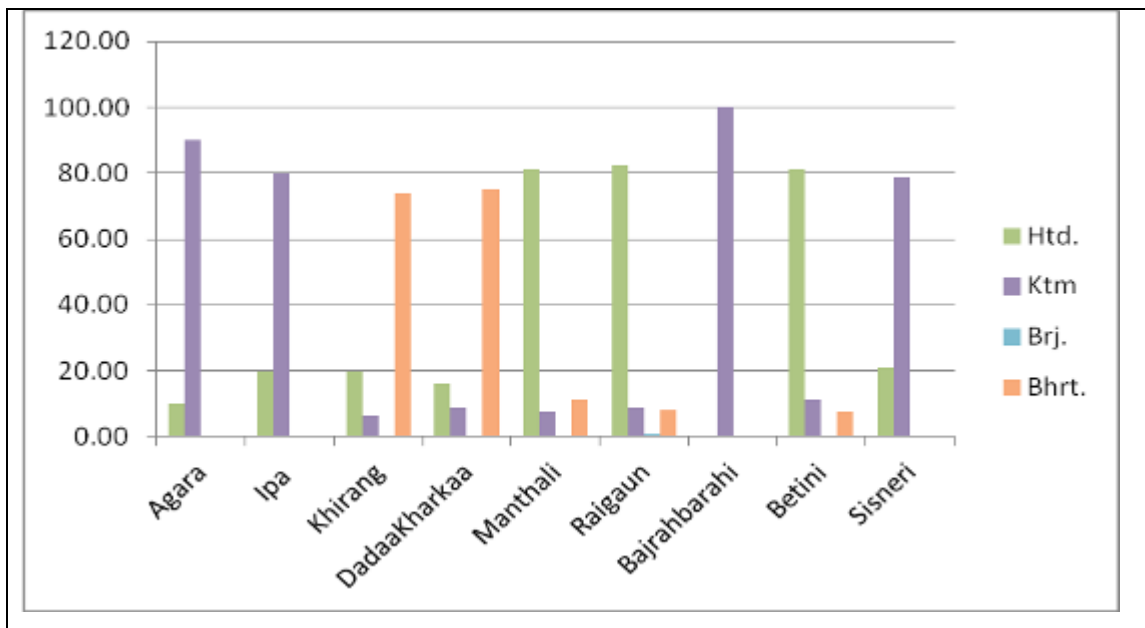
Education and Health



Source: Primary Survey

Chart 13 Education Inter linkage of Nearer VDCs

Chart 13 shows the linkage of near VDCs and Hetauda municipality. Except Manhari all other VDCs is dependent on Hetauda for education. Manhari VDCs prefer Bharatpur for higher education as it is nearer and has better educational infrastructure.



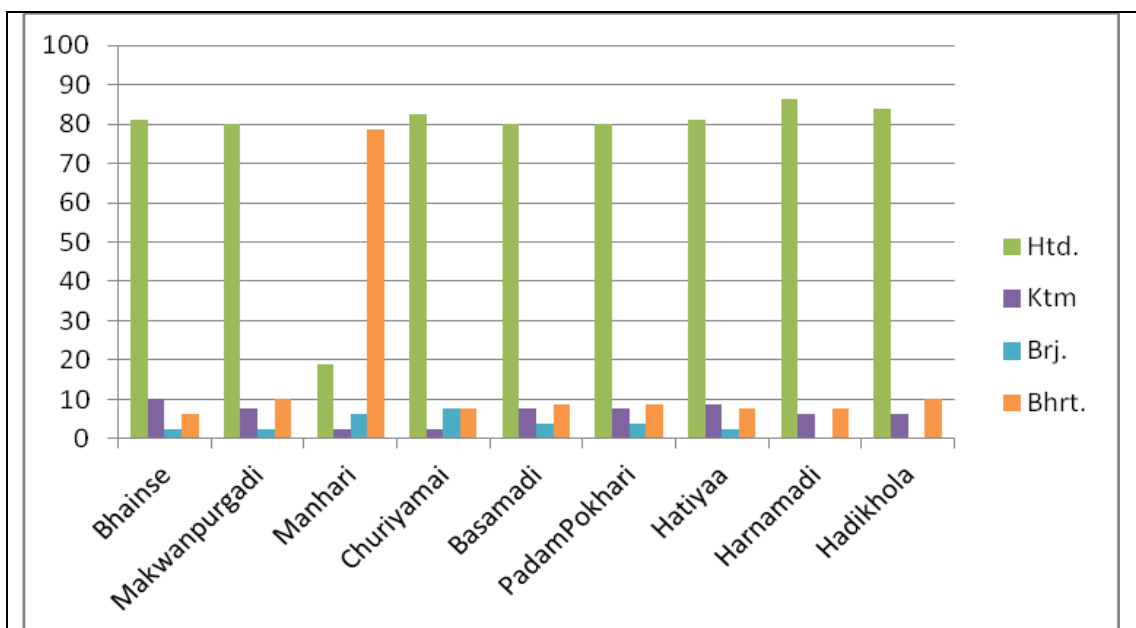
Source: Primary Survey

Chart 14 Education Inter linkage of Farther VDCs

Chart 14 shows linkage of farther VDCs with Hetauda. The dependency of farther VDCs varies with presence of other growth center. The north side VDCs is dependent on Kathmandu than Hetauda for higher education similarly the west side VDCs is dependent on Bharatpur for higher education due to better education facilities and proximity. VDCs of east part are dependent on Hetauda for higher education though the time to reach Hetauda is comparatively more than other nearer market center.

Linkage of Hetauda with VDCs in term of Health follows the pattern of educational linkage.

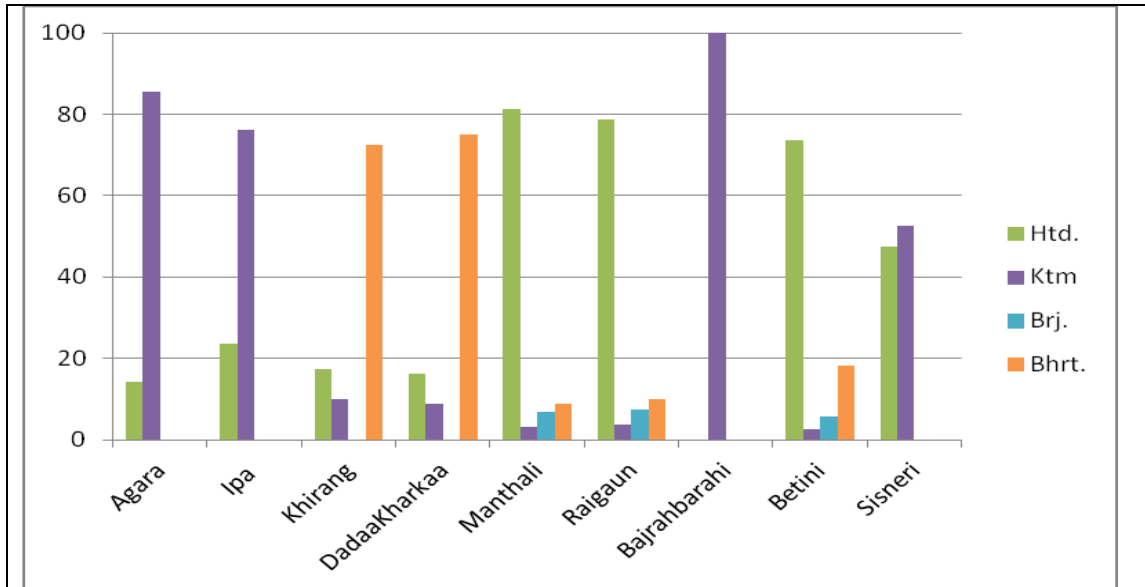
Chart 15 shows the linkage of near VDCs and Hetauda municipality. Except Manhari all other VDCs is dependent on Hetauda for Health. Manhari VDCs prefer Bharatpur for higher level health facilities as it is nearer and has better health infrastructure.



Source: Primary Survey

Chart 15 Health Inter linkage of Nearer VDCs

Chart 16 shows linkage of farther VDCs with Hetauda. The dependency of farther VDCs varies with presence of other growth center. The north side VDCs is dependent on Kathmandu than Hetauda for health , Bajrabarahi VDC is fully dependent on Kathmandu similarly the west side VDCs is dependent on Bharatpur for health due to better facilities and proximity. VDCs of east part are dependent on Hetauda for health though the time to reach Hetauda is comparatively more than other nearer market center due to better infrastructure.



Source: Primary Survey

Chart 16 Health Inter linkage of Farther VDCs

Trade

The type of produce which are brought for selling in Hetauda town includes primarily agriculture and livestock based production items, such as food-grains, milk products, fruits and vegetables, poultry and live stocks. These are all agro-based as the district is preponderantly made up of hills and agriculture is being the mainstay of the majority of people.

In terms of frequency, grains, vegetables, fruits and livestock are important selling products. Of these, grains alone accounted for about one-third of the total number of households selling the products. Vegetable is next important item. Fruits and livestock follow vegetables (Hetauda Market Zone Delineation).

Table 25 shows the major products and its origin which Hetauda as a market centre consume from the rural hinterland. Hetauda not only consume the rural production but also act as transit station from where these products are supplied to other cities of country.

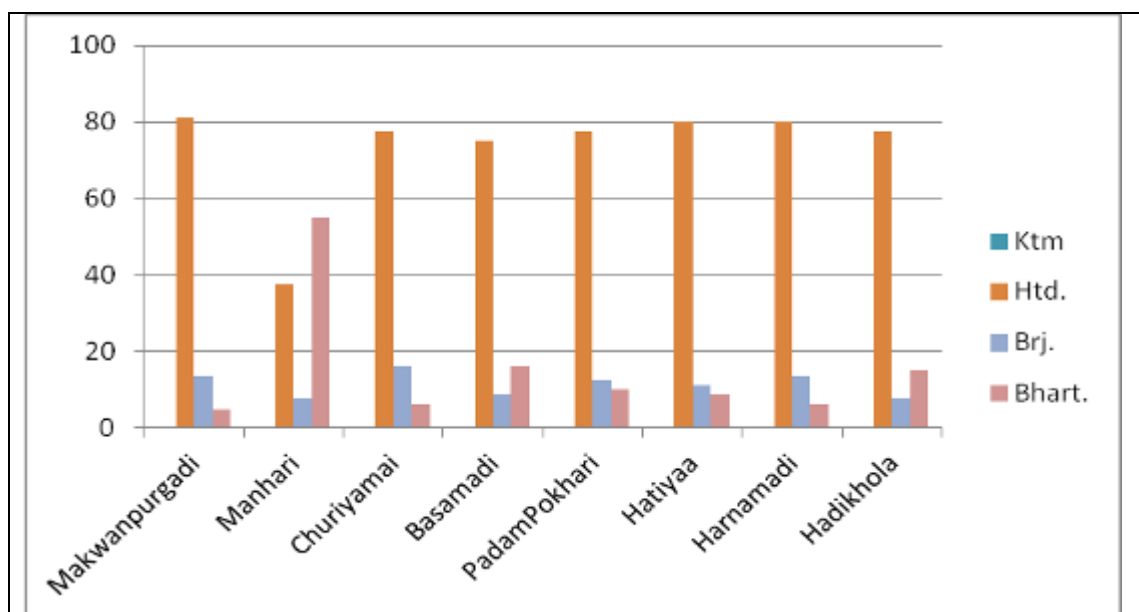
Mostly surrounding VDCs supply their products to Hetauda rather than other market centres. Grain, Fruits, vegetables and livestock are major products exported to Hetauda by nearer VDCs. Farther VDCs from east of district is more dependent on Hetauda, these VDCs mainly supply, NTFP (Non Timber Forest Products), livestock and grain.

Table 25 Export Items from VDCs to Hetauda

Description	Near VDCs	Farther VDCs	Remarks
Grain	Manhari, Basamadi, ,Hatiya, Harnamadi, Makawanpurgadhi Handikhola	Raigaun, Beitinui, Sisneri, Manthali	Paddy, Wheat, Maize, Millet, Legumes, Oil seeds
Fruits	Bhainse, Hatiya, Harnamadi, Makawanpurgadhi, Handikhola	Sisneri, Ipa, Bajrarahai	Orange, lemon, Lichi, Gauva, Pineapple, Banana
Vegetables	Manhari, Basamadi, Hatiya, Harnamadi, Makawanpurgadhi, Handikhola	Bajrarahai, Sisneri, Agaara, Raigaun, Beitini, Manthali, Ipa	Cauliflower, potato, Cabbage etc
NTFP	Makwanpurgadhi, Bhainse, Churiyamai, Padampokhari.	Raigaun, Beitini, Sisneri, Ipa, Manthali	Kurilo, Mentha, Chamomile, Pamarosa, Sarpagandha
Livestock	Harnamadi, Hatiya, Makawanpurgadhi, Churiyamai	Raigaun, Manthali, Beitini, Ipa	Goat, pig, Poultray, Fish, Silk Warm, Buffalo

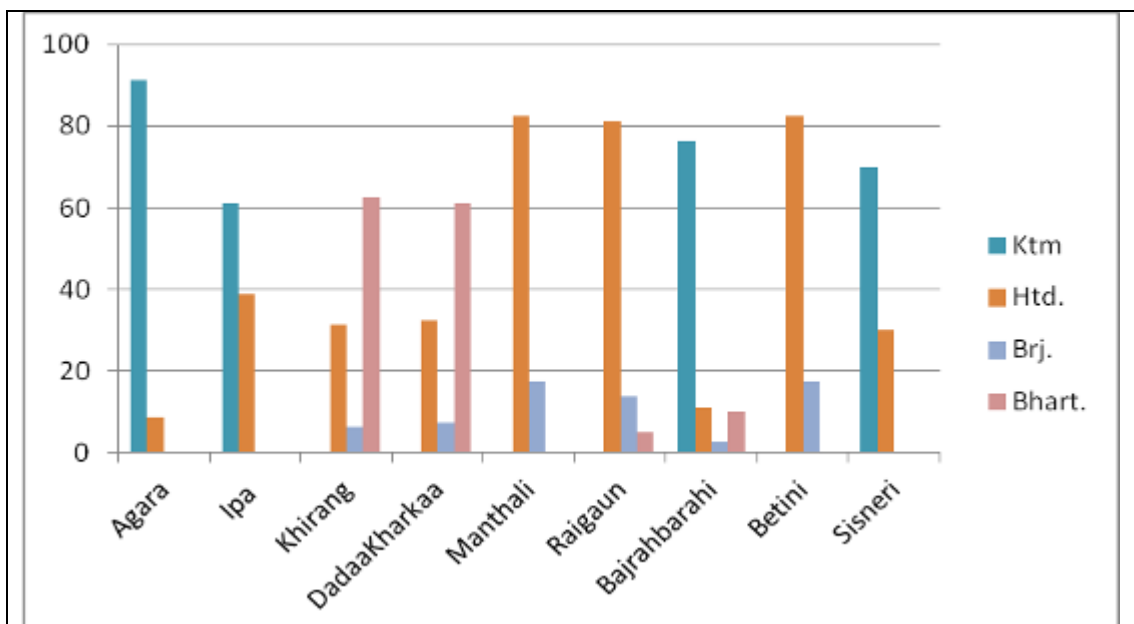
Source: Primary Survey

Chart 17 shows nearer VDCs export its agro product mainly to Hetauda. Except Manhari all other VDCs, their main export centre is Hetauda. Manhari VDCs prefer Bharatpur for export of agro- product.



Source: Primary Survey

Chart 17 Exports from Nearer VDCs



Source: Primary Survey

Chart 18 Export from farther VDCs

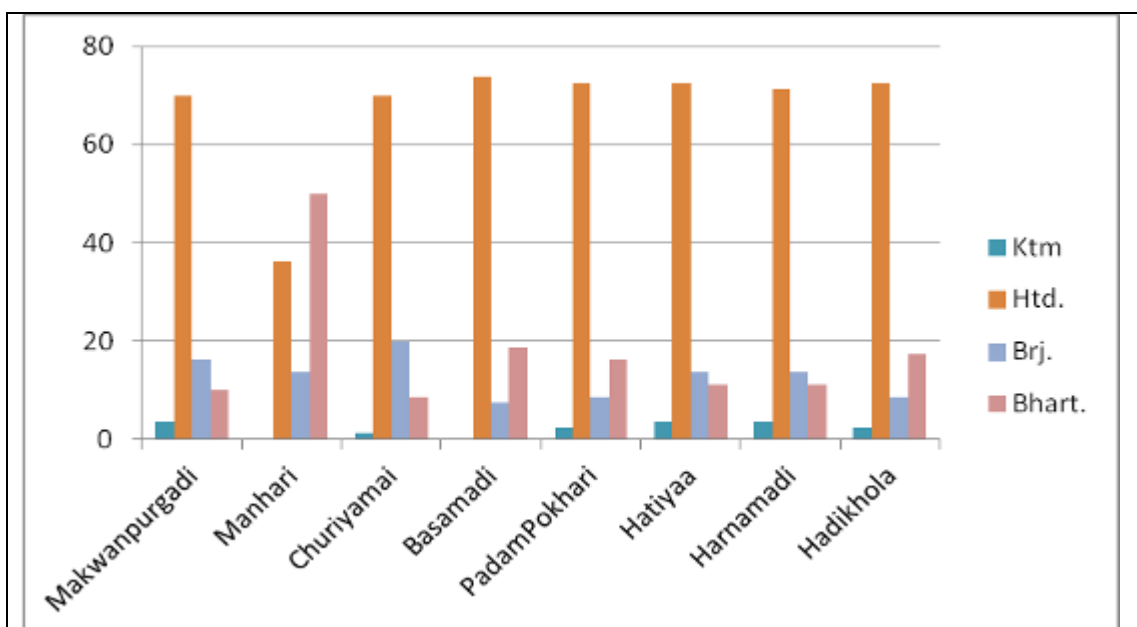
Chart 18 shows export from farther VDCs with Hetauda. Export of farther VDCs depend on proximity of other growth centre, North and West farther VDCs has low export to Hetauda than the VDCs from east part of district. This is due to proximity of growth centre in west and north rather than east side.

Table 26 Import of VDCs from Hetauda

Description	Near VDCs	Farther VDCs	Remarks
Household Items			
Groceries / Clothes	Manhari, Basamadi,		
Construction Material	Hatiya, Harnamadi, Makawanpurgadhi,	Raigaun, Sisneri,	
Medicine/ Stationary	Handikhola, Bhainse,	Manthali, Beitini,	
Jewelry	Churiyamai, PadamPokari	Raigaun, Ipa	
Pesticides			
Petroleum Products			

Source: Primary Survey

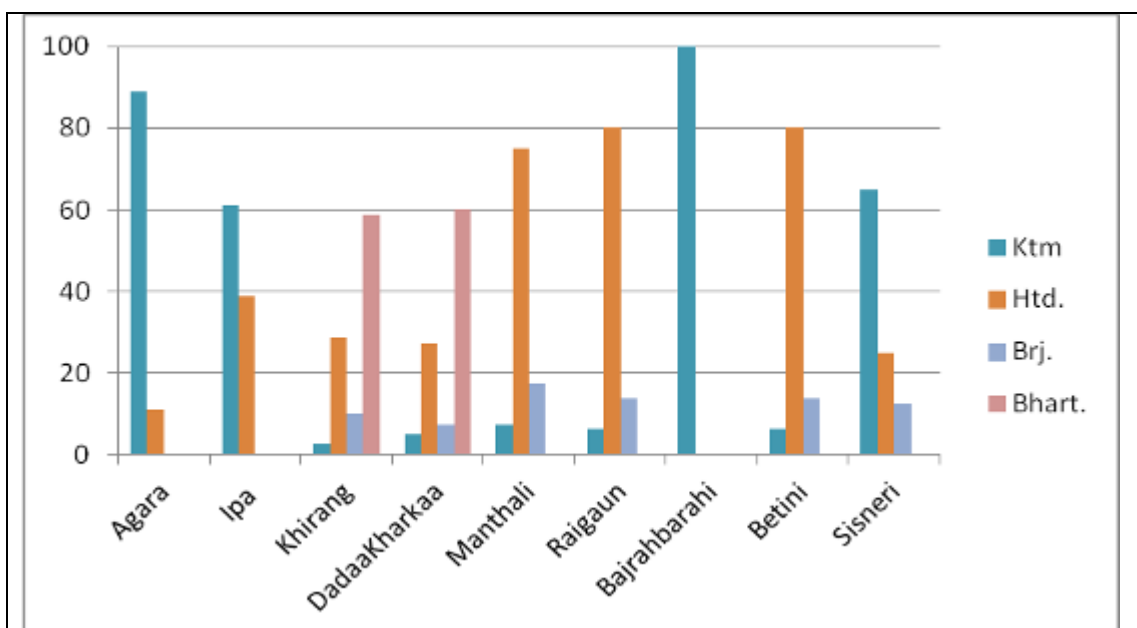
Table 26 shows the import of VDCs from Hetauda. All the surrounding VDCs prefer to import required material from Hetauda while VDCs from east side are more dependent on Hetauda for import of required materials.



Source: Primary Survey

Chart 19 Import of Nearer VDCs

Chart 19 and Chart 20 the dependency of nearer and farther VDCs for import of materials from Hetauda. Nearer VDCs are largely dependent on Hetauda for import while farther VDCs of east part of district are more dependent on Hetauda than west and north VDCs as other growth centre, Kathmandu and Bharatpur are at close distance.



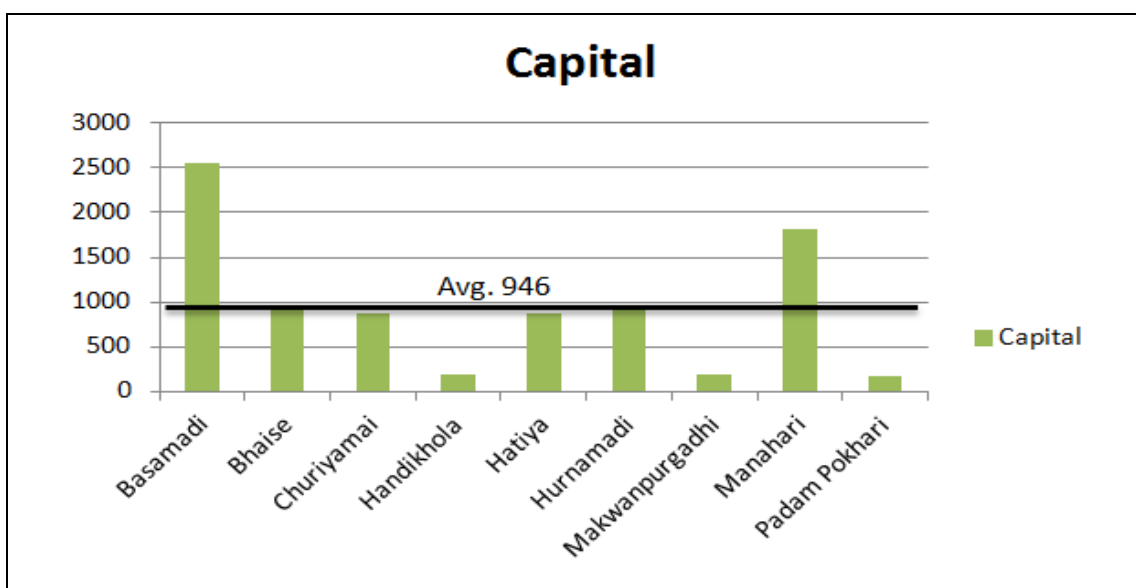
Source: Primary Survey

Chart 20 Imports of Farther VDCs

Surrounding VDCs or rural areas greater interaction with Hetauda, in terms of trade, education and health but presence of Bharatpur has effected the interaction of Manahari VDCs with Hetauda, though Birgunj has less effect on VDCs nearer to it.

Farther VDCs, influence of Hetauda depends on presence of other growth centre. The VDCs on North and west part are less dependent on Hetauda as better facilities and services are available in nearer growth centre, Kathmandu and Bharatpur but the VDCs of east part of district is dependent on Hetauda for services and facilities.

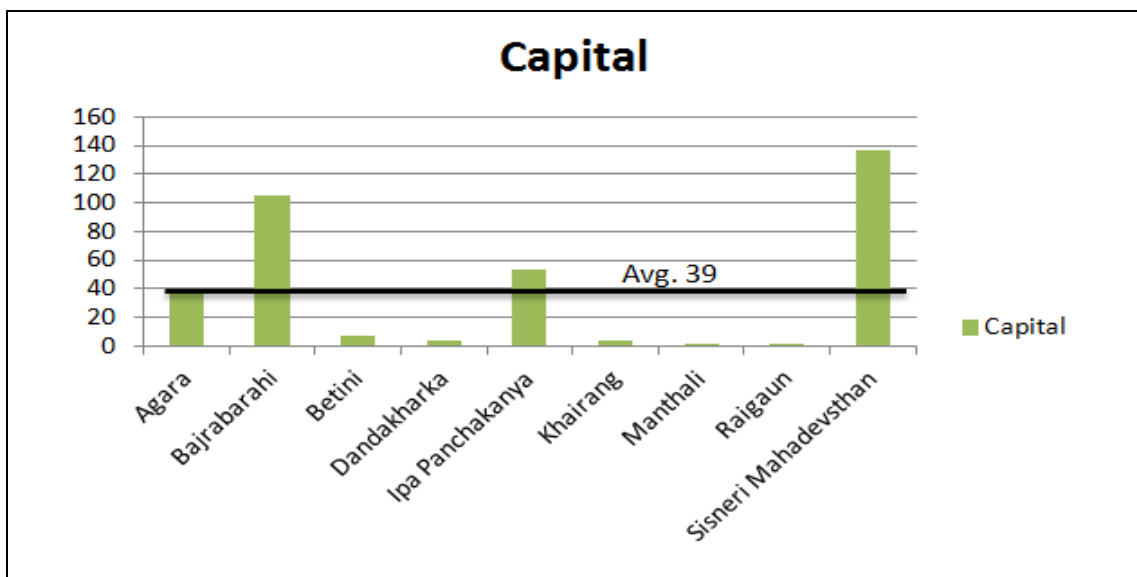
This shows that dependency of rural area on Hetauda is function of other growth center. The larger the growth center the rural area nearer to the centre prefer it rather than Hetauda due to availability of better services and facilities.



Source CSIO 71/72

Chart 21 Capital Investments in Nearer VDCs

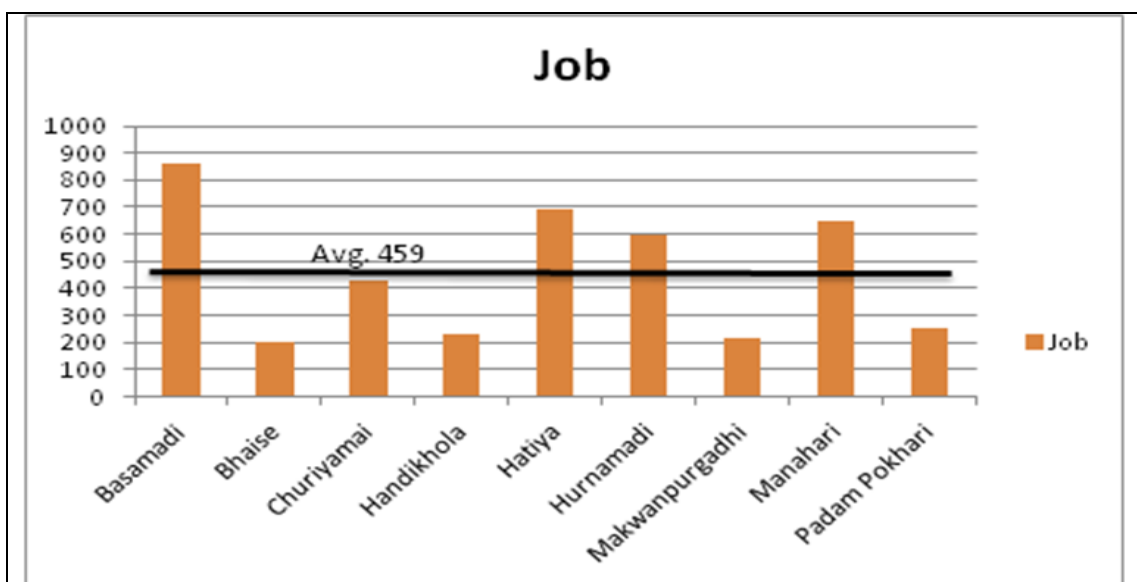
As per CSIO 2071/72 data, VDCs nearer to Hetauda municipality has highest number of economic activity and job generated than VDCs farther from Hetauda municipality. The economic activity of these VDCs is dependent on Hetauda. Hetauda municipality is market for 65 to 70% of agriculture and livestock produce in these rural areas remaining is utilized within the VDCs (CSIO, 71/72).



Source CSIO 71/72

Chart 22 Capital Investments in Farther VDCs Source CSIO 71/72

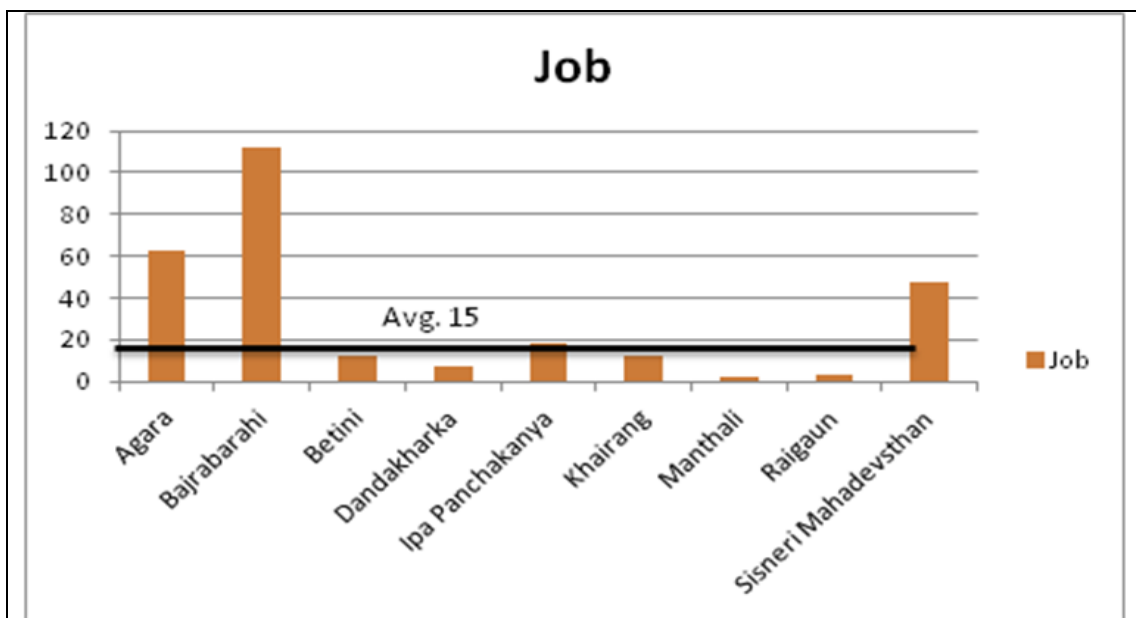
Chart 21 and Chart 22 shows the capital invested on the VDCs. The Average investment of nearer VDCs is 946 hundred thousand while that of farther VDCs is 39 hundred thousand. The investment in nearer VDCs is almost 24 times larger than farther VDCs.



Source CSIO 71/72

Chart 23 Job created in Nearer VDCs Source CSIO 71/72

Chart 24 shows job created in nearer and farther VDCs. The average job created in nearer VDCs is 459 while in farther VDCs is 15.



Source CSIO 71/72

Chart 24 Job created in Farther VDCs

Hetauda has influence development of surrounding VDCs than farther VDCs, larger capital and higher number of jobs are created in nearer VDCs. The development is governed by distance rather than presence of growth centre.

4.3. Findings

Physically Hetauda has direct road connection with Kathmandu, Birgunj and Bharatpur. But, these road need to be upgraded for fast accessibility, especially with capital city, Kathmandu.

Kathmandu is dominating town in the system, primate city of Nepal. Of the three cities, Bharatpur has highest centrality index followed by Birgunj and Hetauda. Growth of Bharatpur as a regional center has influence Hetauda growth as growth center.

Kathmandu and Birgunj is dominant supplier of all types of goods and commodity to Hetauda while some goods are directly brought from India. Bharatpur is major supplier of agricultural goods.

Most of the products from Hetauda are supplied to Birgunj and Bharatpur. The flow of goods from Kathmandu to Birgunj is the highest followed by Birgunj to Bharatpur and Birgunj to Hetauda. The flow of goods in Birgunj, Hetauda and Bharatpur route is

very high. Agriculture, Trade and Industry in Birgunj, Hetauda and Bharatpur corridor contribute 15% of country GDP.

Kathmandu and Bharatpur are major destination of migrant originated from Hetauda while migrant to Hetauda is originated from Bara, Parsa, Sarlahi and Rautahat district.

Linkage with Rural area

The linkage between Hetauda and rural areas are reflected in trade, administrative services, and health and education services. Most of the secondary schools, campuses, hospitals and administrative office are located in Hetauda. Thus the residents of rural areas have regular relation with Hetauda. The interlinkage between Hetauda and rural area is dependent on distance and presence of other growth centers.

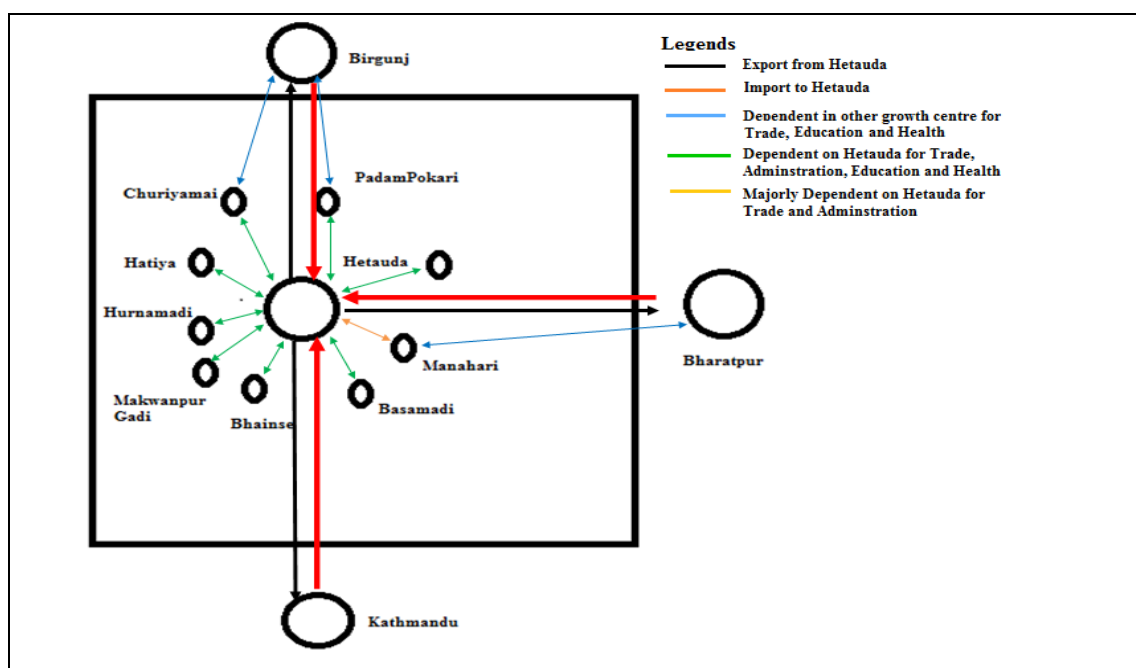


Fig 22 Relation of Nearer VDCs, Hetauda and other growth centers

The inter linkage between Hetauda and VDCs surrounding is most frequent and intimate. The VDCs are dependent on Hetauda and Hetauda has functioned as a growth center. Hetauda has served these VDCs as administrative, commercial and institutional center. The development has spread out to these VDCs.

But, interlinkages of Hetauda with farther VDCs are varying which is defined by presence of other growth center. The VDCs in north and west of district are dependent on Bharatpur and Kathmandu for commercial and institutional services. For these

VDCs, Hetauda has function as Administrative center. While the VDCs at east of district are dependent on Hetauda for all administrative, trade, health and education.

The people from east part of district have great dependency than other part of district due to absence of market center and growth center at neighborhood.

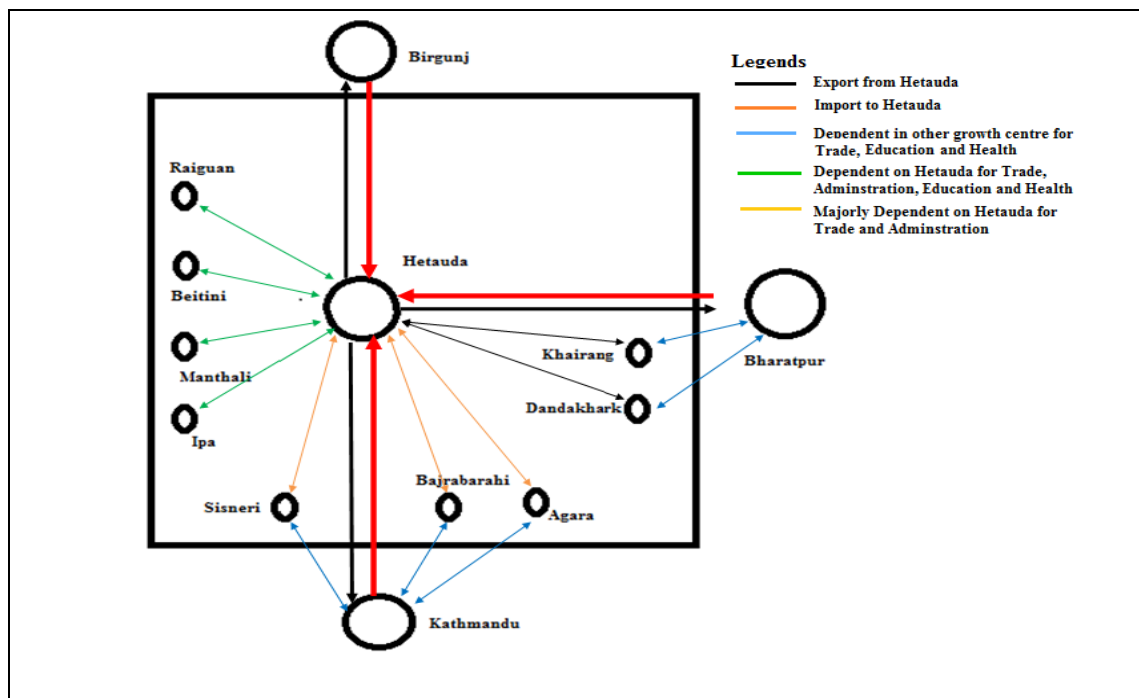


Fig 23 Relation of Farther VDCs, Hetauda and other growth centers

For farther VDCs, Hetauda as a growth center does not has and act as an administrative center & service center.

The rural area prefer other growth center than Hetauda for education, health and trade as better facilities are available at those center.

Thus interrelationship between Hetauda and its hinterland can be summarized as depending on the distance and presence of other growth center;

- Provider of Trade, Education, Health and Administrative services,
- Provider of Administrative services

4.4. SWOT Analysis

Strength, Weakness, Opportunity and Threats of Hetauda to develop it as city with regional influence has been segregated. SWOT analysis has been used for presentation of fact.

4.4.1. Strength

1. Physiographic Advantages

Hetauda is located in the elevated land and ground sloping outward towards natural drains. Hetauda is located at point close to the Chure hills where two distinct types of physiographic, the Terai plain in the south and the Chure hill region in the north meet. The town has been developed to derive an advantage from natural irregularities like the differential distribution of natural resources, population and agricultural productivity between the mountains and the plain.

2. Physical and Social Infrastructure

The town has good physical infrastructure and social infrastructure such as road, water supply, electricity, drainage, sewerage and treatment plant, school and health facilities. Institute of Forestry, Regional hospital, District Ayurvedic hospital and Eye hospital is located in Hetauda. Trade and commercial establishment like bank, hotels and shops are concentrated in Hetauda. Regional government office and District level office are located in Hetauda. Makwanpur district has ranked 16th in physical and social infrastructure.

3. Located in East west Highway and Tribhuvan Highway

Hetauda is located in cross point of tow important strategic road network/ East west highway and Tribhuvan highway.

4. Linkage with other Town

Hetauda is connected to major city of Nepal by East west highway. Hetauda physical and economic linkage with three major city, Birgunj; major border town, Bharatpur; rapidly growing city and Kathmandu; capital city are well-built.

5. Industrial District

Hetauda has one of the largest industrial districts in the country. Adequate industrial infrastructures have been developed in the district. The district has enough physical infrastructure and space to accommodate new industry.

6. Easy Access to India

Indian town is at 1 hour time distance from Hetauda. Hetauda is connected to Indian town through Birgunj. Economic and social activities in Hetauda can have significant advantages and can develop independently to other cities,

4.4.2. Weakness

1. Weak inter-linkage with hinterland

Hetauda has strong linkage with nearby VDCs but farther VDCs are less dependent on Hetauda for trade, education and health. These VDCs are dependent on other growth center. Construction of Mugling Naranghat highway, importance of Tribhuvan highway has reduced, so linkage of Hetauda served by the highway.

2. Low priority of government

Hetauda was identified as growth center by fourth five year plan but it function as growth center has stagnant. Government has not given enough attention for development of Hetauda. Projects with national importance have been relocated from Hetauda. As per Infrastructure development index Makwanpur district has ranked 54 and is among one of the least developed district. Makwanpur rank at 42 in per capita development budget allocated by government.

3. Projects with National Importance

Development projects with national importance were Construction of Tribhuvan and east west highway, Khulekhani hydropower and establishment of industrial district which was done in decade of 70s and 80s. There are very few projects at present with national importance in Makwanpur district.

4. Poor management of local development projects,

Lack of planned development efforts has contributed in haphazard allocation of development activities and had negatively affected social equity consideration. The attitude of local leaders towards development project has contributed unbalanced allocation of budget and development. The execution of development projects are guided by interest and motives of individual.

4.4.3. Opportunity

1. Extension of Existing facilities

Extension of existing facilities can provide better services to its hinterland hence enhancing the linkages. Up gradation of existing health and education facilities could paved way to establishment of higher service.

2. Place of Tourist attraction

There are number of Recreational, historical and religious places in Makwanpur district such as Daman, Makwanpur Gadi, Churiyamai Temple, Bhutandevi temple etc. which can attract domestic and international tourist.

3. Compact town

Development of settlement in Hetauda is very compact and high population density. Hence, physical infrastructure can be developed in low cost and effort.

4. Sufficient Area for extension

Plenty of vacant spaces are available for extension of Hetauda city. Risk sensitive land use plan can be developed and executed in Hetauda. Hetauda can be developed as major urban center.

5. Hinterland resources potentiality

Hinterland of Hetauda has high resources potentiality. Huge potentials exist for agriculture, horticulture, animal husbandry & Non timber forest products (NTFP).

6. Regional Function

Hetauda has large number of facilities and infrastructure of which some are of regional level. Extension of these facilities can provide base for development of Hetauda with regional function.

7. Short Access to Capital City

Hetauda Sisneri Balkhu (84 Km) road is being used for passenger movement. Extension of this road can provide short access of Major border town, Birgunj to capital. Extension of this road can reduce travel time to capital city from eastern part of Nepal.

8. Terai Kathmandu Fast track/ Nijghad International Airport

Due to availability of short access to Kathmandu and international market, products from Hetauda and its hinterland will have new market which can accelerate the economic growth of the region. Further, Hetauda can function as

4.4.4. Threats

1. Brain Drain

Due to lack of opportunity; businessman, intellectuals and professional people has been migrating to Kathmandu and other cities. This has negative impacts in growth of Hetauda and can initiate social disorganizations

2. Shrinking Hinterland

Due to rapid growth of other cities in vicinity of Hetauda, its influence on hinterland is reducing. Market centers within Makwanpur district prefer other cities for trade, Health and Education.

3. Poor Institutional Capacity

Due to poor institutional capacity of local bodies, the plan and policy developed has been ineffective. Poor coordination and overlapping of responsibility has either halted or delayed the progress of development projects.

Chapter V

STRATEGY RECOMMENDATION

5. STRATEGY RECOMMENDATION

Hetauda was established as a growth center in central development region despite being identified as growth center, availability of physical and social infrastructure, good physical linkage with major growth center of country and presence of one of the largest industrial bases of country, Hetauda has not been able to perform its role as growth center.

It is seen that dependency of rural area on Hetauda depend on presence of other growth centers and distance. Hetauda has function as a growth center to the rural area surrounding it but its influence decrease with distance. It is seen that the rural area prefer other growth center than Hetauda for education, health and trade as better facilities are available at those center.

Hence, it is seen that basic requirements for Hetauda to increase its influence is to develop the linkage and infrastructure, physical as well as institutional related to industries, education and health.

SWOT analysis reveals that Hetauda can be developed as regional center if proper intervention is carried out. Following strategies have been developed to establish Hetauda as regional center,

5.1. Strategies

i. Enhance Intra regional physical linkage

Out of 43 VDCs only 23 VDCs are connected to Hetauda by all weather road, 18 VDCs are connected by seasonal road while 2 VDCs Kankda and Khirnga are without road connections. All the VDCs should be connected to Hetauda through all weather roads.

North, West and south of district is connected to Hetauda by National Highway. East part of the district has low density of road and connected to Hetauda through earthen road. Hence, upgrading Hetauda-Gurji road will increase accessibility of east part to Hetauda and Hetauda- Makwanpurgadhi-Bagmati road will provide easy access of north east part to Hetauda as well as provide an alternate road connecting Kathmandu valley.

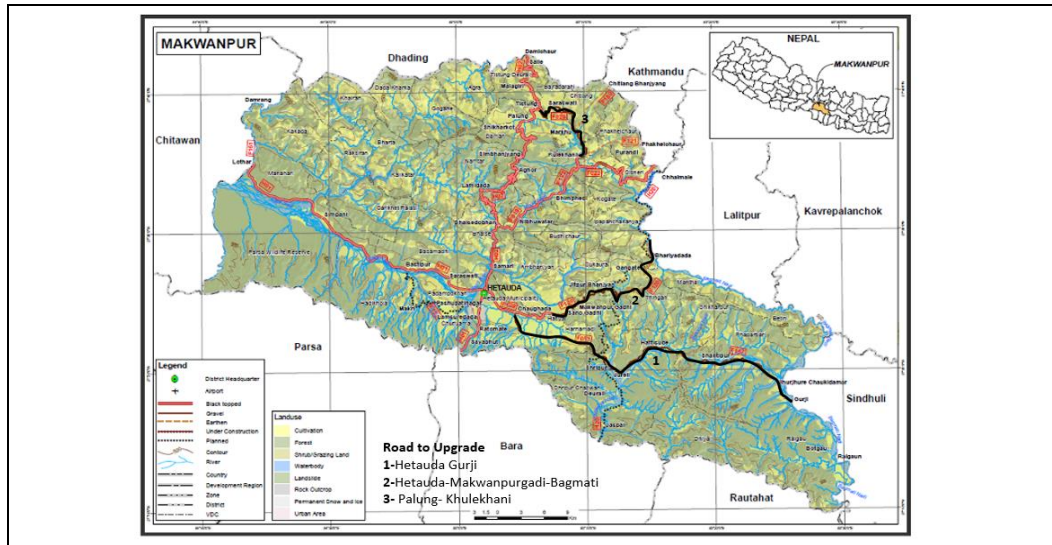


Fig 24: Intra Regional Road Network to Upgrade

ii. Enhance Inter regional linkage

Hetauda is connected to most of the major cities through road network, but these road need to upgraded for better and fast linkage. Upgrading of Hetauda Sisneri Dashinkali Kathmandu road for use of heavy vehicles and upgrading the road connecting Hetauda to Birgunj and Bharatpur to four lane highway can reduce travel time to Kathmandu from entire nation as well as from India. Upgrading the domestic airport in Simaraa can strengthen the linkage of Hetauda with other parts of country.

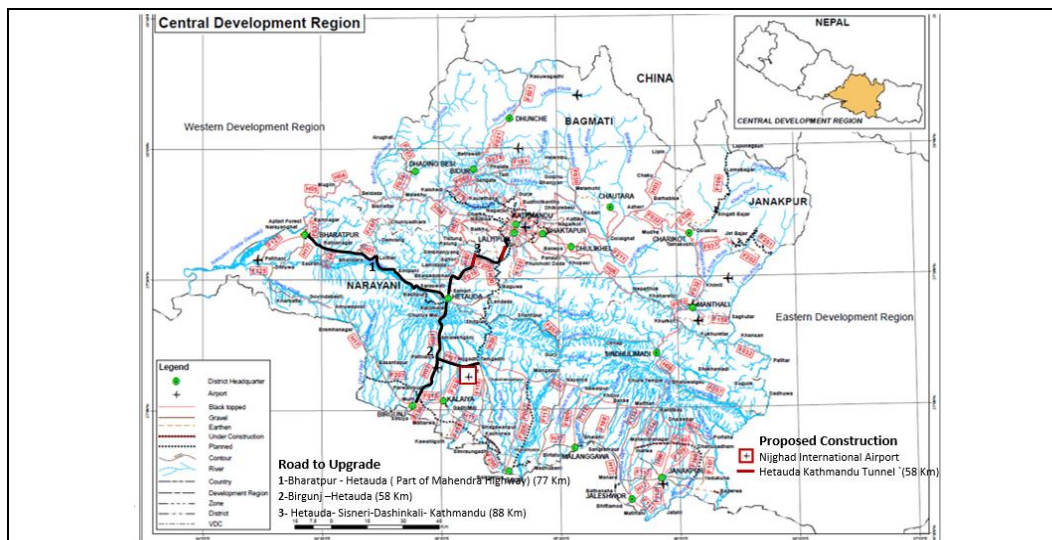


Fig 25 Inter Regional Road Network to Upgrade

Construction of proposed Hetauda Kathmandu Tunnel highway will reduce travel time and improve linkage of entire nation with capital city. Construction

of proposed International airport at Nijghad will provided access to international market

iii. Establish Forest university as center of Excellence

Institute of forestry located at Hetauda is one of the largest forestry institute, area wise, in country. By developing proper plan and policy, strengthening capacity and infrastructure the attraction of the institute can be revived which in turn will strengthen the linkage between Hetauda and other part of country.

iv. Strengthening capacity and function of Hospitals

District Hospital, Eye hospital and Ayurvedic Hospital are located in Hetauda but had not been able to function its intended role due to non availability of better resources; human as well as machinery. Strengthening capacity and functions of these hospital by providing better equipment, machinery and human resources can strengthen linkage of Hetauda with its hinterland.

v. Establishing technical institute with relation to industry established in industrial district ,

Hetauda has one of the largest industrial base in country but it lacks the institute providing technical education as well as vocational institute providing support to the industry. Establishing such institute can provide human resources not only to the region but for whole country which will improve linkage with other part of country.

vi. Strengthening capacity of higher level educational institute established in Hetauda

At present only ten institute provide higher level education in Hetauda of which only four institute provide post graduate level education. Due to poor facilities and resources, people prefer educational institute in nearby growth center rather than Hetauda. By strengthening capacity of existing educational institute, establishing higher level educational institute and establishing university, linkage between Hetauda and its hinterland can be strengthen.

vii. Providing capacity building opportunity through local government

For personal development of people involve in educational sector, local government should take responsibility. Local government should provide periodic skill development programs and opportunity for higher level education.

viii. Development of sports and recreational infrastructure

Hetauda does not have proper recreational area which is an important entities of urban center. Hetauda is located almost at center of country, development of green parks, cinema hall, open spaces, sports stadium can increase vitality of Hetauda to its hinterland as well as other part of country.

ix. Development of policy to attract private sector to invest in physical and social infrastructure

Involvement of private sector in physical and social infrastructure can expedite the development process hence proper policy shall be formulated to attract private sector in invest in physical and social infrastructure.

x. Prioritizing Industry with forward and backward linkage within the region,

Only 15 out of 70 industries operating in industrial estate use raw material within the district. Imported raw material is being used by new industries established in industrial estate. Instead, priority should be given to industry utilizing resources within region , industry with forward and backward linkage.

xi. Declaration of Special Economic Zone (SEIZ)

Special economic zone should be established within which proper institutional and financial support and fast response on any issue and problems regarding establishment, operation and maintenance of Industry should be provided. Act and regulation shall be made to prohibit political interferences regarding the issues and problem within the zone.

xii. Initiation to restart the close industry

Due to different reasons 12 industries was closed. The physical infrastructure of these industries can be reuse. Initiation to restart these industries should be taken which will revive the linkage. Plan and policy should be developed to safeguard industries in poor operational state.

xiii. Prioritizing small and cottage industries

Plan and policy should be made to attract investment to small and cottage industries. For development of small and cottage industries, local government should take initiative to support and create enough human resources.

xiv. Commercializing agriculture sector

Government should develop plan and policy to transfer traditional and individual agriculture system to modern, community and cooperative system. Government should provide subsidy to the firm and individual involve in agriculture sector.

5.2. Topics for Further Research

Research on following topics can further clarify the regional impact of Hetauda,

- i. Effect of proposed Fast Track road, Hetauda Kathmandu Tunnel highway and International Airport in Nijghad,
- ii. Change in role of Hetauda as Sub Metropolitan city,
- iii. Role of Hetauda in new division of Nepal into federal states.

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Annex A
Government Office in Hetauda

Regional/Zonal Office in Hetauda

S.No.	Office Name	Remarks
1	Regional Administration Office	
2	National Investigation Regional Office	
3	Mid Regional Police Office	
4	Central Army Headquarter	
5.	Central Regional Health Directorate	
6	Central Regional Forest Directorate	
7	Central Regional Medical Store	
8	Central Soil Testing Lab	
9	Regional Seed Testing Lab	
10	Regional Food Technology & Quality Control Office	
11	Appellate Court	
12	Government Attorney Office	
13	Public Service Commission	
14	Central Education Directorate	
15	Zonal Ayurvedic Hospital	

District Office Hetauda

S.No.	Office Name	Remarks
1	District Administration Office	
2	District Police Office	
3	National Investigation District Office	
4	District Traffic Police Office	
5.	District Court	
6	District Government Attorney Office	
7	District Development Committee Office	
8	Division Road Office	
9	Fishery Development Centre	
10	District Education Office	
11	District Post Office	
12	Branch Statistics Office	
13	Professional And Skill Development Training Centre	
14	Cottage and Small Industry Office	
15	District Forest Office	
16	Women and Children Office	
17	District Soil Conservation Office	
18	District Health Office	
19	District Veterinary Office	
20	Labor Office	
21	Transport Management Branch Office	
22	Survey Office	
23	District Election Office	
24	District Technical Office	
25	Communication Centre	
26	Building Technology Investigation and Training Centre	
27	Land revenue Office	
28	District Vanaspati Office	
29	Hetauda Municipality Office	
30	Division Co-Operative Office	
31	Water supply and Sanitary Office	
32	Mid Irrigation Development Sub Division no. 2	
33	Inland Revenue Office	
34	District Treasury Controller	

Annex B
Resources Potential Of Makwanpur District

Major crops and their production

Source: VDC Profile of Nepal, 2008

Crops	Area (HA)	Production (MT)	Productivity Per Hectare (MT)
Paddy	11493	34249	2.98
Maize	19812	48539	2.45
Wheat	4265	10662	2.5
Millet	2961	3216	1.09
Barley	100	120	1.2
Oilseed	1200	1000	0.83
Potato	4596	58900	12.82
Sugarcane	90	2600	28.89
Green Vegetable	1643	30691	18.68
Fruits	666	6782	10.18

Cropping Calendar

SN	Crops	Time of Sowing	Time of Harvesting
1	Paddy (Chaite)	April/May	July/August
2	Paddy (Barse)	June/July	Oct/Nov
3	Maize	March/April	July/August
4	Wheat	Oct/Nov	April/May
5	Millet	June/July	Oct/Nov
6	Barley	Nov/Dec	April/May
7	Winter Potato	Sep/Nov	Jan/March
8	Summer Potato	Jan/March	June/August
9	Winter Vegetable	Sep/Nov	Jan/March
10	Summer Vegetable	April/June	June/August

Source: Annual Report, DADO, Makwanpur, 2067/68

Potential Area with Extensive Agriculture

SN	Major Crops	Potential Pocket Area/VDCs
1	Paddy	Hetauda, Manhari, Basamadi, Phasparbari, Hatiya, Harnamadi, Raigaun, Namtar, Chhatiwan, Ambhanjyang, Makawanpurgadhi, Sukaura, Chitlang, Markhu, Sisneri, Manthali and Handikhola
2	Wheat	Manhari, Bhainse, Handikhola, Hetauda, Basamadi, Hatiya, Harnamandi, Padampokhari and Namtar
3	Maize and Millet	All VDCs
4	Legumes	Manhari, Basamandi, Hatiya, Harnamandi, Chhatiwan, Raigaun and Phaparbari
5	Oil seeds	Namtar, Bahainse, Basamandi, Manhari, Hatiya, Harnamandi, Chhatiwan, Raigaun and Phaparbari

Source: Annual Report, DADO, Makawanpur, 2067/68

Potential Area with Extensive Horticulture

S/N	Crops	Potential Pocket Area/VDCs
1	Orange	Sisneri and Phakhel
3	Lemon	Nibuwatar, Phakhel, Namtar and Palung
4	Mango	Manhari, Basamandi, Hatiya, Handikhola, Hetauda, Padampokhari, Churiyamai and Ambhanjyang
5	Lichi	Manhari, Basamandi, Hatiya, Handikhola, Hetauda, Padampokhari, Churiyamai and Ambhanjyang
6	Gauva	Chhatiwan, Padampokhari, Gadhi, Shikharpur
7	Pineapple	Manhari, Basamandi, Hatiya, Handikhola, Hetauda, Padampokhari, Churiyamai and Ambhanjyang
8	Banana	Thingan, Ambhanjyang, Gadhi, Manthali

Source: Annual Report, DADO, Makawanpur, 2067/68

Potential Area with Extensive Cash Crops

SN	Crops	Potential Pocket Area/VDCs
1	Fisheries	Kulekhani, Markhu, Hetauda
2	Fresh Vegetable	Handikhola, Daman, Palung, Bajrabarahi, Tistung, Namtar, Chitlang, and Ambhanjyang
3	Ginger	Harnamadi, Hatiya, Namtar, Makawanpurgadhi, Bhimphendi, Sukaura, Raksirang and Churiyamai
4	Silk worm	Sarikhet, Nibuwatar
5	Honey	Tistung, Raksirang, Bhimphendi, Bhudhichaur, Kankada and Bhainse

Source: Annual Report, DADO, Makawanpur, 2067/68

Livestock Population

S.N.	Livestock	Total Number
1	Cow/Ox	98,490
2	She/he Buffaloes	94,536
3	Goat	2,39,844
4	Pig/Swine	9,668
5	Chicken	9,32,623

Source: DDC Profile, 2066/67

Livestock Production

S.N.	Livestock Products	Unit	Annual Production (MT)
1	Milk	Liter	47,786
2	Meat	MT	4,857
3	Egg (Hen)	Thousand	11,016

Source: DDC Profile, 2066/67

Livestock Potential Area

SN	Livestock	Potential Pocket Area/VDCs
1	Buffalo Farming	Gadhi, Thingan, Manthali, Handikhola, Padampokhari
2	Goat Farming	Namtar, Manahari, Kalikatar
3	Pig/Swine Farming	Braise, Phaparbari
4	Poultry Farming	Hetauda, Hatiya, Padampokhari, Chhattiwan

Source: District Veterinary office, Makwanpur, 2068

Irrigation

SN	Irrigation	Area (Ha)	Percentage
1	Total arable area		41338
2	Total Irrigated area	12556	30.38
3	Non Irrigated area	16226	39.25
4	Regular irrigated area	7232	17.49
5	Seasonal irrigated area	5324	12.88

Source: Annual Report, DADO, Makwanpur, 2067/68

Health Service Centers

SN	Type of Health Centres	Number	Places/Locations
1	District Hospital	1	District Headquarters
2	Zonal Ayurvedik Hospital	1	District Headquarters
3	Ayurvedik Ausadhalaya	1	
4	Primary Health Center	4	4 VDCs,
5	Health Post(s)	10	10 VDCs
6	Sub-Health Post(s)	30	Rest of the VDCs

Source: District Profile, 2066/67

Potential Area for Religious and Historical Place

VDC	Descriptions	Significance
Daman	Rikheshowr, Indrayani, Seti Ganesh Temple etc.	Religious/Historical
Markhu	Mahachuni, Mahankal, Bhimsen Temple etc	Religious/Historical
Chitlang	Godawari, Kaladevi, Nayapauwa Temple etc.	Religious/Historical
Kulekhani	Kalidevi, Mahankalthan, Kalivedi Temple etc.	Religious/Historical
Phakhel	Narayan, Chaukotdevi, Manedada Temple etc.	Religious
Tistung	Naukhande Chaitya, Mulabir Chaur	Religious/Historical
Bajrabarahi	Bajrabarahi, Pasupati, Chuni Devata Temple etc.	Religious/Historical
Manahari	Manakamana, Churiyamai, Ranipokhari Temple etc.	Religious/Historical
Basamadi	Newarpani Gumba, Mahadev, Manakamana Temple etc.	Religious/Historical
Sarikhet	Grindi and Kerabari Bumba	Religious/Historical
Namtar	Syarsekalika, Devithan, Ram Temple etc.	Religious/Historical
Kalikatar	Kalika, Mahadev Temple etc. and Nagchheda Falls	Religious/Historical
Nibuwatar	Gupteswori, Ganeshsthan, Kalidevi, Balkanya Temple etc.	Religious/Historical
Agra	7 No. of Mahadevsthan Temple and Meduk Chhyoling Gumba	Religious/Historical
Bhimphedi	Bhimsen Temple, Chisapani Gadhi, Barahithan etc.	Religious/Historical
Bhainse	Srikrashna Temple, Ganesh Temple, Tasi Wangchong Gumba	Religious/Historical
Kogate	Pandeswori, Mahadev, Pashupati, Chamelidevi Temple etc.	Religious/Historical
Padampokhari	Ranakalin Gumba, Siba Temple, Siddhakali Temple etc.	Religious/Historical
Hadikhola	Dhaneswori and Pashupati Temple etc.	Religious/Historical
Hatiya	Baisnab, Bhimsensthan, Mahadev, Panchakanya Temple etc.	Religious/Historical
Harnamadi	Gupteswori Gufa, Kamaladevi/Kalidevi/Baghbhairab Temple etc.	Religious/Historical
Raigaon	Purmina Mela, Gumba Mela, Lower Place above MSL	Religious/Historical
Phaparbari	Golme Rajako Darbar, Siddhi Rameswor Mela	Religious/Historical
Hetauda Mu.	Bhutandevi, Krishna, Hanuman Temple etc. and types of Gumba	Religious/Historical
Chhatiwan	Pashupati Temple and Machhedamar Gumba	Religious/Historical
Kankada	Bhinbungdada Mela	Religious/Historical
Gadhi	Bansagopal, Kalidevi, Narayan Temple etc.	Religious/Historical
Sukaura	3 Boudh Gumba and Pashupati Temple	Religious/Historical
Ambhanjyang	Shiba, Shreekrishna, Kalidevi, Kaleshowr Mahadev Temple etc.	Religious/Historical
Churiyamai	Churiyamai, Shiba, Bandevi Temple and 3 Boudh Gumba	Religious/Historical
Bharta	Kalika Temple and Chakradevi Stone etc	Religious/Historical
Raksirang	Rikheswor and Pajani Mahadev Gufa and Thumki Dada Gumba	Religious/Historical
Khairang	Kamadhenu, Kalika, Rakasdevi Temple	Religious/Historical
Dandakharka	Gupteswori and Krishna Temple and ChhyangdungGumba	Religious/Historical
Budhichaur	Rupnarayan, Devithan, BaghbhairavKalika Temple and 5 Gumba	Religious/Historical
Manthali	Siddhababa Temple/ Natural Gufa, Thani Puja	Religious/Historical
Palung		Religious/Historical

Source: Ilaka Level Workshop, 2068, and DDC Profile 2066/2067

Potential Area for Tourism Place

SN	VDC	Descriptions	Significance
1	Gadhi	Makanwanpurgadhi	Tourism/ Historical
2	Bhimphedi	Chisapanigadhi	Tourism/ Historical
3	Hetauda-11	Sahid Smarak	Tourism
4	Daman	Daman View Tower	Tourism/ Historical
5	Churiyamai/Padampokhari /Handikhola	Parsa Wildlife Conservation	Tourism
6	Manahari	Chitwan Wildlife Conservation	Tourism
7	Markhu/Kulekhani	Indrasarobar	Tourism

Source: Ilaka Level Workshop, 2068, and DDC Profile 2066/2067

Potential Area for (NTFP)/Herbal

S.N	VDCs	NTFP Items
1	Daman	Silajit,Nirmasi,Jatamasi,Bhojo,Pakhanbed,Kurilo,Chiraito,Kutki, Panchaule,Sunakhari,Padamchal Sikakai,Soamlataand Timur etc.
2	Tistung	
3	Chitlang	
4	Dandakharka	
5	Gogane	
6	Namtar	
7	Manahari	
8	Bajrabarahi	
9	Sarikhet	
10	Palung	
11	Agra	

Source: DDC Profile, 2067/68, Makawanpur

Major / Small Hydropower

SN	Name of Site	No	Significance
1	Kulekhani 1 and 2	-	90 MW
2	Kulekhani 3 (Ongoing)	-	18 MW
3	Small Hydropower	5	-
4	Bio Gas Plant	3088	- KW

Source: District Profile 2066/2067

Mines Development

SN	Name of Mines	Located Places
1	Copper	Arkhalde, Barhaghare, Golkhalte, Sanotar, Ipa, Agra Khola
2	Zink and Glass	Damar, Barhaghare
3	Urenium	Tinbhangale
4	Cobalt	Jurikhet-Mandu, Ipakhola, Damar
5	Gasoline	Daman
6	Limestone	Bhainse, Dovan, Sukaura and Okhare

Source: District Profile 2066/2067

Status of Post Office

S.N.	Type of Post Office(s)	Number	VDC/Municipality
1	District Post Office	1	Post offices are available in 1 municipality 43 and VDCs.
2	Illaka Post Office	11	
3	Additional Post Office	34	
4	Counter Post	2	

Source: District Profile 2066/2067

List of Access to Telephone Facilities

SN	Type	Number	Access/VDCs
1	PSTN Telephone	6423	43 VDCs
2	GSM (Prepaid, Postpaid)	55686	43 VDCs
3	CDMA Mobile (Prepaid, Postpaid)	2407	43 VDCs
4	MARTS Exchange	-	4 VDCs
5	VHF	-	12 VDCs

Source: Nepal Telecom, Makwanpur

Agriculture Service Center/Agriculture Sub-Center

Agriculture Service /Agriculture Sub-Center	Located Place/VDCs	Service Providing VDCs
Agriculture Service Center	Manahari	Manahari, Handikhola, Basamadi, Kankada, Raksirang, Sarikhet and Khairang
Agriculture Service Center	Hatiya	Hatiya, Harnamadi, Thingan, Gadhi, Sukaura and Ambhanjyang
Agriculture Service Center	Namtar	Namtar, Kalikatar, Bhainse, Bharta, Dandakharka and Gogane
Agriculture Service Center	Bhimphedi	Bhimphedi, Kulekhani, Nibuwater, Kogate, Sisneri, Ipa and Budhichaur
Agriculture Service Center	Daman	Daman, Palung, Chitlang, Bajrbarahi, Tistung, Agra, Markhu and Phakhel
Agriculture Service Center	Phaparbari	Phaparbari, Raigaon, Manthali and Betini
Agriculture Service Contact Place	Chhatiwan	Shikharpur, Chhatiwan and Dhiyal
Agriculture Service Contact Place	Hetauda	Hetauda Municipality, Padampokhari and Churiyamai

Source: Annual Report, DADO, Makwanpur, 2067/2068

Veterinary Service Centre/Sub-Service Center

SN	Veterinary Service Centre/Sub-Service Center	Located Place/VDCs	Influence VDCs
1	Service Centre	Hatiya	Hatiya, Harnamadi and Churiyamai
2	Service Centre	Phaparbari	Phaparbari, Betini, Dhiyal and Raigaon
3	Service Centre	Basamadi	Basamadi and Handikhola
4	Service Centre	Kalikatar	Kalikatar, Bharta
5	Service Centre	Raksirang	Raksirang, Sarikhet and Khairang
6	Service Centre	Chitlang	Chitlang, Markhu, Kulekhani and Bajrabarahi
7	Sub-Service Center	Chhatiwan	Chhatiwan, Thingan, Shikharpur and Manthali
8	Sub-Service Center	Ambhanjyang	Ambhanjyang, Gadhi, Sukaura and Budhichaur
9	Sub-Service Center	Padampokhari	Padampokhari
10	Sub-Service Center	Manahari	Manahari and Kankada
11	Sub-Service Center	Ipa	Ipa and Kogate
12	Sub-Service Center	Bhimphedi	Bhimphedi and Nibuwatar
13	Sub-Service Center	Phakhel	Phakhel and Sisneri
14	Sub-Service Center	Palung	Palung, Agra, Gogane, Daman, Tistung Dandakharka
15	Sub-Service Center	Namtar	Namtar and Bhainse

Source: District Veterinary office, Makwanpur, 2068

Annex C
Questionnaire

Customer Survey

Name of respondent

Address

What is your main occupation?

S.No.	Type of Occupation	Tick	Remarks
1	Agriculture		
2	Service		
3	Business		
4	Labour		
5	Others		

What is the mode of transportation to reach Hetauda?

How long does it take to reach Hetauda?

Why had you visited Hetauda?

S.No.	Reason for visiting	Tick	Remarks
1	Trade		
2	Administrative		
3	Health		
4	Education		
5	Others		

VDC Survey

1. Name of respondent

2. Address

3. What is your main occupation?

S.No.	Type of Occupation	Tick	Remarks
1	Agriculture		
2	Service		
3	Business		
4	Labour		
5	Others		

4. What is the mode of transportation to reach Hetauda?

5. How long does it take to reach Hetauda?

6. Why do you/people go to Hetauda?

S.No.	Reason for visiting	Tick	Remarks
1	Trade		
2	Administrative		
3	Health		
4	Education		
5	Others		

7. Where do you/people go for selling and buying goods not available in local market? If Possible quote percentage.

S.No.	Town	Tick	Remarks
1	Kathmandu		
2	Hetauda		
3	Birgunj		
4	Bharatpur		
5	Others		

8. What types of product do you sell in Hetauda

S.No.	Products	Remarks

9. What types of product do you buy in Hetauda? If possible quote percentage

S.No.	Products	Remarks
	Household items	
	Groceries	
	Construction Materials	
	Medicine	
	Stationary	
	Gold and Sliver	
	Petroleum Products	
	Clothes	
	Pesticide	

10. Where do you/people go for health check up not available in local health centre? If possible quote percentage

S.No.	Town	Tick	Remarks
1	Kathmandu		
2	Hetauda		
3	Birgunj		
4	Bharatpur		

11. Where do people go to get higher education not available in local education institute? If possible quote percentage

S.No.	Town	Tick	Remarks
1	Kathmandu		
2	Hetauda		
3	Birgunj		
4	Bharatpur		

12. How importance of Hetauda can be increased?

Annex D
List of Person Interviewed

S.No.	Name	Address	Occupation	Remarks
1	Aakal B. Pakhrin	Agara	Agriculture	
2	Indra Bahadur Godaar		Services	वाड सचिव
3	Kaji Thapa		Agriculture	Political leader
4	Autari Singh Thing		Business	
5	Kancchi Magar		Services	Teacher
6	Tulshi Thapa		Business	
7	Tok Maya Gole		Agriculture	
8	Ram man Gole		Business	
10	Kaili Maya Tamang	Ipa	Agriculture	
11	Autari Singh Nayshur		Services	वाड सचिव
12	Chitrai Bahadur Bishwokarma		Services	Teacher
13	Gopi kami		Business	Political Leader
14	Tika man Yba		Business	
15	Mangal singh Bholan		Agriculture	
16	Bishnu B. Lama		Business	
17	Bir Bahadur Bholan		Agriculture	
19	Umesh Aryal	Khirang	Services	वाड सचिव
20	Karna B. Arjel		Services	Teacher
21	Gunraj Aryal		Agriculture	
22	Gauri Sunwar		Agriculture	
23	Jeet Bahadur chipang		business	
24	Indra Nath Dami		Business	
25	Chewang Tamang		Business	
26	Jeevan Koirala		Agriculture	Political leader
28	Jai Bahadur Moktan	DadaaKharkaa	Services	वाड सचिव
29	Chim Raj Lama		Bussiness	
30	Tara Chandra Bal		Bussiness	
31	Dil Bahadur Bal		Bussiness	
32	Gayendra Thing		Agriculture	
33	Devi Maya Dong		Agriculture	Political leader
34	Nani Maya Moktan		Agriculture	
35	Tirtha Man Negi		Services	Teacher
37	Indra Bholan	Manthali	Agriculture	
38	Chandra bahadur Waiba		Agriculture	
39	Jagat bahadur Alemagar		Agriculture	
40	Indra bahadur Nyasur		Services	वाड सचिव
41	Namraj Bhomjan		Services	Teacher
42	Purna bahadur Negi		Bussiness	
43	Bhakta Kumari Lamichane		Bussiness	Political leader
44	Mangal Singh Thokaar		Bussiness	

46	Gosta Bahadur Ghimire	Raigaun	Bussiness	
47	Aruna Rai		Bussiness	Political Leader
48	Bhim Bahadur Rai		Bussiness	
49	Prem bahadur Thokar		Services	Teacher
50	Tete Rai		Agriculture	
51	Ite Singh Baal		Agriculture	
52	Ram Rai		Agriculture	
53	Kaili Maya Moktan		Services	वाड सचिव
55	Anak Bahadur Maharjan	Bajrahbarahi	Bussiness	
56	Kishor Maharjan		Bussiness	
57	Kumar Kusle		Bussiness	Political leader
58	Gokul Bhatta		Agriculture	
59	Janak Mahrjan		Agriculture	
60	Inup Shrestha		Services	Teacher
61	Lal Bahadur Dangol		Agriculture	
62	Harsha Bahadur joshi		Services	वाड सचिव
64	Putali Maya rumba	Betini	Services	वाड सचिव
65	Nisha Titung		Bussiness	
66	Khadka Bahadur Bholan		Services	Teacher
67	Durga Maya Pakhrin		Agriculture	
68	Gyan Dhoj Titung		Bussiness	
69	Kaple Lopchan		Agriculture	Political Leader
70	Indra man Pakhrin		Agriculture	
71	Raj Man Bholan		Bussiness	
73	Buddha Waibaa	Sisneri	Bussiness	
74	Arjun Kumar lama		Agriculture	
75	Dhan Bahadur Bholan		Agriculture	
76	Kanchha Lama		Services	वाड सचिव
77	Chandra Bahadur Bholan		Services	Teacher
78	Hari Bhadur Thing		Agriculture	
79	Roshan Giri		Bussiness	
80	Sunmaya Shrestha		Bussiness	Political Leader
82	Indra Sinjal	Bhainse	Services	वाड सचिव
83	Isha Gole		Agriculture	
84	Umesh Shrestha		Bussiness	
85	Krishna lal Shrestha		Bussiness	
86	Ganesh Nagarkoti		Bussiness	
87	Haku Bhai Khange		Agriculture	Political leader
88	Ram Bahadur Baju		Agriculture	
89	Lal Bir Ghisingh		Services	Teacher
91	Naar Bahadur Gole	Makwanpurgadi	Agriculture	
92	Sun Maya Waibaa		Agriculture	
93	Budhi Lala Syangtang		Agriculture	

94	Ram Bahadur Waibaa		Bussiness	
95	Jai Bahadur Ghalan		Bussiness	Political leader
96	Buddhi lal Bhomjan		Services	वाड सचिव
97	Sarj Sangtang		Services	Teacher
98	Gopi Bishwokarmaa		Bussiness	
100	Uttam Shrestha	Manhari	Bussiness	
101	Kabul Karki		Services	वाड सचिव
102	Ek Jung Tamang		Services	Teacher
103	Kabita Chipang		Agriculture	Political leader
104	Ashok Kumar Shakya		Bussiness	
105	Karan Mainali		Bussiness	
106	Jai Lal Moktan		Agriculture	
107	Jeevan Pariyar		Agriculture	
109	Ajay Sangtang	Churiyamai	Services	वाड सचिव
110	Aakal Man Titung		Services	Teacher
111	Karuna Sangtang		Agriculture	
112	Aautari Sing Moktan		Bussiness	
113	Ek Bahadur Rumba		Bussiness	
114	Jetha Bal		Agriculture	Political Leader
115	Budha Singh Lopchaan		Agriculture	
116	Kamal Pakhrin		Bussiness	
118	Kaanchi Maya Praja	Basamadi	Agriculture	
119	Bir Bahadur Gole		Bussiness	
120	Bishnu Sapkota		Agriculture	
121	Godaa Devi Parajuli		Services	Teacher
122	Hari Bol Aryal		Services	वाड सचिव
123	Sujan Lamsal		Bussiness	
124	Prakash Dangol		Bussiness	
125	Usman Waiba		Agriculture	Political leader
127	Meghnath Dhungel	PadamPokhari	Services	Teacher
128	Dilip Kumar Gole		Agriculture	
129	Aakash Chaulagain		Agriculture	
130	Bir Bahadur Ghalan		Bussiness	
131	Santa Bir Gole		Agriculture	Political Leader
132	Arjun Kumar Thing		Bussiness	
133	Kamala Devi Khatiuda		Bussiness	
134	Prabhakar Cheetri		Services	वाड सचिव
136	Hari Parsad Timalsinha	Hatiyaa	Agriculture	
137	Anoj Devkota		Bussiness	
138	Deepak thapa		Bussiness	
139	Manoj Rimal		Services	वाड सचिव
140	Sangeeta Pudasaini		Services	Teacher
141	prem Parsad Timalsinh		Agriculture	Political leader

142	Rajendra Shrestha		Bussiness	
143	Bimala neupane		Agriculture	
145	Aankit Tamang	Harnamadi	Bussiness	
146	Aakhil Mahat		Services	वाड सचिव
147	Arjun Pandey		Services	Teacher
148	Kul Bahadur Malla		Agriculture	
149	Govinda Uperati		Agriculture	
150	Chandra Maya Gautam		Agriculture	
151	Jay Ram Neupane		Bussiness	Political leader
152	Kausal Gautam		Bussiness	
154	Ambar Bahadur Rumba	Hadikhola	Agriculture	
155	Shambu Mishra		Services	वाड सचिव
156	Ishwor Bartula		Services	Teacher
157	Kaji Man Ghimire		Agriculture	Political leader
158	Sonam Singh Bholan		Bussiness	
159	Dhan Singh Lopchaan		Bussiness	
160	Aarimaa kadeal		Business	
161	Bir Bahadur Ghalan		Agriculture	

Annex E
Functional Establishments

Commercial

Type of Function	Total Nos	Remarks
Retailing		
Kirana	296	
Meat	30	
Furniture & construction material	145	
Vehicles and Machinery parts	57	
Stationary	27	
Drug	35	
Shoes and Cosmetic	103	
Clothes	13	
Electrical shop	51	
Tobacco shop	40	
Sub-Total	797	
Wholesaling		
Clothes and other	35	
Food Items	25	
Dealer	32	
Sub-Total	92	
Catering		
Hotel/Lodge/Restaurant/Sweet	160	
Services		
Personal Service	76	
Professional services	36	
Sub-Total	112	
Total	1161	

Industrial

Type of Function	Total Nos.	Remarks
Retail Service Industry	141	
Ornamental	34	
Electronics/ Repairing	52	
Tailoring	24	
Workshop	31	
Industries/Mill		
Food Item	19	
Metal	9	
Mill	22	
Wood products	21	
Construction Material	19	
others	11	
Sub Total	101	
Total	242	

Institute

Type of Function	Total Nos	Remarks
Bank	30	
School	61	
Campus	10	
Hospital	20	
Government office	42	
Total	163	

Annex F
Calculations

Calculation of Centrality Index

S.No.	Town	Population	T	Pr	CI	TWP	WP	HI
1	Birgunj	135904	19033	241375	0.0788	26707	35744	2.427
2	Hetauda	84671	16920	241375	0.0700	20570	32136	2.118
3	Bharatpur	143836	26395	241375	0.1093	33638	49474	2.726

T- Total no. Of persons dependent upon non agricultural occupation

Pr-Total regional population on non agricultural occupation

$CI = (T \times 100) / Pr$

TWP-Tertiary Workers Population of a town

Wp-Total working population of town

$HI = \sqrt{(C \times TWP \times 100) / WP}$

VDC	Population		Area Sq.Km	Density / sq.Km		Population Growth	Growth Rate (%)
	2001	2011		2001	2011		
Agara	7999	7836	40.92	195.48	191.50	-163.00	-0.20
Ambhanjyang	8566	6906	40.00	214.15	172.65	-1660.00	-1.94
Bajrabarahi	7427	7675	17.63	421.27	435.34	248.00	0.33
Basamadi	14170	17130	74.11	191.20	231.14	2960.00	2.09
Betini	3216	3351	27.26	117.98	122.93	135.00	0.42
Bhaise	7614	6717	59.87	127.18	112.19	-897.00	-1.18
Bharta	3719	4169	24.57	151.36	169.68	450.00	1.21
Pundyadevi							
Bhimfedi	5742	5440	49.18	116.75	110.61	-302.00	-0.53
Budhichaur	2085	2085	27.32	76.32	76.32	0.00	0.00
Chitlang	5830	5029	33.16	175.81	151.66	-801.00	-1.37
Churiyamai	12905	14274	35.12	367.45	406.44	1369.00	1.06
Daman	8360	8439	43.63	191.61	193.42	79.00	0.09
Dandakharka	3770	4021	35.95	104.87	111.85	251.00	0.67
Dhiyal	6726	5945	116.71	57.63	50.94	-781.00	-1.16
Fakhel	4856	4524	33.85	143.46	133.65	-332.00	-0.68
Faparbari	16676	16776	176.32	94.58	95.15	100.00	0.06
Gogane	5140	5345	52.24	98.39	102.32	205.00	0.40
Handikhola	17770	18415	106.72	166.51	172.55	645.00	0.36
Hatiya	12152	13099	34.07	356.68	384.47	947.00	0.78
Hurnamadi	6259	6615	36.78	170.17	179.85	356.00	0.57
Ipa Panchakanya	2658	2497	47.27	56.23	52.82	-161.00	-0.61
Kalikatar	4390	2713	34.32	127.91	79.05	-1677.00	-3.82
Kankada	7759	7840	73.52	105.54	106.64	81.00	0.10
Khairang	3036	3389	47.84	63.46	70.84	353.00	1.16
Kogate	1429	1279	10.35	138.07	123.57	-150.00	-1.05
Kulekhani	3194	2969	21.60	147.87	137.45	-225.00	-0.70
Makwanpurgadhi	12651	12806	51.56	245.36	248.37	155.00	0.12
Manahari	13835	19984	256.57	53.92	77.89	6149.00	4.44
Manthali	2663	2762	18.68	142.56	147.86	99.00	0.37
Markhu	3916	3071	19.49	200.92	157.57	-845.00	-2.16
Namtar	8623	8816	100.57	85.74	87.66	193.00	0.22
Nibuwatar	4477	4259	31.71	141.19	134.31	-218.00	-0.49
Padam Pokhari	15904	17086	37.70	421.86	453.21	1182.00	0.74
Palung	6029	5603	17.33	347.89	323.31	-426.00	-0.71
Raigaun	10785	10368	95.77	112.61	108.26	-417.00	-0.39
Raksirang	6343	6572	50.58	125.41	129.93	229.00	0.36
Sarikheth Palase	8537	8391	58.23	146.61	144.10	-146.00	-0.17
Shikharpur	4854	5896	40.64	119.44	145.08	1042.00	2.15
Shreepur	21523	20747	164.17	131.10	126.38	-776.00	-0.36
Chhatiwan							
Sisneri	3359	3245	33.85	99.23	95.86	-114.00	-0.34
Mahadevsthan							
Sukaura	3657	3525	25.13	145.52	140.27	-132.00	-0.36
Thingan	4080	4270	66.25	61.58	64.45	190.00	0.47
Tistung Deurali	6585	7041	35.77	184.09	196.84	456.00	0.69

Source Censuses 2001 & 2011

Market Centre

Geographical setting and road has played important role in shaping the spatial location of market centres. Map shows that density of settlement on west and north part of the district is higher than density of settlement in east part which is due to presence of national highway in this part. Most of market centre has developed in these part of district, there is concentration of market centre in proximity to Hetauda.

There are 45 market centres in the Makwanpur District, which are divided in Grade A, Grade B and Grade C. 5 market centres are graded as A, 13 market centre are graded as B and 27 market centre are graded as C. Hetauda Municipality ranks at 1st and is graded as A with centrality index 1034.96; centrality index of 2nd rank market centre, Sikhakot, Daman VDC, is 172.46 (DTMP 2066/67). This shows the dominance of Hetauda municipality in the district to over other market centre.

Hetauda Market Zone Delineation Study, 1998 had identified 20 market centres in Makwanpur district; on an average, each market centre served nearly 121 km², each centre provides service to 13,038 persons. At present with 45 market centres, market centres serves about 54 km² and provides service to 9343 persons.

All of the A grade market centres are in the national highway; one in Mahendra Rajmarg and three in Tribhuvan Rajmarg. Most of market centres have developed around the functional highway i.e. West and North west of Hetauda cities which could be due to easy access to higher hierarchy market center. The market centres in highway not only has access to district headquarter but also with other cities of country which has provide market for agriculture and other products. Most of the market centres provides lower level services to its hinterland. For higher level services rural area is dependent on Hetauda.

East part of the district doesnot have A grade market, only 2 B grade markets and 5 C grade markets, hence there is higher dependency on Hetauda municipality of east part of district.

All the market center are linked to Hetauda by motor road, either black topped, gravel or earthen road . Bhimpedi, historical market towns developed as break of bulk from rana period, Manahari is located in mahendra highway which is one of the fastest

emerging market centre and it serves villages west of district which are not in influence area of Hetauda, Shikharkot and Sarswati Bazaar are important market centres located in Tribhuvan Highway and important agriculture production centre.

Most of market centre serve the rural area as an agriculture collection centre which are transported to other higher hierarchy market centre and retailing services, things of daily need which are imported from other higher hierarchy market centres.

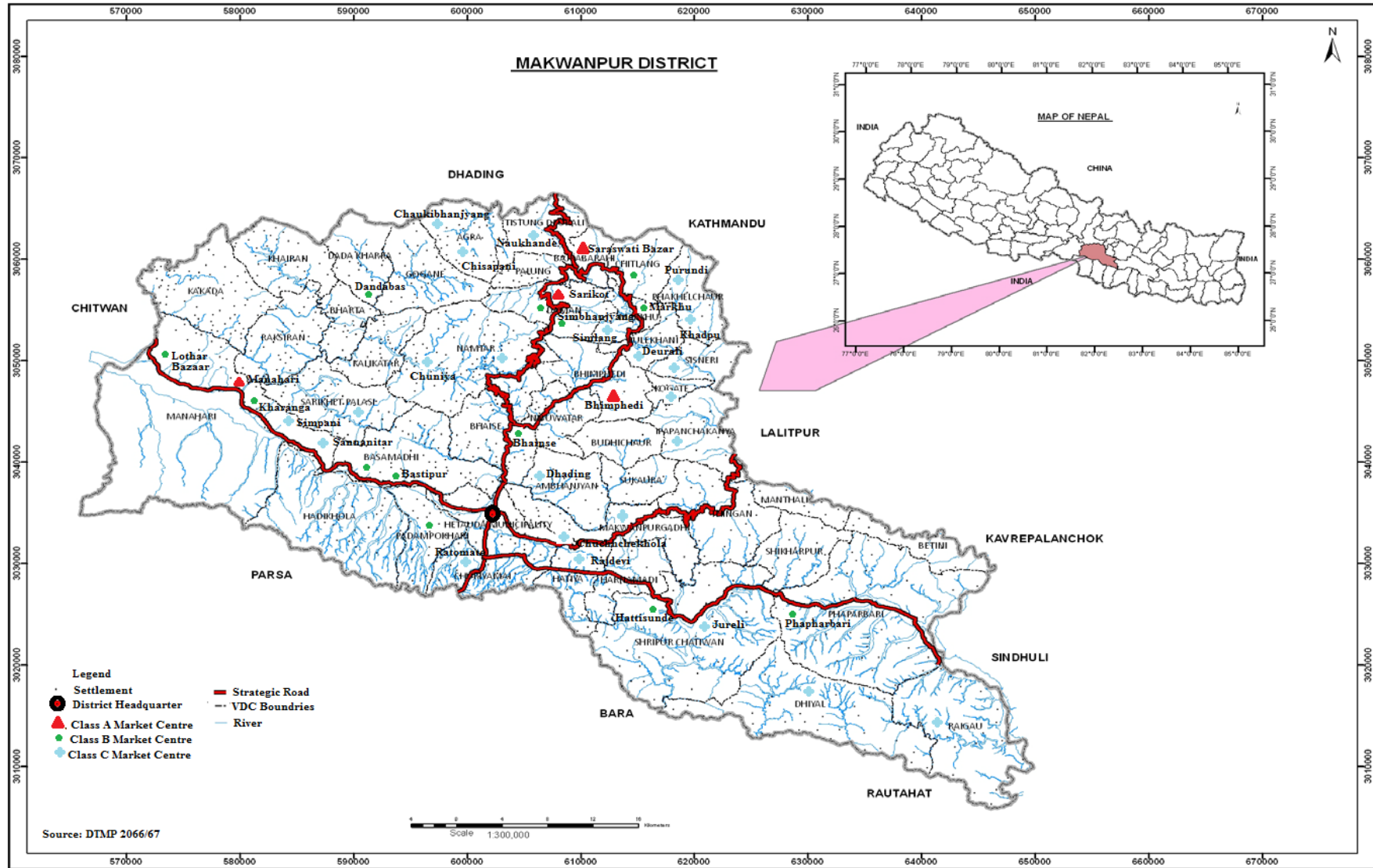
Hetauda provide higher level of services to the rural hinterland such as higher level of education, health services, internet, tele-communication and government services and provides market for agriculture. Hetauda as urban centre, serve the hinterland and rural area under its influences with three major functionality. It embraces Commercial, Industrial and Institutional.

National Urban Development Strategy, 2015 has classified Hetauda as major urban area based on population size and density and functions, Thaha municipality (recently added municipality) as second tier urban centers based on its link with major urban area and fully or partly served by it, Kulekhani and Bhimpedi as third tier urban centers based its link with second tier and major urban area and fourteen small town market centers based on rural area served.

Urban Centre Hierarchy

Urban Area	Second Tier Centres	Third Tier Centres	Small Town market Centres
Hetauda	Thaha	Kulekhani, Bhimpedi	Bhaise, Harnamadi, Hatisude, Hatiya, Jureli, Jaymeri, Manhari, Markhu, Phapharbari, Phedi Belghari, Ratemate, Shreedhur Chatiwan, Padampokhari

Source NUDS, 2015



Market Centers

Market Centers

S. N.	Market centre	Grade	Centrality Index	Location VDC /Municipality	Distance to District HQ	Road Type to HQ	Economic Function	Facilities Available	Nearby Higher Market Centre
1	Hetauda	A	1034.96	Hetauda Municipality	0 Km	NH (MRM, TRP)	Agricultural market, Commercial, Industrial, Institutional	Retailing and Wholesaling, Hospitality, Government offices, Educational Institute, Health Services, Banking Services, Internet	Kathmandu, Bharatpur, Birgunj
2	Shikharkot		172.46	Daman VDC	65 Km	NH (TRP)	Agricultural market, Retailing	Lower Secondary School, Post office, Sub Health Centre, Shops, Co operatives	Hetauda, Kathmandu
3	Manhari		131.96	Manhari VDC	30 Km	NH (MRM)	Agricultural product Collection Retailing, Agro Based Industries	Higher Secondary School, Post office, Primary Health centre, agriculture , veterinary services,	Hetauda, Bharatpur
4	Sarswati Bazar		107.21	Bajrabarahi VDC	87 Km	FR (Kunchhal - Kulekhani) NH (TRP)	Vegetables Collection Centers, Retailing	Governmental, Private Boarding School, Shop	Hetauda, Kathmandu
5	Bhimphedi		106.54	Bhimphedi VDC	24 Km	FR (Bhainse- Kulekhani) NH (TRP)	Agricultural product Collection, Retailing, Agro Based Industries	Higher Secondary School, Primary Health centre, agriculture , veterinary services, Shop	Hetauda
6	Bastipur	B	82.96	Basamadi VDC	10 Km	NH (MRM)	Vegetable Collection and Supply Centre, Retailing	Secondary School, agriculture, veterinary Services, Shop	Hetauda
7	Simbhanjyang		78.67	Daman VDC	50 Km	NH(TRP)	Tourism, Retailing	Hotel, Secondary School, Shop	Hetauda,
8	Markhu		66.29	Markhu VDC	42 Km	FR	Tourism, Retailing	S. School, Post office, Agriculture, Veterinary	Hetauda,
9	Bhainse		65.63	Bhainse VDC	11 Km	NH(TRP)	Agriculture Centre, Retailing	S. School, Post office, Agriculture, Veterinary,	Hetauda
10	Phaparbari		65.54	Phaparbari VDC	42 Km	DR (Agriculture collection Retailing	H. S. School, Cooperative, health centre,	Hetauda
11	Basamadi		65.46	Basamadi VDC	15 Km	NH (MRM)	Industrial, Retailing, Agriculture collection centre	Secondary School, post office, sub health centre, agriculture, veterinary services	Hetauda
12	Daman Bazar	B	59.71	Daman VDC	60 Km	NH (TRP)	Agriculture, NTFP collection	Lower Secondary School, Shop	Hetauda,
13	Padampokhari		59.63	Padampokhari	4 Km	DR	Agriculture, Agro Industry	H.S. School, Post office, Health centre	Hetauda
14	Chitlang		59.38	Chitlang VDC	45 km	DR (Taukhel- Chandagiri)	Agriculture, Retailing	S. School, Post office, Sub health centre, agriculture, Veterinary service centre	Hetauda, Bhimphedi
15	Kharanga		58.04	Manhari VDC	30 km	NH (MRM)	Agriculture, Retailing	P. School, Shop	Hetauda, Manhari
16	Hattisunde		55.46	Chhatiwan VDC	25 Km	DR	Agriculture, Retailing	S. School, Shop	Hetauda

17	Dandabas		54.71	Agra VDC		DR (Daman-Lothar)	Agriculture, Retailing	S. School, Shop	Manhari,
18	Lothar Bazar		53.46	Manhari VDC	43 km	NH (MRM)	Agriculture, Retailing	P. School, Shop	Hetauda, Manhari
19	Dhading	C	49.04	Ambhanjyang	12 Km	DR	Agriculture, Retailing	S. School, Health Centre, Area Post office,	Hetauda
20	Simlang		47.63	Markhu VDC	75 Km	DR	Agriculture, Retailing	P. School, Shop	Hetauda,
21	Kalikatar		46.46	Kalikatar VDC	36 Km	DR (Kalikatar-Hetauda)	Agriculture, Retailing	S. School, Post office, Health centre, agriculture, veterinary services	Hetauda, Bhainse
22	Namtar		45.63	Namtar VDC	32 Km	DR, NH (TRP)	Agriculture, Retailing	S. School, L.S. School, Post office, Health centre, agriculture, veterinary services	Hetauda, Bhainse
23	Simpani		45.21	Manhari VDC		DR(Simpani-Srikhat)	Agriculture, Retailing	S. School L .S .School	Hetauda, Manhari
24	Deurali		43.83	Kulekhani VDC	46 km	DR (Kulekhani-Bhainse), NH (TRP)	Agriculture, Retailing	S. School L .S .School	Hetauda, Bhimphedi
25	Naukhande		42.83	Tistung VDC	80 Km	NH(TRP)	Forestry, Retailing	L. S. School	Sarswati Bazar, t
26	Samanitar		42.58	Basamadi VDC	12 Km	NH(MRM)	Agro Industry, Retailing	L. S. School	Hetauda
27	Raigaon		39.71	Raigaun VDC	65 Km	DR	Agriculture, Retailing	S. School, Sub health centre, Post office	Hetauda
28	Makwanpurgadhi		38.46	Gadhi VDC	25 km	NH (Kanti rajpath)	Agriculture, Retailing	S. School, post office	Hetauda
29	Kogate		37.96	Kogate VDC	35 Km	DR	Agriculture, Retailing	S. School, Sub health centre, Post office, Co	Bhimphedi
30	Purundi		37.29	Phakhel VDC	40 Km		Agriculture, Retailing	Shop	Bhimphedi
31	Jureli		36.38	Chhatiwan VDC	36 Km	DR (Hetauda-Phaperbari)	Agriculture, Retailing	S. School, Sub health centre, Post office, Co operative, Agriculture, Vet. sub services	Hetauda
32	Ratomate		35.71	Churiamai VDC	10 Km	NH (MRM)	Agro Industry, Retailing	Shop, Mills	Hetauda
33	Khadpu	35.5	Phakhel VDC	40 Km		Agriculture, Retailing	Shop	Bhimphedi	
34	Palase	34.71	Sarikhhet	30 Km	DR	Agriculture, Retailing	Shop	Manhari	
35	Sisneri	33.75	Sisneri VDC	45 Km		Agriculture, Retailing	Post office, Shop	Bhimphedi	
36	Taukhel	32.29	Chitlang VDC	75 Km		Agriculture, Retailing	S. School, Shop	Sarswoti Bazar	
37	Ipa	32.17	Ipa VDC	35 Km	DR(Bhimphedi- IPA)	Agriculture, Retailing	H. School, Shop	Bhimphedi	
38	Chisapani	32	Agra VDC	70 km		Agriculture, Retailing	Shop	Sarswoti Bazar	
39	Dhiyal	30.71	Namtar VDC			Agriculture, Retailing	S. School, Health post, Co-operatives	Hetauda	
40	Rajdevi	30.54	Hatiya VDC	12 km		Agriculture, Retailing	S. School, Shop	Hetauda	
41	Chaukibhanjyang	26.33	Agra VDC	100 Km		Agriculture, Retailing	Shop	Sarswati Bazar	
42	Chuniya	25.83	Namtar VDC	30 Km		Agriculture, Retailing	L. S .School, Shop	Hetauda	
43	Chuchhchekhola	25.63	Hatiya VDC	6 km	NH (KRP)	Agriculture, Retailing, Agro	Shop, Mills	Hetauda	
44	Thingan	25.42	Thingan VDC	42 km	NH(KRP)	Agriculture, Retailing	S. School, Health centre, Post office	Hetauda	
45	Makaranchuli	25.33	Gadhi VDC	6 Km		Agriculture, Retailing	S. School, shop	Hetauda	

Source: DTMP 2067/6

Annex I
Zone of Influence

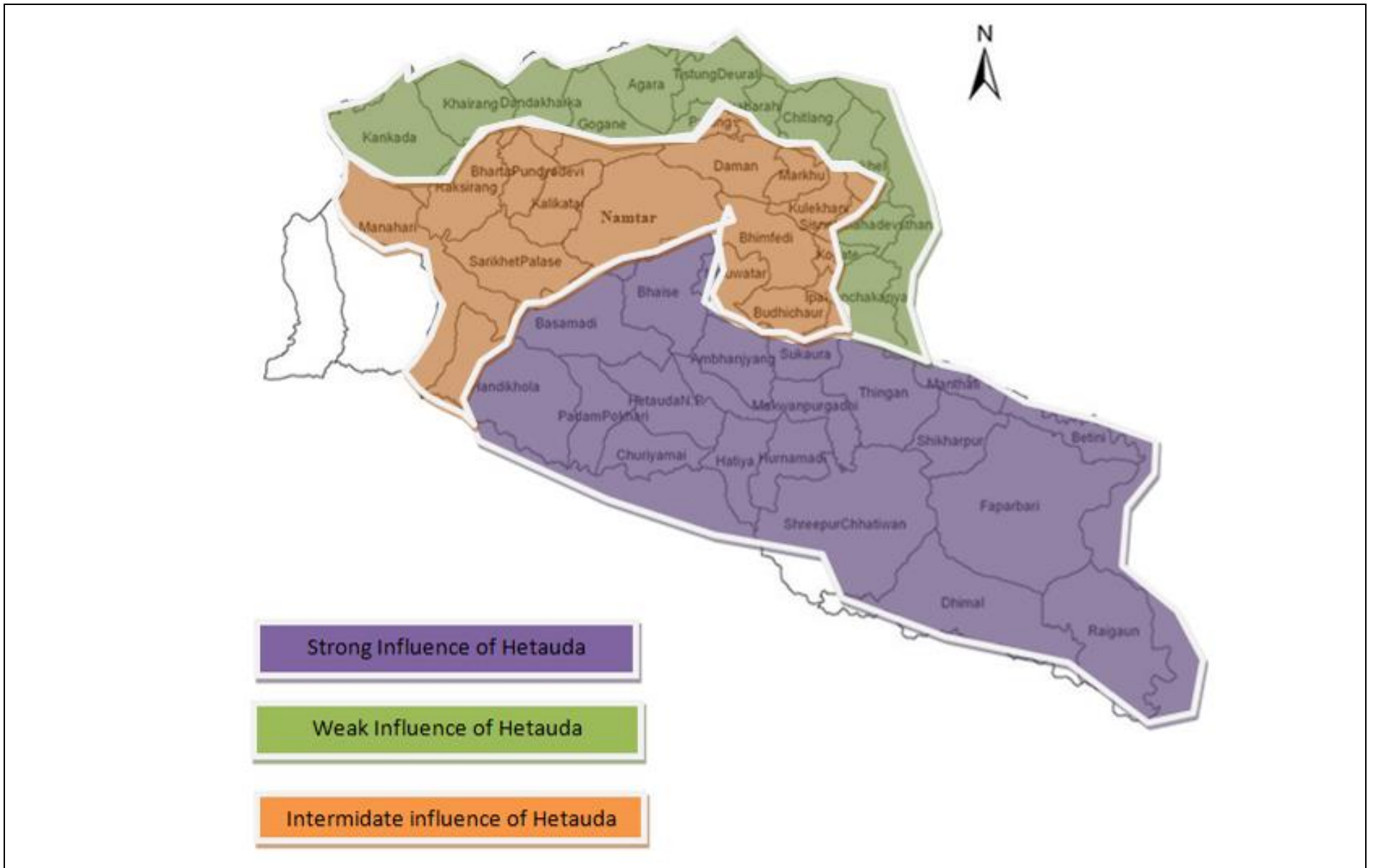
Zone of Influence

The Study shows, the influence area of Hetauda is;

- Customers are originated from the neighboring districts include Bara and Rautahat. Those places of Bara district lie in spatial proximity to Hetauda and the customers originated from these places visit Hetauda for marketing and other needs for the households.
- There is a great variation in origin of customers by spatial location. The customers' originated places are found representing more from eastern and north-eastern parts than other parts of the district.
- There is an inverse relationship between the number of dependent settlements and the travel time distance. Road facility has made able to cover wider distances in relatively short time. Presence of other growth center influence the Zone of influence of Hetauda.
- the study shows that eastern part of district is under the influence of Hetauda municipality while west part and North part are influenced by Hetauda as an administrative center.

This shows that the zone of influence of Hetauda as an administrative center is whole Makwanpur district but as a economic and social center weak influence in some of west and north part of district while in south some rural area of Bara, Parsa and Rautahat come under influence zone of Hetauda.

Map 1 shows the influence zone of Hetauda as a growth center. The Makwanpur district as a whole can be term as Region for this study.



Map 1 Area of Influence Hetauda Municipality