

PATTERN OF INFRASTRUCTURAL DEVELOPMENT AND INCOME DISTRIBUTION IN MAHAKALI ZONE, NEPAL

A Thesis

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LETTER OF RECOMMENDATION

Date: 2071/09/

The thesis entitled **Pattern of Infrastructural Development and Income Distribution in Mahakali Zone, Nepal**, submitted by Narayan Prasad Pokhrel is prepared under my supervision. I, hereby, recommend this thesis for examination by the Thesis committee as a partial fulfillment of the requirements for the Degree of Master of Arts in Economics.

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I take the sole responsibility for remaining gaps and errors of facts, interpretation of inference.

Narayan Prasad Pokhrel

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ABBREVIATION AND ACRONYMS

ASEAN	Association of Southeast Asian Nations
CBS	Central Bureau of Statistics
Cum	Cumulative
CDR	Central Development Region
DOLIDAR	Department of Local Infrastructure Development and Agricultural Road
EDR	Eastern Development Region
FWDR	Far Western Development Region
G_c	Gini-Coefficient
GDP	Gross Domestic Product
GoN	Government of Nepal
Ha	Hectares
HH	Household
Km	Kilometer
MWDR	Mid Western Development Region
NEA	Nepal Electricity Authority
NGO	Non-Government Organization
No	Number
NRB	Nepal Rastra Bank
NRs	Nepalese Rupees
SOC	Social Overhead Capital
Sq	Square
VDCs	Village Development Committee
WDR	Western Development Region

CHAPTER I

INTRODUCTION

1.1. Background of the Study

Infrastructure is essential for accelerating the economic activities and thereby accelerating economic growth as well as economic development. Simply the term infrastructure heard as overused but it has varied dimension in the field of economic study. The term infrastructure is also recognized as the physical as well as institutional entities.

World Bank (1994) defines infrastructure is an umbrella term for many activities that share technical features (such as economics of scale) and economic features (such as spillovers from user to nonuser). Development economist such as Rosenstein-Rodan (1943), Hirschman (1958) have given new name to infrastructure as “Social overhead capital” which include road, docks, hospital, communication system, school, irrigation, electricity and so on.

Oxford dictionary of economics (2009) explains infrastructure as used capital equipment to produce publicly available services including transport, the telecommunications, and gas, electricity and water supplies that becomes an essential background for other economic activities in modern economics. Infrastructure services are generally either provided or regulated by the state.

The public economic literature defines infrastructure as public phenomenon. Mugggrave & Musgrave (1984) have pointed out two characteristics of infrastructure such as non-rivalness and non-excludability.

In the early stage, infrastructure was defined /viewed by public good government used to be understanding as the prime mover of the infrastructure entities to operate each and every development activities. Now the scenario has changed through including private sector also to carry out infrastructure entities in the process of economic development.

There is no doubt, infrastructure provides the energy to expedite economic activities and thereby it affects the earning of the people as the name of income.

There is hardly to believe about all the people have same earning, it means that income can be distributed unevenly. Simply, income distribution refers how the income has distributed among the people of the society. On the other hand income distribution in the society (or may country as well) can be as a index to identify the economic condition as a whole of that society (or may country as well). This identification can be viewed via different indicators such as per capita income, GDP at market price, remittance, livestock, industrial development, agricultural situation and so on. Income is the flow concept and it is not only important for the consumption, investment and production pattern of individual or society but also to achieve sustainable economic growth and development.

A sound infrastructure is pre-request to achieve different economic activities like as to raise percapita income, reduce the regional economic imbalance. In this connection, it is a thing which makes economic activities or development momentum. Today's globalization era, infrastructure is considered as the mean of improving or promoting the country's competitiveness around the world market. It also plays important role to reduce the income inequality. In the sum, it can be said that it has significant role to achieve sustainable development.

1.2 History of Infrastructural Development

If we take history of infrastructural development of Nepal, mainly it began from Rana period. The first drinking water system was installed in Kathmandu valley around in 1900. Tri-chandra collage was set up in 1981 (Kathmandu valley). Chandra canal was set up at Trijuga River in 1924 (East), A 4 km ropeway was constructed by the Bristish company in Kathmandu in order to procedure stones from around Swayambunath during the same year. Another 22 km ropeway linking Kathmandu with Dhorsing (central hills) at the Terai was also established in 1927. Railway linking Jayanagar (India boarder) to Janakpur (Eastern Terai) was set up 1937. First commercial bank (Nepal bank limited) was established in 1937 (central hill) extended seven branches in

eastern Terai in the same year. “The basic infrastructure on which future development would be laid was thus being established in the EDR and CDR during the start of the 20th century much of the western and far western parts of hills and Terai did not have these facilities at all” (Amatya, 1987 P. 61-62).

After the emergence of democratic system in 1951 A.D., economic development got momentum. In 1956 central bank was established. Nepal has been practicing planned development scheme since 1956 onward. Plans have provided the priority to develop the transport, irrigation, electricity facilities. Due to the geographical variation and topographical shape, as ladder like shape south to north the pace of infrastructural development is slow Nepal has developed such as road, airport, telephone, electricity, irrigation, financial institution etc. But its distribution within the regional level is uneven. The electricity facility in CDR, EDR and WDR is 56.14%, 50.22% and 54.22% respectively while MWDR and FWDR is 34.50% 31.88% respectively (NEA 2014). Similarly rural road status of CDR, WRD is respectively 18751 km and 14282 km respectively while MWDR and FWDR is 5594 km and 2881km respectively (DOLIDAR 2012). This shows the living picture of uneven distribution of infrastructural facility in the regional level which has become the main problem for equal distribution of income. The history of infrastructural development in Mahakali zone is not long. The development planning has an important role in its impressive act though the development has got momentum only after 1990. Mahendranagar airport, Darchula airport, Mahakali highway; linking Mohanapul to Darchula, suspend bridge over the Mahakali river linking Kanchanpur with Chandani and Dhodhara VDCs, under constructing Chameliya hydropower of 30000 KW. These are some fact which shows the brief picture of infrastructural development of Mahakali Zone (Subedi 2013).

The aforementioned picture of infrastructural development gives mental image of big disparity in income distribution at regional as well as sub regional level. At this join, this research has exhibited the present situation of infrastructural development and income distribution. Beside, this study has recognized relationship in between income distribution and infrastructural development.

1.3 Statement of the Problem

Definitely, infrastructural development has played of central importance in economic development of a nation. Different types of infrastructure such as road, electricity, telephone, postal services can be considered as key indicators in fuel manner for the economic development. Nepal however has been remaining in low position due to the uneven distribution of infrastructural facilities. Mostly infrastructural facilities are concentrated in central, eastern and western development region. In this circumstance, we are facing disaggregating, fragmentation and disharmony in the economic activities. On the other hand, Nepal has largely dependent on the foreign capital and donor agencies and they formulate policy and program behalf of their own perspective rather than focus on reducing regional disparity and income distribution pattern has remained idle and thereby income inequality between have and have not has manifested.

In the development process, some degree of regional imbalance can be considered as simple. In case of Nepal, it is not simple. The nature of disparity has not desirable. That is why country has suffered various problems. Factors likes lack of perfect harmony among development actors, increasing corruption, poor accountability and transparency, and political instability on macro level could be as some of the obstacles in eliminating disparity. In the micro level, lack of voices and power, problem of security, increasing migration of population have also responsible for disparity. The topographical variation is also another hindrance in balance development. Mainly, the hilly and mountain areas of development region are isolated from the main stream of development; the reason behind of this is difficult geographical structure of these areas. Accepting this problem wide gulf of income inequality can be witnessed in between the sub-region/districts level.

Many attempt done by the government via the periodic plan exercise almost six decade and government's yearly budgetary scheme are some steps heading to develop infrastructure so as reduce income inequality. Beside, multilateral and bilateral agencies are not go far away as working side by side for improving infrastructural facilities and there form reducing the economic disparity. However the disparity has still remained in unsatisfactory level, so that, thesis entitled "Pattern of infrastructural development and income distribution in Mahakali zone Nepal" has gone forward by concentrating on following research questions.

- i. Can the infrastructural development contribute to the income distribution?
- ii. What can there be seen any linkage between infrastructural development and income distribution?

1.4 Objective of the Study

Infrastructural development cannot be separate from the aspect of economic development when it helps a foundation of economic growth. In the Nepalese context uneven infrastructural development has identified historically as the main hindrance in achieving sustainable economic development. This research has following objectives: General objective, analysis the contribution of infrastructural development to the income distribution.

Specific Objectives:

- i. To investigate the pattern of infrastructural development and income distribution in Mahakali Zone.
- ii. To examine the linkage between infrastructural development and income distribution in the study area.

1.5 Rational of the Study

Nepal has been practicing for economic development since nearly sixty years ago. Substantial investment in district level has been invested year by year; the performance at the development work of these areas has gloomy. Economic survey of 2014 shows 5.2 percent growth rate of the economy which is quite low for less developed country like Nepal. Nepal living standard survey of 2011 shows 25.16% of the people are living the poverty line. Majority of the population depend upon the agriculture but their productivity is low, rapidly increasing unemployment. Annual budget of fiscal year 2014/15 highlight about foreign trade deficit has increased to Rs 505.00 billion. Nepal has weak development indicators which show that it is lagging behind. In the condition of Mahakali Zone is not different from that. The high concentration of infrastructural facilities in the accessible area can be found better reality in zonal area.

Likewise, income distribution pattern is also uneven within the district level although government has strong attempt (formulating different plans, polities, acts, programs. etc) for the overall development of the nation in preserving peace, justice and prosperity.

Nevertheless, these efforts, disparity continuous to exist both at zonal and district level. The gulf has created between have and have not. The responsible factors for this imbalance can be pointed as following way: physical constraint, suffering from not having concrete policy to reduce income inequality, weak efficiency of development administration, weak management of development activities. Likewise, lack of knowledge, skill and resources for growing comparative advantages of sub regional units, setting pattern of development activities etc.

The arising problem caused by these factors in economic activities can be cured thought infrastructural development in all sectors.

The even distribution of infrastructural facilities across the regions/ zones/districts will play important role for economic development paying even distribution of income in regions/zones/districts thereby could be eliminate above mentioned bottleneck. If all the infrastructural facilities are concentrated on the accessible areas leaving inaccessible areas disparity will be created.

1.6 Limitations of the Study

In the real world every things and attempts are limited by any one things like resources for gaining something, capacity to deal with something etc. Similarly, this study cannot go unrestricted manner, so the study has based on available secondary data related with the subject matter. Besides, to analyze the data, statistical tools such as bar graph, trend lines pie-chart, Gini-coefficient have been employed.

1.7 Organization of the Study

This research has seven chapters. Chapter-I discusses the general background of the study, statement of the problem, objectives of the study, limitation of the study. Chapter-II has gone for literature review. In this chapter review of development economics and infrastructure, review of income distribution, and review of disparity in the development process has reviewed. Chapter-III for methodology which discusses about research design data collection method, uses statistical tools etc. chapter-IV is for presentation and analysis of data, it discuss about current status of infrastructural development and income distribution in Nepal with the help of regional figures. and also presents and analysis of data in Mahakali Zone of infrastructure and income distribution; Further it has gone to show linkage between infrastructural development and income distribution in Mahakali Zone. Chapter-V has for summary, conclusion and recommendation.

CHAPTER II

REVIEW OF LITERATURE

To develop the theoretical concept, relevant to the study, many ideas of writers or school are presented briefly with their views and findings.

2.1 Review of the Theories and Empirical Studies

2.1.1 Development economics and infrastructure

Rosenstein-Rodan (1943) have given high importance of investment as infrastructural in build railways, road, canals, hydro-electric power stations. Similarly national investment/ capital concentrated on building public utilities then the rest will follow automatically. In the process of economic development, further he advocate that for the industrialization of the country once it is accomplished by large amount of investment may create an equilibrium from which onwards normal private incentive may operate successfully. It creates the external economies and rise the productivity of private investment. Rodan advocates the process of economic development Via the balance growth approach termed as 'Big Push'. He argues the big does of investment is required to stimulate the economy which commands process towards development and the situation of under development could be overcome.

Hirschman (1958) has also given high importance of infrastructural facilities. He explains investment on infrastructural development as social overhead capital. Moreover he advocates the economic development from the point of view of unbalance growth approach. He argues that the tensions of disequilibrium should be created by investing certain leading firms and industries which could induce growth in other industries through the backward and forward linkage such tension creates a new disequilibrium that requires a further move in the long run.

Rostow (1960) has given emphasis for the importance of infrastructure development during the process of economic development. He explains the economic development through five stages namely 'traditionally society', 'the pre conditions of take off' the take off,' 'the drive to maturity', and 'the age of high mass consumption'. According to the Rostow economy enter into the phase of pre-conditions of take off there should

be increase investment in transport, communication, road etc Rostow think that pre conditions of takeoff are set in motion by changes in agriculture involving modern science and technology, increasing investment in transport, communication and road, expansion of external trade. The expansion of transportation helps in the flow of goods and services from one place to another.

Bhattraï (2003) in the book 'nature of underdevelopment and regional structure of Nepal,' has analyzed the regional structure and development of Nepal from Marxist point of view. According to him, the semi-feudal and semi- colonial structure of Nepal is the main hindrances for the balance regional development of the country.

In the book he has tried to analyze the agriculture productivity and its distribution aspect, nature of industrial retardation and its distributional aspect by employing the statistical tools such as mean, standard deviation and coefficient of variance. He also discusses the proliferation of circulation capital in Nepal. At the last, he finds low level of status from the view point of production and distribution aspect. According to him find measure of reducing disparity is radical transformation of the society.

Amatya (1987) in his research work 'perspectives in regional problems and regional development in Nepal' presents an analysis of regional problems and development in Nepal. This book has eight chapters, chapter first discuss regional problems and issues in Nepal. He presents the geographical, population and migration aspects of Nepal. He has focused in depth study in quantitative measurement of regional inequalities among regions of Nepal followed by descriptive analysis of regional differences in agriculture, industry and infrastructure facilities. He has used coefficient of variation for measuring income level in regional level, beside this he has used regional relative formula to know relative position of each region through time in relation to one another. He discusses the evolution of regional problems in Nepal and also presents relevance of regional growth model in relation to Nepalese experiences. Further he appraises the regional planning and regional development strategy in Nepal. In the last as the conclusion, he has pointed two alternative approaches regional planning and regional development model of Hirschman.

Sharma (2002) in his article 'Infrastructure, service delivery and accessibility in mountain and hill of Nepal' has explained the pattern and accessibility of infrastructural facilities on ecological level. Article has divided into five parts. In the introductory part he has presented the physical features of hilly, mountain and Terai region. In addition to consequences of uneven distribution of infrastructural facilities have been analyzed. Second part has shown to overview of issues related to infrastructure, service delivery and accessibility. Role of private and public sector in the process of development and distribution of infrastructure, and effects of infrastructure development which are minimization of social and private cost in terms of money and time, the supply of goods and services without disruption and market distortion, the promotion of national unity and integrity, the increase in production efficiency and growth, and the generation and equitable distribution of employment has also demonstrated. The state of infrastructure development and inter district comparison of development indicators has been presented in successive parts. Finally he concluded that hills and mountains are lagging behind due to the less attention in budget allocating of these areas that is due to the prevalence of feudal state of economy and another region pointed that national leader who are migrate in Terai and they look Terai economy more loyally.

Stephane & Akiko (2011) in the article 'Infrastructure and growth in developing Asia presents a brief update on the state of infrastructure such as electricity, telecommunication, internet, railroads, improved water sources etc. in developing Asian countries, in the first part they discussed importance of infrastructure facilities as supporting growth and poverty reduction via the two sides: supply sides it support growth and poverty reduction directly as working as infrastructure capital services as a production factor and indirectly when improved infrastructure promotes technological progress.

On the demand side, they argues that increasing level of infrastructure stock is similar with increasing level of demand of infrastructure facilities which is direct implication of poverty reduction.

They applies two distinct approaches- growth regression and growth accounting as tools to analyzed the link between infrastructure, growth and productivity. Section second provides overviews of past development in infrastructure capital accumulation

in developing Asia. Next section reviews the underlying theory, as well as the existing empirical literature on the link between infrastructure and growth. Section four presents the results of an empirical investigation of the theoretical efforts discussed in section three finally they conclude that infrastructure stock in developing Asia have been growing at a significant pace. However that their levels remain well below corresponding world averages in term of both quantity and quality. A massive build up of infrastructure stock in electricity, telecommunication, transport, and water supply is needed for it have a positive impact on economic growth.

Acharya (1999) in his research work on “Infrastructure investment policy and mechanism of regional disparity in developing countries” has done comparative study of relationship between infrastructure investment and its impact in reducing regional disparity in developing countries. He followed both quantitative and qualitative approaches. Following a qualitative approach, review of macro trend in selected developing countries (Asian-4) and Japan is carried out. Asian -4 countries case is intended to help understand the policy level issue related to infrastructure investment and regional disparity while that for Japan is aimed to provide insight on policy efforts directed to narrowing regional disparity through the instrument of infrastructure investment.

Acharya finds macro- trend in ASEAN-4 countries as demand driven approach of infrastructure development in rapidly developing Asian countries has resulted in an over- concentration of population and economic activities in capital cities. The manufacturing oriented export sectors and increasing reliance on foreign capital have relatively fueled the growth of capital region, even though the governments seem to be aware of possible future cost of growing regional disparity. In rapid growth, the government had to struggle simply to meet growing infrastructure demand of industrial sector (to maintain export competitiveness) and their by sustained growth. Key policy lesson coming out of Japan case is that infrastructure investment is indeed an effective policy instrument for reducing regional disparity but there is also possibility of inefficient (ibid 85-86).

Lastly, research recommends as policy, significance of infrastructure in economic development is not only for to promote economic growth but also for to balance the

comparative attractive of potential growth poles of a country during growth process. So, the infrastructure policy needs to be formulated for dual objective of stimulating growth and maintaining regional balance. Government policy for infrastructure investment should be adoptive and flexible.

Bhattraï (2006) in the thesis entitled 'pattern of infrastructural development and income distribution in Mechi Zone, Nepal' has represented distribution pattern of infrastructural development and income distribution in regional level and Mechi Zone. He has taken the infrastructural facilities such as road, electricity, postal services, telephone, irrigation, banking, and for income distribution has taken different indicators such as per capita income, gross domestic income at market price, development expenditure, people in non agriculture jobs, industrial employment, agricultural land. He has employed descriptive figure like pie chart, trend line, bar-diagram. Besides, this gini coefficient to measure the inequality has used. He found that national level the infrastructural facilities are highly concentrated in EDR and CDR.

FWDR is beyond the reach of the main stream of development. Inequality has been increased. In the district level more infrastructural facilities is distributed in more accessible district like Jhapa, Ilam leaving Patchar and Taplejung. Finally he recommended that the development of positive consciousness and strong implementation of development planning can be the most important aspect for the simultaneous development of the overall districts.

The government of Nepal has been running in the course of infrastructural development and thereby uplifting the overall socio- economic status of the nation. In this circumstance the government of Nepal has carried local infrastructure development policy 2004. The objective sated by LIDP has to increase the access of local people including women, disabled, backwarded oppressed neglected and Dalit class to social service, economic opportunities and resources by the means of physical and social infrastructure in the respect of goal put forward as to contribute in poverty alleviation by improving the social and economic conditions of the local people at their own initiation and participation.

Moreover the policy has put following strategies to achieve the above mentioned objectives:

1. Devaluating the programmes relating to infrastructure by line ministries to the local bodies.
2. Enhancing development of appropriate institutional structure and technical capacity for the local infrastructure development.
3. Pursuing a concept and working style to mobilize local resources, mean and skill in local infrastructure development in people's participation.
4. Making effective utilization of available resources by maintaining harmonization among the donor agencies involved in the local infrastructure development. (GoN, 2004).

2.1.2 Review of Income Distribution

Development activities/infrastructure development helps people to increase their economic activities because it helps to aware about new world and modern technology. Then increased economic activities increases production of goods and services which eventually turn to the people as the income distribution. On the other income distribution helps to visualize the extent of disparity. In this connection, Theorist views about income distribution have been reviewed.

San (1973) in his book 'on economic inequality' deals about the measurement of economic inequality from the objective and normative approaches. He sees problem of measurement of equality of income distribution in aggregate term. He has focused on equality, utilitarianism and welfare economics in the first chapter. In the second chapter, he has explained the various method of measuring inequality which are both positive and normative approaches. For the positive approach range, mean deviation, variance, coefficient of variation, the standard deviation of logarithms, gini-coefficient, lorenze curve have discussed. According to him positive measure of inequality can also be viewed as normative measure with specific assumption about social welfare evaluation for this he has employed Theil's entropy measure, Dalton measure etc. He stressed that inequality measure do have positive element which are difficult to disassociate from welfare picture. Third chapter is concern with the inequality as quasi- ordering. Fourth chapter concerns with works, need and

inequality. He views inequality not only as a measure of dispersion but also as a measure of the difference between the actual distribution of income.

Paul (1988), Physiocrat economists has given the idea about the income distribution as society is divided into three classes: productive class (farmers), proprietary class (landlords) and the sterile class (artisan) in interdependent manner and the total wealth is distributed among the classes in the same way as blood circulation in the animal organism.

Mathema (2004), Classical economist Ricardo explains the total national income is distributed among three groups: landlords, capitalists and labours as rent, profit and wage respectively in the economy. According to the Ricardo in the increasing level of employment with operation of marginal diminishing return in the land share of rental income increases reducing the share of profit income.

Here, above presented literature in income distribution proves it is important issues in economics as 'to get rid of' from problem of uneven income distribution but disparity in it has still remained as depressing.

2.1.3 Review of Disparity in Development Process

The relationship between economic development and the income disparity was first examined by Kuznets (1955) in his study on 'economic growth and income inequality', and has further elaborated in 1973 on the form of an inverted u-hypothesis. He has analyzed the relationship between income inequality and economic growth. He has compared the experience of developed countries namely USA, UK, and Germany with the under developed countries namely India, Srilanka and Pueroto, Rico and he found that there is greater inequality in distribution of income in underdeveloped countries than in developed countries. Further he conclude that in the initial phase the income inequality becomes wider but after certain period of establishment it begins to decrease with the level of development. Kuznets typical conclusions are inequalities are less in the agriculture sector than in non agricultural sector and existence of greater inequality of income distribution in developing countries is caused by greater concentration in the ownership of income yielding assets. According to Kuznets early stage of economic development the distribution of

income will tend to rise then reaches worst level, after that starts to decline. So, he puts these phenomenons in inverted U curve.

Pant and Jain (1980) argues the simultaneous development of all economic and non-economics factors have to be necessary to overcome disparity. According to them “Centralized planning for development of the country takes little cognizance of the need of scattered geographical area and hence it proves to be inadequate. It creates imbalance in production, employment and income.” Study has taken the indicator such as development expenditure, transport and communication facilities, availability of irrigation and power facilities, industrial establishment and people engaged for it, distribution of offices of banks, distribution of education facilities for studying the regional imbalances in development and benefit. In Nepal, integration of isolated economy, maximum utilization of labour force, effective distribution of production and social justice through social benefit has not been implemented properly in this aspect they argue “development planning has to be widespread and dispersed all over the country so that nation and regional economic problem could be tackled rationally and solved more effectively”.

Bhusal (2010) has done research work on ‘Regional disparities in the Level of Development in Nepal’. He has tried to analyze the regional disparity in two approaches: temporal analysis and spatial analysis. For temporal analysis indicators such as GDP growth rate (over 1984/85 to 1999/2000), per capita income, government revenue collection, development expenditure are presented and analyzed. Indicators relating to income and assets distribution pattern, organization structure, institutional incentives and inclusion are considered under the spatial analysis. Research has based on secondary data and simple statistical tools such as ratio, Percentage, standard deviation, regional relative formula and composite level of development have been employed.

Moreover, during the course of study he found that central Hill is relatively better position followed by Terai region generally from east to west. Mountain regions are weaker position generally from west to east. Regarding to the government revenue and expenditure a large share (57.5%) of the development expenditure is gone to

centre, western, Midwestern and far-western Mountain and Hill have got the very negligible share.

He conclude as inequalities in Nepal existed not only in the form of income or output level but also in the form such as unequal access of the people of different regions to economic and social services, employment opportunities or political power. At the last he recommend as such a manner “Nepal development strategy must be directed toward the reduction of spatial disparity as well as social integrity giving encouragement to efforts to promote development in remote and disadvantaged regions and areas to reduce the differences between centre and periphery, less developed and more developed and between rural and urban” (ibid 208-209)

Gurung (1969) in this booklet 'regional planning for Nepal' has given emphasis to the regional development planning. According to him it is a comprehensive special framework within which decision of local level for particular can be taken and assist in formulating national policies. It would greatly contribute to attainment of the objectives of national planning for Nepal, such as, reduction of inter-regional disparities, integration of national economy, breaking the vicious cycle of poverty, analysis of regional economic structure (Gurung 1969).

Further he stress “Regional approach does not mean equal distribution of resources in each and every region but initiation of comprehensive spatial planning in representative types of regions with good potential for economic growth and sharing of the benefits. Such regional investment pattern could be spelled-out in the form of explicit long-term plans through regional development planning” (ibid: p 7-8).

Fifth plan (1975) is an important plan for addressing regional disparity. This has emphasized regional development planning for reducing regional disparity/imbalance. Further plan states “The main objective of regional development is not to ignore any part and people of the country in development process. The optimum use of available local resources, reduction of regional imbalance and fix economic and social integration are the main objective of regional development. Among them is the objective of increasing sources of the people and provide social justice respectively”. (ibid :29)

Eight plan (1992) states after the reestablishment of democracy in 1990. International nongovernmental organizations have been playing a significant role in the development function of Nepal. The eight plan has also give important role to INGOs in development work. Further states “these organizations will be encouraged to work in areas where they can operate more effectively on basis of their expertise, comparative advantage and recognition. The selection of areas will be made as far as possible in keeping with the policy of balanced regional development” (The eight plan,1992:90).

The principle objective of eight plan were achievement of sustainable economic growth, poverty reduction and reduction of regional imbalances (ibid:91).

In Nepal poverty has acquired spatial variations. Despite policy pronouncement and efforts in previous plans, disparities between rural and urban areas among development regions have increased. Over the recent years, there has been an increased trend of migration from rural to urban areas hill to Terai migration continue. If disparity in urban and rural income is not reduced, this trend may gain greater momentum. Similarly, in comparison with other regions, far western region and mid western region lagging behind in infrastructural and social service facilities and other development work. People’s living standards of these regions have adversely affected by growing disparity of income caused by these factors. This has complicated the creation of equal opportunities in sharing development benefits. There are variations in region wise distribution of social services facilities like education, health and irrigation, it has been found that these services were mostly confined within the central and eastern regions. Through the above mentioned objectives eight plan formulates new programs and politics for equal distribution of infrastructural facilities for reducing gulf of income distribution.

The regional development policies envisaged in eight plan are given below:

1. To gradually reduce imbalance existing in interregional and sub regional socio economic development, to develop the existing resources and means scattered in various regions and sub- regions on the basis of regional analysis; and thereby strengthen the base of regional development.
2. To gear the regional investment towards minimizing the existing regional and sub- regional socio- economic imbalance.

3. To establish closest link and coordination among the existing or evolving infrastructure and facilities and production oriented economic activities in the context of formulating development program for different regions, sub-regions and districts.
4. To develop functional interrelationships between different regions and sub-regions and rural and urban areas. Attention will be given to the development of hierarchical settlement system.
5. To prepare site –profiles of regional development in order to establish appropriate function interrelations and coordination among national, regional, sub- regional and district levels.
6. To take necessary steps to institutionalize the basis of regional and sub – regions plans.
7. To implement regional development plans in line with decentralization policy.
8. To lay special emphasis on the development of internal transport system appropriate from transit perspective.
9. To pay attention to environmental conservation and promotion while utilizing and mobilizing region’s resources and endowments.
10. To precisely determine the means and resources required to devise the model of regional investment for accelerate pace of development.
11. To take necessary steps towards developing urban areas in a planned & basis at suitable locations along the Mahendra highway and north south link in the context of growing pressure of urbanization and to promote small town developments in other suitable areas with a view to support the rural development.
12. To determine appropriate distance to service centers or units in terms of command area with a view to provide necessary services to rural communities and to carry out welfare programs for under developed areas and backward communities.
13. To formulate and implement land utilization plan by adopting appropriate strategy to be adopted at regional, sub- regional and local levels so as to make proper utilization of means and resources including the maintenance of ecological balance.
14. To enable the office of developed related formulate, implement, coordinate, monitor and evaluate development programs.

15. To seek greater and direct involvement of NGO's and national level organizations with due consideration to their scope of activities in regional development programs, (Ibid: 650- 651).

Problem of disparity within the regional level can be recognized from the given statement in ninth plan (1998) “ Mountainous and hilly districts of the mid- western and far western regions and mountainous districts of the central and eastern regions are relatively under developed. Largely underdeveloped areas also exist in the sub-regions. Policies and programs specific to development of such areas are lacking” (Nine plan 1998: 233).

Problems of regional imbalance still looms despite the fact that significant physical achievement in socio-economic aspect and development of infrastructure at regional level during the eight plan period. Almost all aspects of economic and physical development, human resource development in the most of the mountainous and high altitude region of the nation, and mid-western and far western development regions are relatively lagging behind. “During the ninth plan, effort will be made to attain proportional regional balance which is supposed to become effective development status, such as those existing between regions, within the region and district level” (ibid: 95)

The tenth plan argues that Himal and Hilly areas of mid and far western development regions are comparatively lagging behind in the process of development and these are more sufferings by poverty. Further it states. “ It is necessary to invest comparatively a huge amount especially in far western and mid- western, high hilly regions for the fulfillment of income generation and basic needs”. (Tenth plan 2002:123).

Tenth plan has been put the following strategy for region balance.

1. To increase the participation of native people of concerned are regional local level decision making problems.
2. To develop infrastructures like transportation/ communication to reinforce the economic interrelation between interregional and rural/ urban regions especially to mainstream the backward region into the efforts of development.
3. To direct the allocation of resources and means towards reducing regional imbalance. (ibid: 2002: 123-125).

The present practice for regional balance development of Nepal is prepared an approach paper to the thirteenth plan. It has set objective for regional balance development as to maintain regional balance by placing special emphasis on the development of areas lagging behind in terms of economic, social and human development. Remaining behind of this objective the following policies has set as operating policies.

1. While allocating resources, special emphasis will be given to the regions, including Karnali and Far-west, lagging behind from the point of view of economic, social, human and infrastructure development.
2. After determining comparative advantages and local competitive abilities, production system utilizing local means. Resources and skills will be developed.
3. Investment in programmes designed to develop the physical infrastructure and the state of social and human development in areas identified as lagging behind will be prioritized.
4. Programmes exploiting natural resources and having a high comparative advantage will be designed and implemented.
5. After identifying feasible productive sectors, the private sector. Cooperatives and communities will be encouraged to grow and process high- value agro-products, fruit, and herbs.
6. The Karnali and far west development commissions will be made fully responsible for formulating, implementing and monitoring programmes to be carried out in the respective regions.
7. The regional development progress will be made effective with the participation of the government private sector, cooperatives, local bodies and other stake holders and

On the basis of district –wise contribution to the gap, balanced regional development will be achieved through the proportional allocation of means and resources (approach paper of thirteenth plan 2013: 114-115). At this connection regional development model was understood to overcome such imbalance in development process. To attain equitable development within the country by reducing regional imbalances by providing basic needs of development at regional level is the main objective of regional development model in Nepal.

Experimented regional development model for four decades has resulted in physical development in financial and social aspects, successful in providing some infrastructures facilities with n the country, but the regional imbalance in development process can be seen even today.

In the conclusion, the issue of regional disparity along the infrastructure income distribution have found wide spread expression in scholars writing across the world. Many researchers have done behind of infrastructure development and income distribution both at regional and sub-regional level. But rare are particular studies conducted in concentrating on Mahakali zone. By considering above mentioned research works and need of a comprehensive study on Mahakali zone this study is mainly focused on establishing the correlation between infrastructural development and income distribution in Mahakali zone.

CHAPTER III

METHODOLOGY

For measuring the pattern of infrastructural development and income distribution, various indices are considered necessary i.e. regional agricultural land, mileage of roads, telephone density, other infrastructural factors, industrial and agricultural factors etc. These indicators are used to bring a meaningful discussion of zonal with in reference to infrastructure and income distribution.

3.1 Research Design

As the objectives: to investigate pattern of infrastructural development and income distribution and to examine linkage between infrastructural development and income distribution of Mahakali zone research could be made as combine both explorative and descriptive research. For this, different indicators such as rural road, electricity, telephone, internet, banking, have been used to show the pattern of infrastructural development. One the other hand, per capita income, it is the indicator of income of individual. GDP at market price, because it is also the sum of income of factors of production thus it can be used as income distribution indicators. Industrial employment from which person can earn the money then the getting money as income of a person becomes itself distributed income. Thus the industrial employed labour force has been used as indicator for income distribution. Development expenditure is also part of income so it can be used as income distribution indicators. Therefore altogether five indicators are used for income distribution indicators.

3.2 Data Collection

This study is particularly based on secondary data collected from different sources such as: CBS, Population Census of 2011; CBS; National sample census of agricultural 2011/12; Data record Nepal Telecom 2014; CBS, Nepal living standard survey, 2003/04, 2010/011; HDR-2014; GoN, DOLIDAR 2012; Data record, NEA 2014, Data record in department of industry -2014; National planning commission red book 2014/15 etc.

3.3 Statistical Tools

To find out the disparity in distribution of infrastructure and income in district level Gini- coefficient has been used. It can be derived as follows:

$$G = \Delta_1 / 2\mu$$

Where, G = Gini coefficient of mean difference for a set of observations

$$x_1, x_2, x_3 \dots \dots \dots x_n$$

$$\mu = \text{average number}$$

$$\text{And } \Delta_1 = g/m$$

g= sum of all positive differences

$$m = n(n-1)/2$$

n= number of observations

for the ungrouped data following formula has been used:

$$G_c = 1 + \frac{1}{n} \frac{\sum y^2}{\sum y} - \frac{(\sum y)^2}{n^2}$$

$$0 \leq G_c \leq 1$$

Gini coefficient always lies between zero to one the value G_c equal to 1 indicates disparity where the value, if $G_c = 0$ indicates perfect equality.

3.4 Descriptive Figure

Descriptive figures such as Pie-charts have been used to show the disparity. Beside, trend line, bar diagrams, has been used to show the living feature of the distributional pattern of infrastructure and income respectively.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

4.1 Current Status of Infrastructural Development and Income Distribution in Nepal

The infrastructural development of Nepal has begun since 1956 AD as planning scheme. However, the pace of infrastructural development is not satisfactory thanks to different economic and non economic factors such as political instability, lack of perfect harmony among development actors, sense of powerlessness among democratic forces, lack of visionary thought, rising corruption, lack of responsibility in top policy maker and intellectual personalities, etc. Despite the several attempts made by the government, the output remained at unsatisfactory level. The reestablishment of democracy and movement of liberalization have brought favorable situation in infrastructural development which is positive sign in inequality reduction of income but armed conflict stood as a hindrance after then, the peace agreement have come and country have been taken new mode. Now country has been entering for constitution forming.

At this juncture, the pace and pattern of infrastructural development and income distribution across the country is not satisfactory. The available different indicator in relation with infrastructure development and income distribution shows that development activities are concentrated in accessible region namely CRD, WDR and EDR.

4.1.1 Pattern of Infrastructural Development

There has already mentioned about having prime role of infrastructural development for building strong national economy. If we observe the history of developed nation, we can find that infrastructural development has been working as a prerequisite for overall development of the country. Every change has been getting momentum only after the development of infrastructure in developed countries.

In this aspect, the current status of infrastructural development in regional level has been exhibited below.

Table 4.1: Pattern of infrastructure Development by Regions

Infrastructure \ Regions	EDR	CDR	WDR	MWDR	FWDR
Rural Road (km)	9436	18751	14282	5594	2881
Telephone Density	28.92	54.34	40.58	30.62	29.58
% of internet connected HHs	1.3	6.64	2.43	0.68	0.71
% of electricity field HHs	50.54	56.14	54.22	34.50	31.89
% of irrigated land	52.23	59.90	43.47	43.13	58.53
Population per bank branch	13970	8001	7939	16420	22196

Sources: DOLIDAR, Rural Road Record 2012; Data Record NTC mid March-2104; CBS, Population Census 2011; Data Record, NEA mid February, 2014; CBS, National Sample Census of Agriculture 2011/12; Data Record, NRB-Mid March 2014.

The above presented indicators show that most of the infrastructural facilities are concentrated in the accessible region namely CDR and WDR other regions are beyond the reach of sufficient infrastructural facilities. The reason behind that can be low representation of that areas people is top post as leading manner in political and administrative organizations of the nation. Besides, existing leader are more loyal in own areas rather than considering other areas.

Due to the fact that in the last time country had faced armed conflict and other problem. In considering uneven distribution of infrastructural facilities across the regions different side-effects can be witnessed. A side effect as skewed pattern of income distribution across the regions is a witness of uneven distribution of infrastructural development across the regions.

4.1.2 Pattern of Income Distribution by Regions

Distribution of income has been understood as an important indicator to show the living standard of people. If the income have distributed as evenly in a society then the development process can be recognize as 'judicial' in that society. The government can influence the income distribution by different measure like taxation,

infrastructural development, subsidy process etc. The present status of income distribution has been shown as below.

Table 4.2: Pattern of Income Distribution by Regions

Regions	EDR	CDR	WDR	MWDR	FWDR
Infrastructure					
% of industrial employment	13.72	70.78	10.50	3.40	1.61
Per capita income (\$)	48659	63917	49322	40534	34287
GDP at market price (Rs.)	280955	615713	241100	142587	86599
% of development expenditure	20.73	28.85	18.92	19.11	12.40
% of agricultural land	29.98	28.46	19.04	13.96	8.56

Sources: Department of Industry mid September 2014; HDR-2014; National planning commission red book 2014/15; CBS, National sample census of agriculture 2011/12.

The above table shows that the indicators showing income distribution pattern are highly concentrated in the accessible regions. This nature of concentration is identical with the distributional pattern of infrastructural facilities. This phenomenon indicates the symbiotic relationship in between income distribution and infrastructural development. Further, above statistics on infrastructure and income distribution allows us to ask question, what the government does behave equally all over the country ? Which is quite opposite for the welfare state.

The income inequality has increased over the past period which has been shown below.

Table 4.3: Distribution of Nominal Per Capita Income by Deciles

Deciles group	Share of Income 2003/4		Share of Income 2010/11	
	Deciles share%	Cum share%	Deciles share%	Cum share%
Poorest First	2.1	2.1	1.5	1.5
Second	3.2	5.3	2.6	4.1
Third	4.0	9.3	3.4	7.5
Fourth	4.9	14.2	4.4	11.9
Fifth	5.8	20.0	5.4	17.9
Sixth	7.0	26.9	6.7	24.1
Seventh	8.6	35.6	8.5	32.6
Eight	11.0	46.6	11.2	43.8
Ninth	15.7	62.3	16.7	60.6
Richest first	37.7	100	39.5	100
Total	100%		100%	

Sources: CBS, Nepal Living Standard Survey 2003/04, 2010/11

From the above data the increasing pattern of income inequality has been calculated with the help of Gini coefficient. (Appendix)

Since the value of G_c for 2010/11 is more than that of 2003/4, the income inequality in 2010/11 is higher than in 2003/04.

Here, this shows the nationwide pattern of infrastructural facilities and income distribution respectively. Limiting in extent in research further, this study has mainly focused on pattern of infrastructural development and income distribution of Mahakali zone in successive segments of the chapter.

4.2 Presentation and Analysis of Data Regarding the Mahakali Zone

In this chapter current pattern of infrastructure development and income distribution in Mahakali zone has been presented. This zone is situated in the far eastern development region which is one of the regions lagging behind in development process of Nepal. In this context, Mahakali zone is the in the back position. This zone comprises four districts namely Kanchanpur, Dadeldhura, Baitadi, Darchula. Among them Kanchanpur is in the Terai belt and most accessible district of this zone. Besides, this district has significant contribution in national economy. Similarly, Dadeldhura is neighbouring district of Kanchanpur. Geographically, Dadeldhura and Baitadi districts fall in hilly region. Darchula is situated in the mountain range difficult hard to access with the Tibet and difficult geographical situation are main hindrance for this district's development. Regarding the distribution pattern of infrastructure and income among four districts have been presented via the available statistical data.

4.2.1 Analysis of Infrastructure Facilities

Infrastructural development is a worthwhile factor to uplift the economic status of the people and thereby the country. It is an important prerequisite in order to give momentum to the economic development. It is saying that today is era of global village. We need modern technology in appropriate with existing ground reality of the country and widespread development across the country then to rise the living standard of people and thereby to tackle with the world. Development gets momentum only when there is equitable distribution of infrastructure all around the country. On the other hand equal facilitation of infrastructure helps to reduce disparity. In this aspect infrastructural development can be understood as an important indicator to measure the disparity at a socio economic level at a particular place. To address the infrastructure facilities different indicators such as rural road, telephone, internet, electricity, irrigation and banking facilities are used. The distribution pattern of infrastructure in Mahakali zone has been presented below.

1. Rural Road

Road is an important infrastructure to link the different parts of the country. We cannot expect the development of the country in the absence of road development. It

helps to supply the essential goods and services through the country. Road also helps to developed natural resource, agriculture, industry, trade and commerce, tourism etc. of the country. Here rural road has been taken as an indicator to show the road development of the district. Generally rural road refers road developed in rural areas means that urban area's hinterland developed road. The pace of rural road development in Nepal is very slow and not in balancing manner through the regions. Mountains and hilly district are weakening position in rural road development in relative to Terai district. The situation of Mahakali zone is not different from above mentioned situation. The table presented below proves above mentioned argument. Here the road density is used to show the length of road per 100 square kilometer.

Table 4.4: Distribution of Rural Road Length and its Density

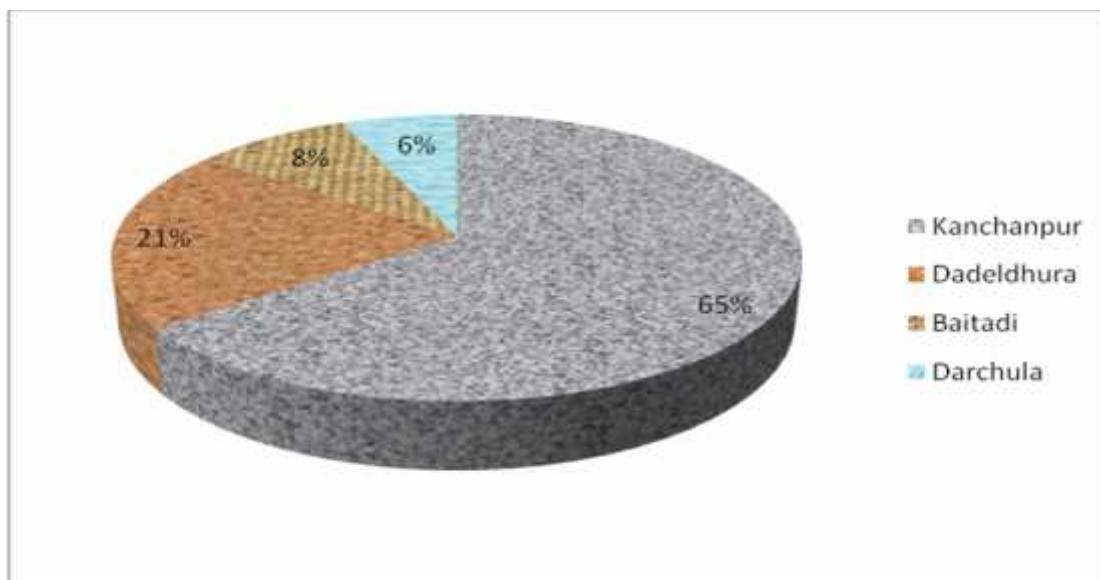
District	Rural road length (km)	Rural road density (km/100 sq.km)
Kanchanpur	689.04	42.80
Dadeldhura	218.38	14.20
Baitadi	89.80	5.91
Darchula	66.85	2.88

Source: DOLIDAR Rural Road Record 2012

Table shows excessive road is concentrated in Kanchanpur district, Dadeldhura is in second position. Together account for two districts has more than 80 percent of total road length in Mahakali which show the actual level of disparity in district level. To express more realistically disparity in road development road density can be computed by using following formula $\frac{Lenth(L)}{Area(A)} \times 100$. Road density is remarkably high in Kanchanpur with 42.80 km per 100 square km. It followed by Dadeldhura with road density of 14.32 km/100 sq.km. On the other hand road density in Baitadi and Darchula is remarkably low in comparison with Kanchapur and Dadeldhura. Moreover, the road density also indicate that road distributed according to the population, if we look from this perspective it found even distribution (except Baitadi) in development of rural road in district level.

Road facility has also been presented through the pie chart in percentage form to show to show the state of distribution which clearly visualizes the extent of disparity in district level.

Figure 4.1: Road Density (Per 100 sq.km)



The above diagram shows the distributional pattern of rural road in Mahakali zone. It shows the existing high disparity in road facility in district level.

2. Telephone

Telephone services are another important factor for the people. It is important for different sectors activities, because it helps as a means to connect the people. Telecommunication has widespread importance from micro level to macro level. It has successes to become world as a global village. The development of telephone in Nepal has remained satisfactory level because of rapid increasing trend of distribution of mobile phone via the Nepal Telecom and other private institution. However, the unavailability of recorded data for mobile phone by Nepal Telecom and other institution in district level in separate form, data presentation has limited in public switched Telephone Network-PSTN line distributed by Nepal Telecom. Distribution pattern of PSTN line in Mahakali zone has been presented in the following table.

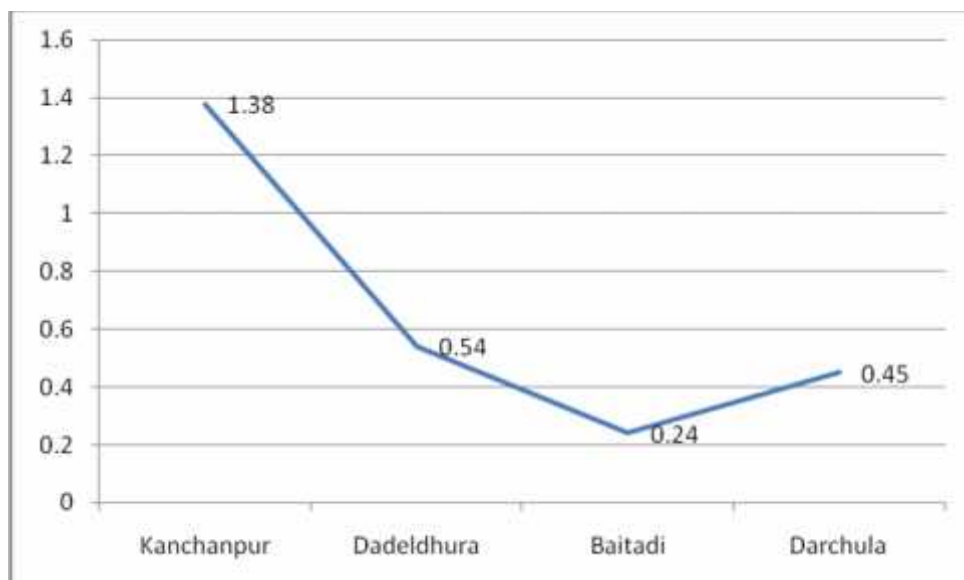
Table 4.5: PSTN Line Per 100 Population by District

District	No. Of PSTN lines	PSTN line density (per 100 population)
Kanchanpur	6227	1.38
Dadeldhura	761	0.54
Baitadi	600	0.24
Darchula	601	0.45

Source: Data Record, Nepal Telecom mid Sep. 2014

By observing the data presented above table disparity can be visualize in distribution of PSTN line within the Mahakali zone Kanchanpur is high in PSTN facilitation and followed it by Dadeldhura and Baitadi respectively. The actual figure of districts, Kanchapur, Dadeldhura, Baitadi and Darchula are 6227, 761, 600 and 601 respectively. The distributional pattern of PSTN services has been presented in the following diagram.

Figure 4.2: Telephone Density per 100 Populations



From the diagram, we know that the PSTN line density is high in accessible district Kanchanpur and Dadeldhura have relatively high than Baitadi and Darchula. Here

PSTN line density has computed by $\frac{PSTN\ line\ no.}{Population} \times 100$ formula, to show the disparity as more realistically for PSTN line distribution within the Mahakali zone.

3. Internet

In the present time, internet has been become a effective and energetic means to get knowledge, idea and information. We are being able to know and inform about developed information, ideas and technologies in each and every part of the world via the help of internet network. From the means of internet e-government, ecommerce, e-library etc. are being possible only in availability of internet network. The internet facilitation in Nepal is younger than other infrastructural facilitation.

The disparity can found in internet facilitation across the Mahakali zone that can be visualized from the following table.

Table 4.6: Internet facilitated households by district

District	no. of internet connected HHs	% of internet connected HHs
Kanchanpur	832	1.01
Dadeldhura	172	0.63
Baitadi	64	0.14
Darchula	72	0.30

Source: Population Census 2011.

Above table shows that the distribution in internet facilitation within the Mahakali zone has wide disparity. Kanchanpur and Dadeldhura had seen in front position in internet facility in comparison with rest of other two Baitadi and Darchula district. Internet connected household in Kanchanpur is more than 70 percent out of total internet connected households of whole Mahakali zone while rest is for three districts namely Dadeldhura, Baitadi and Darchula. The extent of disparity in internet facilitation has been presented in the following diagram.

Figure 4.3: Percentage of internet connected household

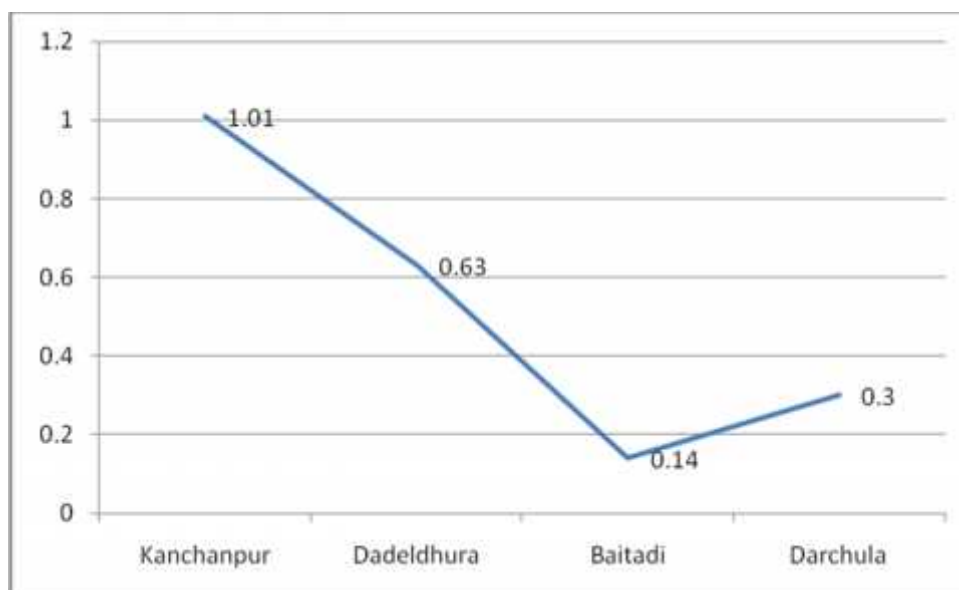


Diagram shows Kanchanpur is high rank, it followed by Dadeldhura. Baitadi has lowest position in internet facility.

4. Electricity

Electricity is a form of energy resulting from the existence of charged particles. Electricity is an important infrastructure facility when it comes in use to operate different equipments, machines, etc. connected with any production process of goods and services. Nepal is the second richest country of the world in water resource. So, Nepal has high potentiality of electricity generation. However paying attention to technological backwardness, political instability, weak development administration, lack of sufficient capital, lack of risk taking behavior in the people, etc. Nepal has not been able to produce sufficient electricity even today. The distributional pattern of electricity is also not even around the country. The performance of Mahakali zone in distribution of electricity is not different from national level. The above mentioned facts have been presented below.

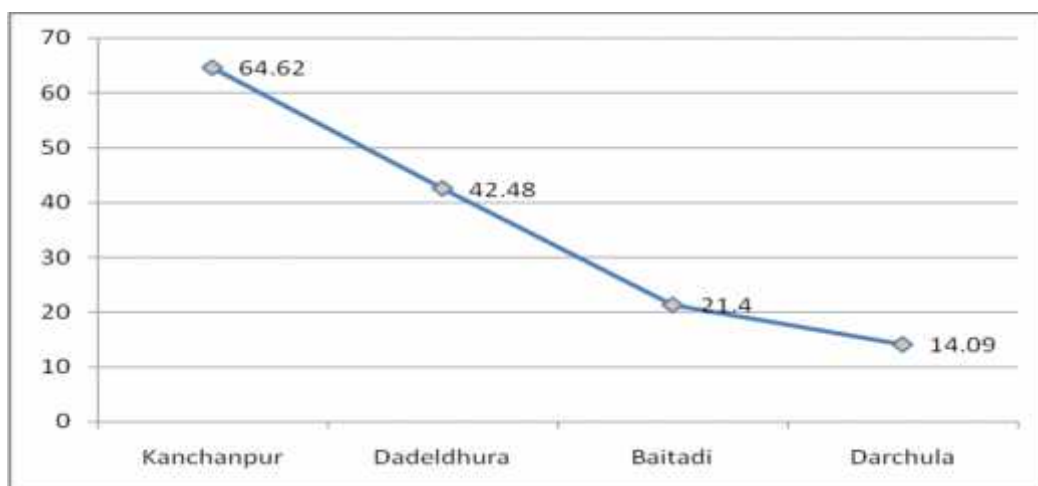
Table 4.7: Households with Electricity Facility by District

District	Percentage HH with electricity connection
Kanchanpur	64.62
Dadeldhura	42.48
Baitadi	21.4
Darchula	14.09

Source: Data record, NEA mid Feb. 2014

The extent of disparity in the electricity facility distribution within the Mahakali zone is high. Kanchanpur has high position with 64.62% household facility and followed with 42.48% HH by Dadeldhura. The lowest percent of HH with electricity facility is found in Darchula with only 14.09% of total number of HHs of that district. This clearly shows that level of disparity has high in electricity distribution across the Mahakali zone. The disparity in electricity facility by district level has been shown in diagram. The percentage of HH having electricity connection is presented. Disparity depicted in diagram is basically due to the geographical variation. The two districts namely Kanchanpur and Dadeldhura are more accessible than the rest of the districts.

Figure 4.4: Percentage household with electricity connection



The above diagram shows that there is wide disparity among district in distribution of electricity facility. Kanchanpur gets highest percent with 64.62% while Darchula gets lowest percent with 14.09% which is uneven distribution of electricity facility.

5. Irrigation Facility

Irrigation refers to the action of supplying water to land by means of connection streams, or by sprinkling water over the surface of land. Irrigation facility helps to enhance the agricultural productivity. Nepal being as a agriculturally dominant country, its importance is very high. However the pace of irrigation development is slow to meet the demand of the people. Its development across the Mahakali zone is quite uneven. The extent of disparity in distributional pattern of irrigation is wide. The extent of disparity has wide through the distributional pattern of irrigation facility. The current available with distribution of irrigation facility in Mahakali zone has been presented below.

Table 4.8: Irrigated Land by District Level

District	Irrigated land (%)
Kanchanpur	89.48
Dadeldhura	31.57
Baitadi	16.77
Darchula	12.13

Source: CBS National Sample Census of Agriculture 2011/12

Total irrigated area in Mahakali zone is about 52% of total cultivated land. From the above table, district level variation of irrigated land measured in percentage is high. Kanchanpur is above from zonal average with 89.48% and Dadeldhura has remained almost near to zonal average with 31.57% while the zonal average is 33.53. Above data shows that there is wide disparity in irrigation facilitation within the zone. Such types of disparity has been exhibited through the following bar diagram.

Figure 4.5: Irrigated Land (%)

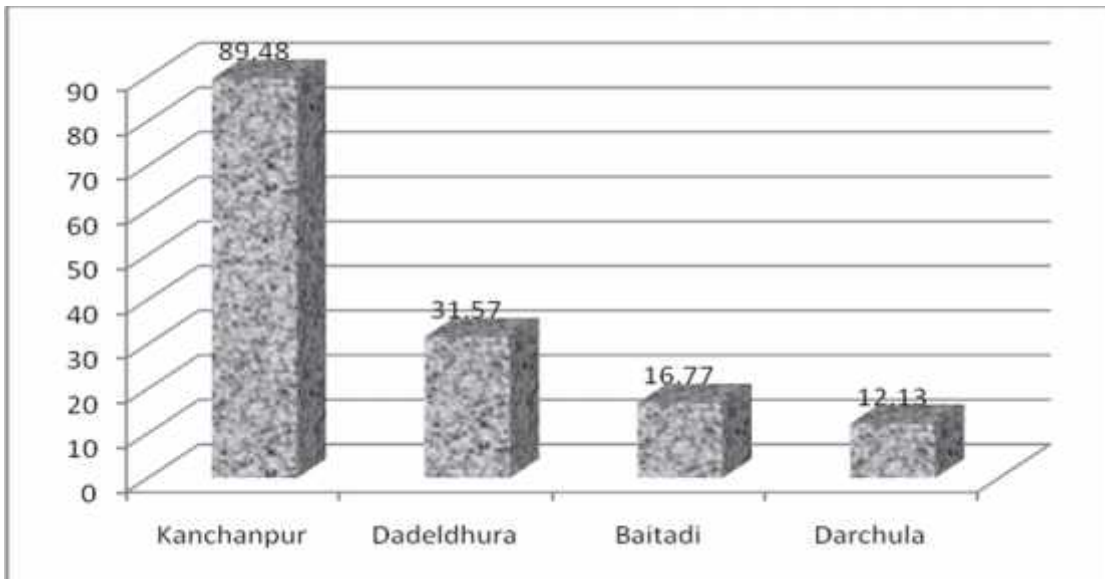


Diagram shows about excessive concentration of irrigation facility in Kanchanpur and hilly neighbouring of Kanchanpur district while hill and mountain (Baitadi and Darchula) are poor in irrigation facility distribution.

6. Banking

Bank is an institution which works for money as in the manner of collecting, lending or/and exchanging money, or which works for something that can be used to replace money in money's work as in the manner of collecting, lending or/and exchanging it. Role of banking and financial institution is very high in building strong economy. Because it facilitates to mobilize the money in proper way, which is prerequisite for sustainable economic growth. Banking history of Nepal has not exceeded eight decade. However wide range of disparity can be found in distribution pattern of banking facilitation in Nepal. Regarding the Mahakali zone, distribution pattern of banking facility is not different from the condition having in national level. The following presented statistics is a witness to prove above argument, and a base to visualize disparity in banking facilitation.

Table 4.9: Distribution of Banking facility by District

District	No. of branches of banks	Population per branch
Kanchanpur	29	15560
Dadeldhura	8	17762
Baitadi	6	41816
Darchula	3	44425

Source: NRB, Mid April, 2014.

The above table shows that banking facility is more favorable in Kanchanpur district 15560 population per branch in comparison with other districts. Total branches of banks in Mahakali zone are 46. Among them more than 60% is concentrated in Kanchanpur district. There is wide disparity in distribution of banking facility across the Mahakali zone.

The disparity of banking facility has been calculated in appendix via Gini Coefficient.

The value of $G_c = 0.58$ indicates that there is high inequality in the banking facility.

Table 4.10: Ranking of Infrastructure Development by District

Infrastructure	District			
	Kanchanpur	Dadeldhura	Baitadi	Darchula
Rural Road	1	2	3	4
Telephone	1	2	4	3
Internet	1	2	4	3
Electricity	1	2	3	4
Irrigation	1	2	3	4
Banking	1	2	3	4

The above ranking of infrastructure activities in district level shows that most of the infrastructure facilities are concentrated on Kanchanpur and Dadeldhura district respectively. There may be many reasons behind of concentrating infrastructure in these districts. The reasons can be topographical condition, political leader's access in central political power of these districts. Kanchanpur and Dadeldhura are more accessible than rest of two districts namely Baitadi and Darchula. Number of reasons can be put for this disparity.

1. Kanchanpur can run in development captivities with low cost and time due to located in Terai region in comparison with others.
2. Kanchanpur district is situated in plain topography.
3. Dadeldhura is neighboring district of Kanchanpur from there distribution of infrastructure in Dadeldhura is easier than the other two districts.
4. Kanchanpur's Gaurifanta has been made as a transit point for Nepal and India from where Nepal can collect the revenue as tarrief so the state can be attracted with this district in infrastructural development.

Unlike these two districts, Baitadi and Darchula are beyond the reach of sufficient infrastructural facilities. Following reasons are responsible for that.

1. Geographical difficulties.
2. Mountain has become the hindrance to connect Darchula with the neighboring country China.
3. Lack of sufficient attractive places.
4. Lack of sufficient attractive historical and cultural heritage etc.

4.2.2 Analysis of Income Distribution

Distribution of income in any place helps to raise the living standard of the people of that place. As like as, the distribution of income in Mahakali zone helps to raise living standard of people of this zone. On the other hand equal distribution of income can be played to raise living standard of people equally. However wide gulf in distribution of income within the Mahakali zone has still become hindrance for overall development of the zone. In the lack of perfect harmony among development actors, the concept of equitable development has not implemented in Mahakali zone. To accept this fact,

disparity in income can be seen, which has been presented via the statistical data related with indicators such as industrial employment, per capita and GDP at market price, development expenditure and agricultural land.

1. Industrial Employment

The labour force engaged in industrial task and gets the payment as a return for that task signifies the industrial employment. Industrial employment can be used to make a good syndrome of development of any place. So this can be taken as an indicator to present how the income is distributed in the local level. In the Mahakali zone, the situation of industrial employment has not at satisfactory level. Only 4211 number of labour forces has industrially employed which is quite low with respect to population.

On the other hand there can be easily visualized the wide disparity in industrial employment distribution pattern within the Mahakali zone through the districts. In the industrial employment Kanchanpur is in high position and it followed by Baitadi then the Darchula and lowest number of industrial employment labour force is Dadeldhura which has been presented in the following table.

Table 4.11: Number of industrial employment by district

District	Industrial employment (no.)
Kanchanpur	3391
Dadeldhura	85
Baitadi	416
Darchula	319

Source: Data record, Department of industry Mid-Sept., 2014.

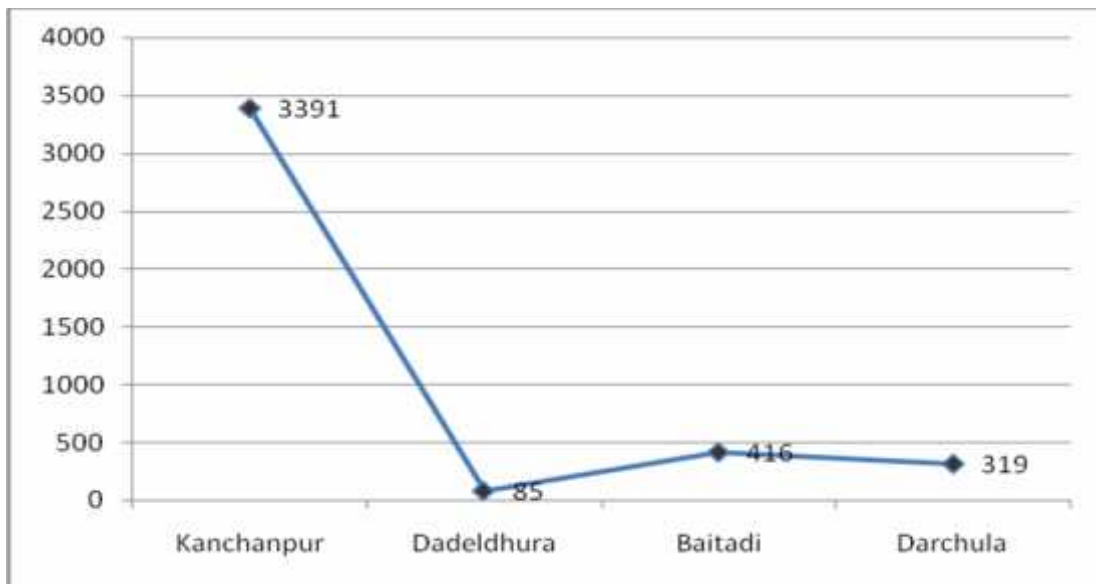
High level industrial employment is correlated with high degree of economic development.

From the above table there can be found high disparity in income distribution within the Mahakali zone from the perspective of industrial employment distribution pattern. From the table Kanchanpur is high with 3391 number which is more than 80% out of total industrial employment in zone. This scoring is followed by Baitadi and Darchula with 416 and 319 number of industrial employments respectively. Dadeldhura is in

the last position with 85 number of industrial employment labour force which only 2.02% out of total industrial employment labour force of Mahakali zone. One cause can be relatively low agricultural land than other district being poor Dadeldhura in industrial employment which has been discussed in successive part.

Industrially employed labour force by district has been presented through the following diagram.

Figure 4.6: Industrially Employed Labour Force by District



The above diagram reveals the high disparity in income distribution within Mahakali zone via the industrial employment. Further, in the industrial employment Kanchanpur is more accessible and this followed by Baitadi and Darchula. Dadeldhura seems poor in high differences with other districts condition.

2. Per Capita Income and GDP at Market Price

Per capita income is the average income of the individual in specific time frame. This indicates the living standard and purchasing power of the people. Per capita income is affected through the ups and down of the economic condition of a country or any particular region as well. On the other hand, GDP at market price is total GDP+indirect tax-subsidy. Beside GDP helps to inform the strength and weakness sectors of an economy because it can be define as a composite figure of a economy. GDP can be calculated from the factor income approach so it can be used to identify the way of income distribution throughout the production factors. Via this indicator we can get the information about the contribution of agriculture, industry, services

and commerce sectors in the national income. The above mentioned fact proves, to use the indicators: per capita income and GDP at market price as good indicators to show income distribution. Therefore these indicators of Mahakali zone by the district have been presented below.

Table 4.12: Per Capita Income and GDP at Market Price

District	Per Capita income (\$)	GDP at market price (Rs.)
Kanchanpur	580	18767
Dadeldhura	473	4809
Baitadi	354	6374
Darchula	388	3720

Source: HDR- 2014.

Income level varies across the zone. Average per capita income of the zone is 448.78\$ with the variation from 354\$ for poorest income to 580\$ for richest income. This variation is due to access of particular district in infrastructure development. The variation also occurs by agricultural productivity. Agricultural productivity can be high in Kanchanpur and Dadeldhura. So per capita income of these districts is also high in comparison with rest of the districts. The per capita income of Darchula is higher than the Baitadi it is due to the high value (price) of mountain herbs, although Darchula is poorest position in infrastructural facilities relative to rest of the districts. In connection to GDP at market price, sharp variation can be found in district level. The average GDP in Mahakali zone is Rs. 8417.5 with the variation from 18767 of Kanchanpur district to 3720 of Darchula. The extent of disparity is sharp in term of GDP at market price. The distributional pattern of per capita income has been shown below.

Figure 4.7: Per capita income (\$)

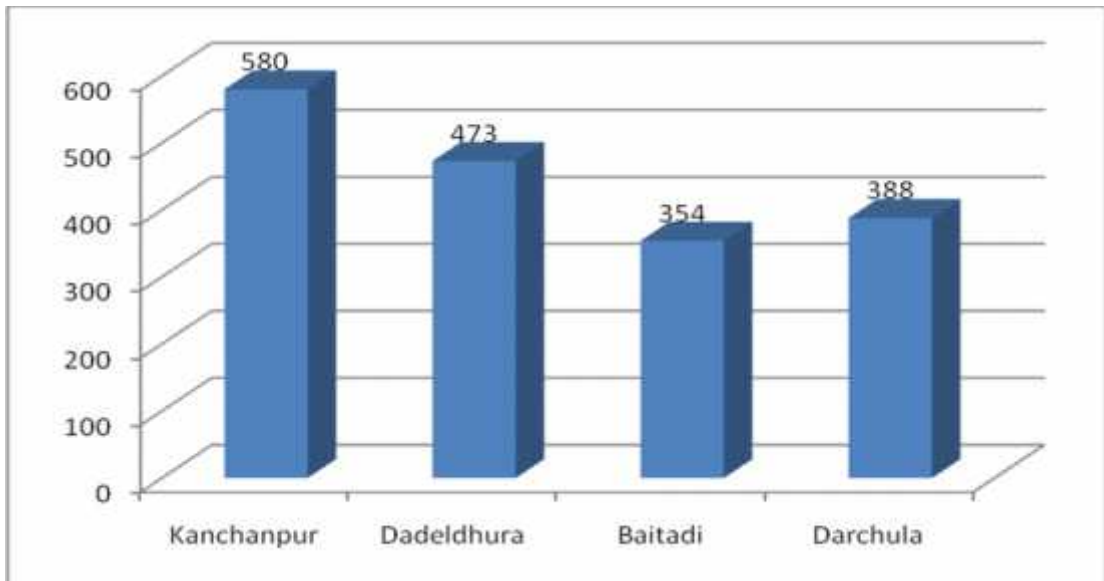
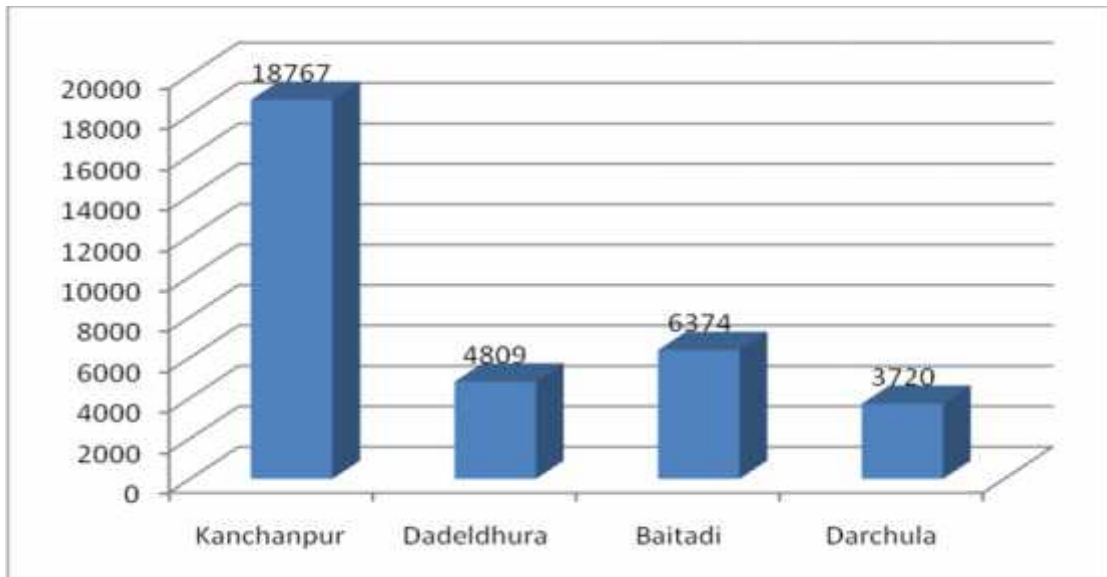


Diagram shows that the variation in per capita income in the district level is not high. But the distribution pattern isn't as same as other indicators which have been shown above. Similarly existing disparity in GDP at market price has been presented through the following diagram.

Figure 4.8: GDP at market price (NRs)



The above presented GDP at market price (NRs) shows that Darchula is far behind of Kanchanpur because of the lack of the sufficient infrastructural development, large topographical variation, low productivity of food crop production. In comparison to per capita income, wide range of disparity in the district level can be seen in terms of

GDP at market price. The disparity level of per capita income has been shown through Gini Coefficient which has been calculated in appendix.

Hence $G_c = 0.1$. This value indicates that there is low level of inequality in per capita income among four districts.

3. Development Expenditure

Development expenditure is the expenditure made by the government for development of various sectors. The budgetary scheme of government aims to develop all regions equally. However the practices and vision of the government is not so clear. That's why harmonized equitable development has become hard to achieve. In the last previous years the development budget allocation (development expenditure) is lagging behind from the ground reality however, now has some change. The development budget allocation (development expenditure) of Mahakali zone has been presented below.

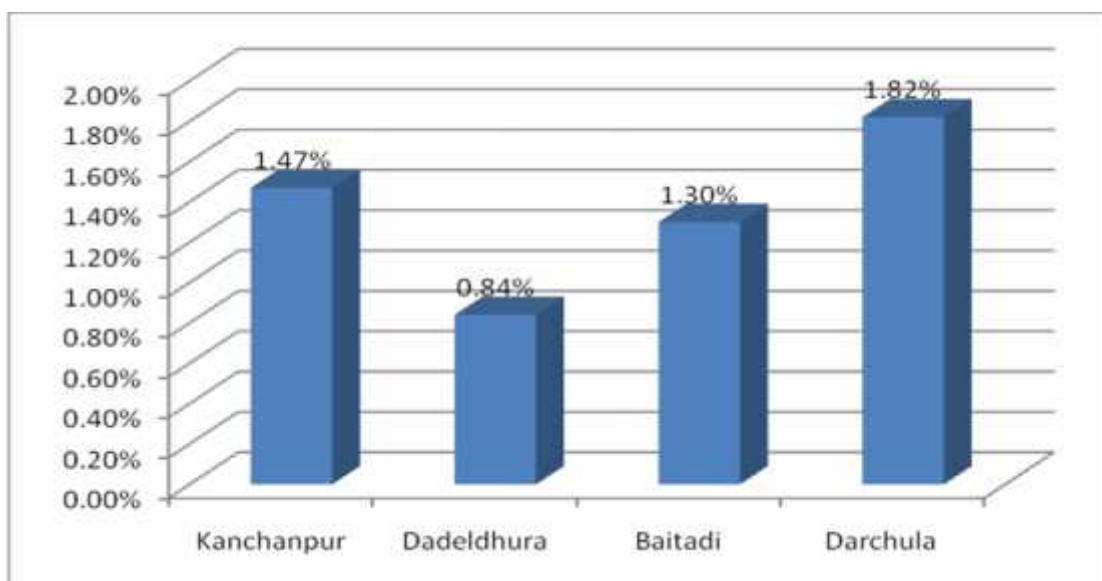
Table 4.13: Development Expenditure (Rs.)

District	Development expenditure (Rs.)	Percentage
Kanchanpur	1442070000	1.47
Dadeldhura	827876000	0.84
Baitadi	1278303000	1.30
Darchula	1780889000	1.82

Source: National Planning Commission Red Book 2014/15.

Development expenditure of GON shows somehow near with the ground reality of district. The highest share of Darchula with 1.82 percent this scoring is followed by Kanchanpur with 1.47 percent, Baitadi with 1.30 percent and Dadeldhura with 0.84 percent respectively in ranking order. By observing the pattern of distribution of development expenditure less developed district has got high priority. The development expenditure has been presented through bar diagram.

Figure 4.9: Development expenditure (Percentage)



The above diagram shows that Darchula is high position in development expenditure and this scoring is followed by Kanchanpur, Baitadi and Dadeldhura respectively.

4. Agricultural Land

Agricultural land can be an important indicator to present the pattern of income distribution. The equal distribution of land helps to increase the productivity of land. The high level of productivity of land helps to increase the living standard of the people as well as to increase the national income as a whole. The distribution pattern of agriculture land somehow even in the two hilly districts. However its distribution in Kanchanpur has remarkably high. This fact can be directly correlated with the productivity of particular district. The distribution pattern of agricultural land has been presented below.

Table 4.14: Distribution of agricultural land

District	Agricultural Land (ha.)	Percentage
Kanchanpur	41703.7	1.72
Dadeldhura	10971.8	0.45
Baitadi	20442.8	0.84
Darchula	17013.5	0.70

Source: CBS, National Sample Census of Agriculture 2011/12

Agriculture is one of the important economic sectors of the economy. In Nepal case, Agriculture sectors contribute about 34 percent to National GDP. Food crop production is dominant in agriculture as in size and distribution around the country. Regarding the agriculture land comparatively even distribution can be found except Kanchanpur and Dadeldhura in Mahakali zone which also has been shown from the following diagram.

Figure 4.10: Distribution of Agricultural land (Percentage)

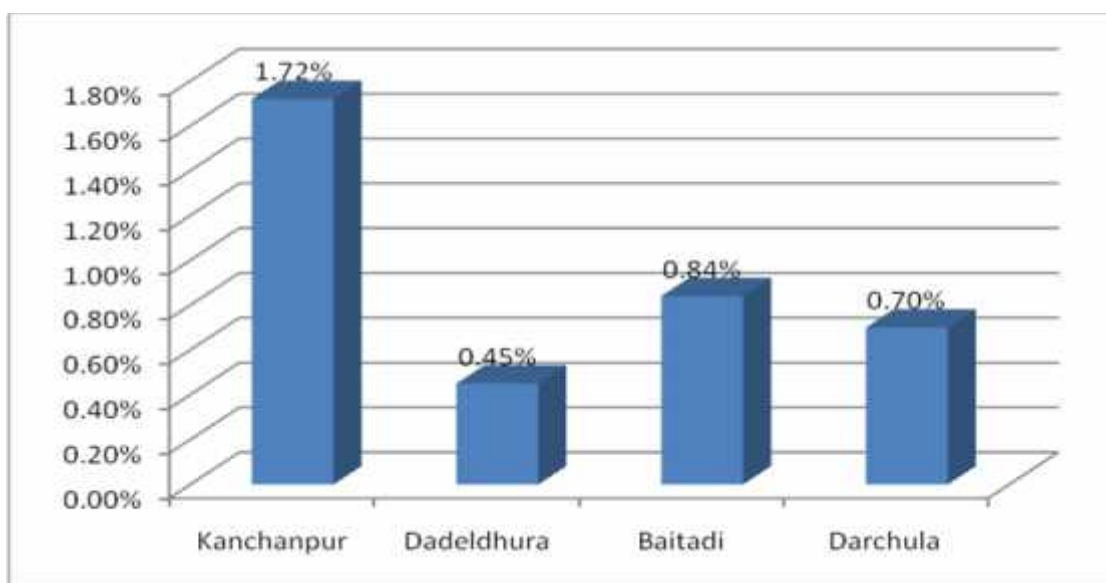


Table 4.15: Ranking of Income Distribution

Income distribution	District			
	Kanchanpur	Dadeldhura	Baitadi	Darchula
Industrial Employment	1	4	2	3
Per Cepita income	1	2	4	3
GDP at market price	1	3	2	4
Development expenditure	2	4	3	1
Agricultural land	1	4	2	3

The ranking of income distribution in Mahakali zone has been shown above which identifies that the income distribution is highly concentrated on two districts namely Kanchanpur and Dadeldhura. Here the study indicates that in the per capita income Dadeladhura is second position but Baitadi is fourth position. While GDP at market

price Dadeldhura is third position and Baitadi is second position, it is possible due to Dadeldhura is second rank in infrastructural development and Baitadi is second rank in agricultural land in income distribution. So, in this circumstance Dadeldhura cannot less develop than Baitadi district. And also Dadeldhura cannot poor in income distribution than the Baitadi.

The distribution of infrastructural development has been expressed in preceding part. The rest of the districts namely Darchula and Baitadi are poor in income distribution it is due to the topographical difficulty as well as lack of infrastructural development. Besides, the existing political transitional period, insufficient inclusion of people of less developed areas in term of quality and quantity in decision making processes of development activities of the country also have played role for carrying above pattern of income distribution. For the equal development of any sector there should be perfect harmony among development actors and government should be highly dedicate to increase development expenditure as the way that reduces imbalances and consist 'equality and equity' all over the country. The implemented development programs are not sufficient to address the poor people of less developed areas/districts.

4.3 Linkage between Infrastructure Development and Income Distribution in Mahakali Zone

In fact infrastructure development helps people to increase their economic activities because it helps to aware about new world and modern technology. Then increased economic activity increases production of goods and services which eventually turn to the people as the income distribution. In this system of links, infrastructure development and income distribution are linked. According to Sharma the development of infrastructure generates following effects:

- a) Income effect
- b) Settlement effect
- c) Transformation effect
- d) Employment effect
- e) Growth effect

- f) National integration effect
- g) Equality effect

In Mahakali zone above asserted effects have been generated in accordance with development of infrastructure. The overall development infrastructure in Kanchanpur district is high because of its over facilitation and consequently the income has been distributed highly in relative to other districts. The distribution pattern of infrastructure and income has been presented via the tables:

Table 4.16: Pattern of Infrastructure Development by District

Infrastructure	District			
	Kanchanpur	Dadeldhura	Baitadi	Darchula
Rural Road (km)	689.04	218.38	89.80	66.85
Telephone (no)	6227	761	600	601
Internet (%)	1.01	0.63	0.14	0.30
Electricity (%)	64.62	42.48	21.4	14.09
Irrigation (%)	89.48	31.57	16.77	12.13
Banking branch (no)	29	8	6	3

Sources: DOLEDAR, Rural Road Record 2012; Data record, Nepal Telecom mid March-2014; CBS, Population Census 2011 Data record NEA mid feb.-2014; CBS, National Sample Census of Agriculture 2011/12; NRB, Data record, mid April 2014.

The disparity in the facilitation of infrastructure and income distribution found in Mahakali zone is due to the geographical variation in and within the districts. But we cannot disregard the problem of gulf only by specifying geography has been done rong. There are many economic and non-economic factors behind of non-equitable and non-harmonized development of Mahakali zone.

Table 4.17: Pattern of Income Distribution by District

Income distribution	District			
	Kanchanpur	Dadeldhura	Baitadi	Darchula
Industrial employment (%)	0.70	0.01	0.08	0.06
Per capita income (\$)	580	473	354	388
GDP at market price (Rs)	18767	4809	6374	3720
Development expenditure (%)	1.47	0.84	1.30	1.82
Agricultural land (%)	1.72	0.45	0.84	0.70

Sources: Data record, Department of Industry mid April 2014 HDR-2014; GON, National Planning Commission Red Book 2014/15; CBS National Sample Census of Agriculture 2011/12.

There are many economic and non-economic factors playing as hindrance for equitable and harmonized development of Mahakali zone. Development activities concentrated in the accessible districts since long time. Lack of preference in development to less developed districts, insufficient development expenditure to obtain the outcome of development activities is made some economic hindrances. On the other hand, political transition period, lack of efficiency in development administration, lack of equal distribution of land, rising corruption in every organizations/sectors, lack of visionary thought in leaders, sense of voicelessness and powerlessness in village level, lack of technical practical education in entire zone are made as some non-economic problems.

In this circumstance, the above presentation has provided as a mental image for the living features of the pattern of infrastructure development and income distribution in Mahakali zone. It presents the cool and dark phenomenon on its consequences in socio economic level in addition to presentation how the infrastructure and income are distributed.

However, no direct relationship can be observed between pattern of infrastructure development and income distribution in accordance with the above tables the rural road length in Baitadi is higher than Darchula, per capita income of Darchula is higher than the Baitadi this single facts shows that only the development of infrastructure is not means of equitable distribution of income. There might be other causes also such as high productivity of mountain herbs cash crops in value (price) form, equal distribution of land etc.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

Organizing research in 'pattern of infrastructural development and income distribution in Mahakali Zone' with, to investigate the pattern of infrastructural development and income distribution of study area and to examine the linkage between them, has prepared with the data collection as secondary source. To analyzed the data, simple statistical tools such as percent, average, Gini-coefficient have used. Besides, descriptive figure as bar diagram, pie-chart, trend line area used to show living features of distribution pattern of infrastructural development and income distribution. For analysis of infrastructural development indicators such as rural road, telephone, internet, electricity, irrigation, banking have taken and income distribution indicators such as industrial employment, percapita income, GDP at market price, development expenditure, agricultural land have taken.

During the course of study, to provide the glance of distributional pattern of infrastructural development and income distribution of Nepal, asserted indicators are shown in regional basis as country's division in five development region. After that it is concentrated in study area, 'Mahakali zone'. In this circumstance, the findings of research can be summarized as following points:

- 1) In the national level infrastructural facilities are more concentrated in CDR and WDR.
- 2) MWDR and FWDR are beyond the reach of the main stream of development.
- 3) The Gini-Coefficient of two times 2003/04 and 2010/11 are 45.90% and 49.32% respectively.

Empirical finding of Mahakali are:

- 1) The distributional pattern is found to be uneven in the district level due to its geographical variations.

- 2) The above mentioned statistical data show that excessive infrastructural facilities are concentrated in Kanchanpur and Dadeldhura respectively. Other two districts are beyond the reach of sufficient infrastructural development. This has created many difficulties to energies to the economic development.
- 3) As shown in the study the level of infrastructure development and pattern of income distribution is low in mountain and near mountain districts. Majority of the population do not have sufficient income even to fulfill their everyday needs.
- 4) The per capita income of Darchula is higher than Baitadi it is due to higher productivity of mountain herbs.
- 5) The nature of distribution pattern of infrastructure and income distribution in district level is identical which show the symbiotic relationship in between infrastructural development and income distribution.
- 6) The volume of development expenditure has managed as per economic and geographical condition of the district. However the volume of development expenditure has not reduced remarkably in comparatively developed district.
- 7) The ladder like shape of Mahakali zone has become hindrance for the harmonized development.

5.2 Conclusion

For the balance and equitable development of a nation there should be perfect harmony among different development indicators such as income distribution, infrastructure development and its equal distribution within the regional level, improvement of socio-economic condition and perfect coordination among development actors etc. If we observe the history of development nation we can find that above asserted indicators have been working as a pre requisite for overall development of the country. Every change has been getting momentum only after the development of infrastructure and equal distribution of income in the developed countries. The development of infrastructure and income distribution can play a prime role even in developing countries like Nepal. We need widespread development of infrastructure and equal distribution of income to compete with neighbouring countries India and China and rest of the world. At the present context especially hilly

and mountain districts are not only poor in income distribution but also unsatisfactorily poor in infrastructural development in relative to Terai district. Therefore to wipe out this imbalance and disparity equal distribution of infrastructure development and income is the vital aspect. In this connection this study has tried to show the existing situation of infrastructural development and income distribution in Mahakali zone.

5.3 Recommendation

The above findings are witness to wide gulf in facilitation of infrastructure and income distribution. The various side effects such as migration of population in Terai district, migration of people for foreign employment, frustration among educated youth, poverty and low level of states attendance from the perspective of civil servant for public services in hilly and mountain district and low agricultural productivity can be witnessed through this problem. Moreover the purchasing power of the people is not sufficient. They are not facing lack of market to sell their products but also facing the lack of inappropriate and insufficient rural road facility to link with urban centre then at the last they fastened with low level of production in tem of quantity and quality. To get rid of this problem, the role of government in basic service facilitation, stimulating role of government to private sector in the production process, public private partnership approach to development, people's participatory approach to development can be taken as remedy. The development of infrastructure enhances productivity and thereby increases the living standard of people. Following points can be put as recommendation:

- 1) There should be prime role to be played from government as well as private sector to uplift the status of the people of Mahakali zone. For this government should invest in such a way that local in poor people get direct benefit from that investment.
- 2) The popular programs such as 'Afno Gaun Affain Banaun', 'Garib Sanga Bishweshor', 'Youth self Employment Program' should implement in such a way that it could carry outcome which expected in the objectives/goals of those programs. And other such types of programs should create according to the demand of the people.

- 3) Irrigation is the important factor for agriculture production so it should be addressed more effectively and strengthened because, Nepal still has only 53% irrigated land (CBS, National Sample Census of Agriculture 2010/11). Besides agriculture is a prime factor for industrial development.
- 4) Rural roads should expand in terms of quantity and quality in such a way that rural-urban linkage could be strengthened.
- 5) Technical and applied education should be provided from the higher secondary level.
- 6) Youth should be mobilized in the productive sector.

In a nutshell, the development of a positive attitude, initiation of development-oriented political culture and strong implementation of development planning, policies and programs can be an important aspect for the equitable development of all districts.

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APPENDIX

Income Distribution in Nepal (2003/04 and 2010/11)

Now let x be the deciles groups, A and B are the income share of 2003/04 and 2010/11 respectively.

Income distribution over years

Deciles group	Class Interval	Cum % of x_i	A (%)	Cum % of A	B (%)	Cum % of B
0-10	10	10	2.1	2.1	1.5	1.5
10-20	10	20	3.2	5.3	2.6	4.1
20-30	10	30	4.0	9.3	3.4	7.5
30-40	10	40	4.9	14.2	4.4	11.9
40-50	10	50	5.8	20.0	5.4	17.3
50-60	10	60	7.0	26.9	6.7	24.1
60-70	10	70	8.6	35.6	8.5	32.6
70-80	10	80	11.0	46.6	11.2	43.8
80-90	10	90	15.7	62.3	16.7	60.6
90-100	10	100	37.7	100	39.5	100

For computation of sum of products

Cum x_i	For 2003/4			For 2010/11		
	Cum. $A_i-(X_i)$	$X_i Y_{i+1}$	$X_{i+1} Y_i$	Cum. $B_i=(Y_i)$	$X_i Y_{i+1}$	$X_{i+1} Y_i$
10	2.1	-	42	1.5	-	30
20	5.3	53	159	4.1	41	123
30	9.3	186	372	7.5	150	300
40	14.2	426	710	11.9	357	595
50	20.0	800.0	1200	17.3	692	1038
60	26.9	1345	1883	24.1	1205	1687
70	35.6	2136	2848	32.6	1956	2608
80	46.6	3262	4149	43.8	3066	3942
90	62.3	4984	6230	60.6	4848	6060
100	100	9000	-	100	9000	-

Total	$\sum X_i Y_{i+1}$ =22192	$\sum X_{i+1} Y_i$ =17593	$\sum X_i Y_{i+1}$ =21315	$\sum X_{i+1} Y_i$ =16383
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$$\begin{aligned}
\text{For 2003/4 (A), } G_c &= \frac{1}{100} [\sum X_i Y_{i+1} - \sum X_{i+1} Y_i] \% \\
&= \frac{1}{100} [22192 - 17593] \% \\
&= \frac{1}{100} [4600] \% \\
&= 45.9\%
\end{aligned}$$

$$\begin{aligned}
\text{For 2010 /11 (B), } G_c &= \frac{1}{100} [\sum X_i Y_{i+1} - \sum X_{i+1} Y_i] \% \\
&= \frac{1}{100} [21315 - 16383] \% \\
&= \frac{1}{100} [4932] \% \\
&= 49.32\%
\end{aligned}$$

Calculation of disparity in banking facilities

The formula,

$$G_c = \Delta_1 / 2\sim$$

Where,

G_c = Gini-Coefficient

$$\Delta_1 = g/m$$

\sim = Average number

g = Sum of all positive differences

$$m = n(n-1)/2$$

Geni-Coefficient of distribution of branches of banks

The sum of all positive difference

29-8 = 21	8-6 = 2	6-3 = 3
29-6 = 23	8-3 = 5	
29-3 = 26		
70	7	3

The table shows differences of banking facilities provided in district level.

$$g = 80$$

$$\sim = 11.5$$

$$m = 4 \times 3 / 2 = 6$$

$$\Delta_1 = \frac{80}{6} = 13.33$$

$$G_c = \Delta_1 / 2\sim$$

$$G_c = \frac{13.33}{2 \times 11.5} = 0.58$$

Calculation of inequality in per capita income

The formula,

$$G_c = 1 + \frac{1}{n} - \frac{2}{n^2 y} [ny_1 + (n-1)y_2 + \dots y_n]$$

y_i	Respective no.
580	n = 4
473	(n-1) = 3
354	(n-2) = 2
388	(n-3) = 1

$$\therefore \bar{y} = \frac{\sum y_i}{n}$$

$$= 448.75$$

$$G_c = 1 + \frac{1}{4} - \frac{2}{(4)^2 448.75} [4 \times 580 + 3 \times 473 + 2 \times 354 + 388]$$

$$G_c = 0.1$$