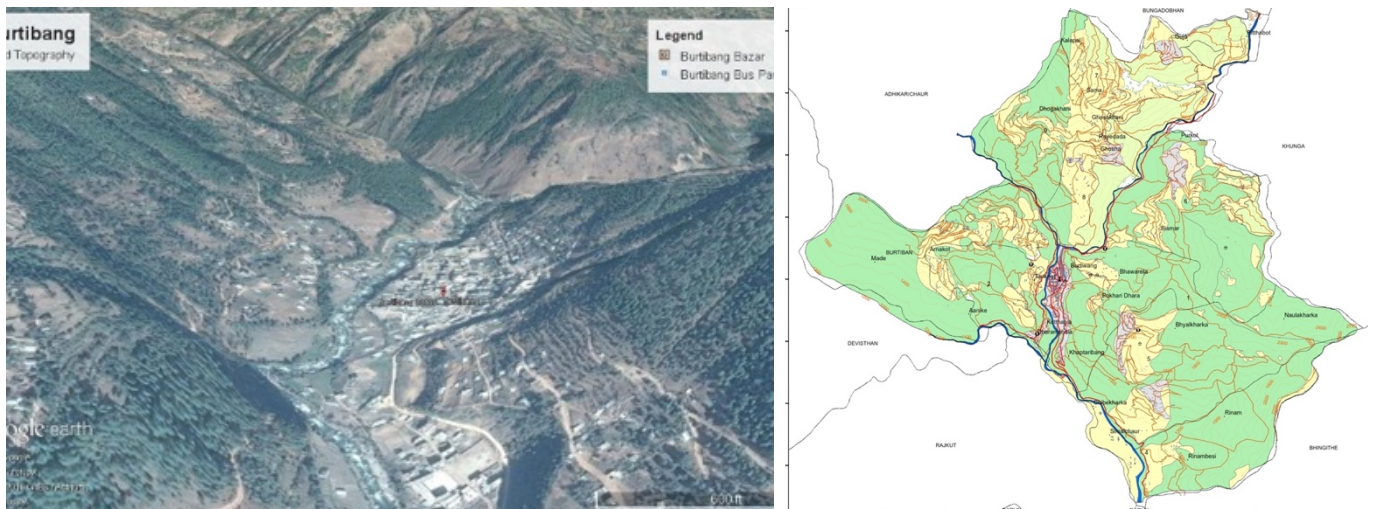


**Government of Nepal**  
**Ministry of Urban Development**  
**Department of Urban Development and Building Construction**  
**New Town Project Co-ordination Office**  
**Babarmahal, Kathmandu**

**Final Report**

**For**

**PREPARATION OF INTEGRATED DEVELOPMENT PLAN OF BURTIBANG.**



January , 2017

Submitted by:

CEMECA-GIDA JV IN ASSOCIATION WITH RIDEC

Anamnagar, Kathmandu

GPO BOX 11686

Ph. No. 01-4464544

Email: [ccpl83@gmail.com](mailto:ccpl83@gmail.com)

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Consultants Team	<p>Mr. Ajay Chandra Lal, Team Leader, Urban Planner</p> <p>Mr. Suman Meher Shrestha, Urban/ Infrastructure Planner/Architect, Deputy Team Leader</p> <p>Mr. Apil K.C. (Urban Planner/Architect)</p> <p>Mr. SB Bajracharya, Architect</p> <p>Mr. I N Shrestha, Water Supply/ Sewerage Engineer</p> <p>Mr. R.K. Shrestha Civil Engineer</p> <p>Ms. B.K. Chaudhary, Environment Engineer</p> <p>Mr. BM Shakya, Geotech Engineer</p> <p>Mr. A. Bajracharya, GIS Expert</p> <p>Mr. SM Chaudhary, Economist/Financial Analyst</p> <p>MR. P. Parajuli, Sociologist ( Community Development Expert)</p> <p>Mr. D. Yadav, Institutional Development Expert</p>	
Report Checked by		
Official Seal		

## **PREFACE / ACKNOWLEDGEMENTS**

This Final Report on Preparation of Integrated Development Plan of Burtiwang as new town has been prepared as per the TOR provided along with the contract agreement.

The consultant would like to express its appreciation to New Town Project Coordination Office, Project Director Chakrawarti Kantha, Yekraj Adhikari and other Engineers, Architects and other staff of New Town Project Coordination Office for their constant support, appreciation, valuable suggestions and comments during the process. Most importantly, we would like to thank DDG. Ar. Umesh Mainali for his particular and constructive suggestions which helped us to move head in this project with so much clarity. We are grateful for the constant guidelines and push from the higher-level officials from DUDBC

This report wouldn't be prepared by the TDC members of Burtibang and local people for their effortless participation in this planning process. At the Burtibang, we are grateful towards effortless support by TDC Burtibang president, Mr. Arjun Sherchan and other TDC members, for their constant support in the field visit, survey collection and workshops at Burtibang.. Similarly, we are grateful towards support from Er. Pravin Adhikari and Er Roshan Shrestha (DE of division Baglung) for their assistance during planning process.

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Finally, the project team would like to express thanks to all staffs and colleagues of CEMECA Consultant (P) Ltd, GIDA Nepal (P) Ltd and RIDECA (P) Ltd for their anxious support for this study.

## EXECUTIVE SUMMARY

Integrated Development plan of new town, Burtibang, Baglung is expected to serve the road map of the development of Burtibang in all its infrastructure, social and economic dimension. As clearly mentioned in the title of the study, study comprises various aspect of development starting with physical, social, economic and some contemporary incorporation of climate change, disaster, environment and many others. The study is the comprehensive analysis of different aspect of the town along with its regional linkage and its guidance for the development of Burtibang for at least next 20 years. IDP of such elegance has not been studied previously in any planning process, hence the methodological approach followed in the process was much likely to the periodic plan but majorly focusing on the strategic activities. Setting out vision of the Burtibang as:

“पर्यटन , शिक्षा तथा व्यवस्थित सेवा केन्द्रको विस्तार ,पर्यावरणिय बुर्तिबाङ्ग शहरको विकाशको आधार”

reflects the sustainable vision of Burtibang focusing on tourism, education and service sector. The planning process was adopted in the participatory process, where as different thematic groups and committees were formed in different stages of public hearings and consultation programs. It is important to understand that different projects, plans and programs identified in the report were identified, prioritized and endorsed by the public, which makes the plan more acceptable and provides ownership to the people.

The study identifies the major land usage and defines the different land use plan accordingly with the national standards, strategies and ground root level reflection of need and demand. It was very true that the program of IDP and selection of new town was rather top down in process but the planning of the town was completely carried out with the basic essence of participation. It is important to understand that different stage of the planning was endorsed with public hearing. Team of experts were regularly visiting the site and a group of team was always deployed in the site to understand the ground root level scenario of the town. Regarding the projects identified in the plan under different section, it is regarded as strategic projects and programs. Basic essence of people friendly planning was the key aspect of the planning.

After the primary stage of data collection, it was analyzed in detail. With the different dimension of analysis, it was important for us to explore the opportunities and discuss about the possible threats. It was very imperative to analyze with all the information that we had and compare the basic advantages that we are offered and some challenges that we have to incur during the development process. With the universal vision of making the town sustainable and inclusive, People friendly city designing with sustainable ecosystem and economy was major need of Burtibang. Some of the new strategies which were adopted for high steep in the planning strategies of physical infrastructure and land use zoning, to consider the steep slope of the Burtibang which covers more than 90 percent of the total area. With the concept of inclusive planning and environment friendly city planning, different approach of neighborhood development, transportation network and land use zoning is proposed. Considering the importance of shorter commuting distance and high quality transit, all settlements within city is interlinked with efficient transportation network and most possibly are proposed in walking distance. Finally, for a city being sustainable economic aspect is the most important. Hence, different physical, social, environmental, economic, programs and projects are promoted through government intervention

and through good corporate governance, with budget of around 4000 crores for expenditure period of 20 years. One of the most important aspect of this study is proposal of redefining the institutional structure of the implementation body, which needs to be upgraded with high efficiency and effectiveness to make to possible. Study summarizes different sectorial plans in different chapter with the logical framework of each sections including investment plans. It is expected that other neighborhood plans and local area plans are guided by the strategies set out by the plan for the longer and sustainable run.

## ACRONYMS AND ABBREVIATIONS

BOOT	Built Operate Own & Transfer
CAD	Computer Aided Design
CBD	Central Business District
CBO	Community Based Organization
CBS	Central Bureau of Statistics
CC	Climate Change
CSO	Civil Society Organization
DDC	District Development Committee
DOR	Department of Road
DPP	District Periodic Plan
DPR	Detailed Project Report
DTMP	District Transport Master Plan
DTO	District Transport Office
DUDBC	Department of Urban Development and Building Construction
EIA	Environmental Impact Assessment
EZ	Economic Zone
FAR	Floor Area Ratio
FGD	Focused Group Discussion
FNCCI	Federation of Nepalese Council of Commerce and Industries
GDP	Gross Domestic Product
GESI	Gender Equity and Social Inclusive
GIS	Geographic Information System

GON	Government of Nepal
GPS	Global Positioning System
IAP	Integrated Action Plan
IDP	Integrated Development Plan
IEE	Initial Environment Examination
INGO	International Non-Governmental Organization
IT	Information Technology
LFA	Logical Framework Approach
LSGA	Local Self Governance Act
MHH	Mid Hill Highway
MoFALD	Ministry of Federal Affairs and Local Development
MoUD	Ministry of Urban Development
MSIP	Multi-sectorial Investment Plan
NBC	Nepal Building Code
NGO	Non-Governmental Organization
NPC	National Planning Commission
NPD	Poverty Mapping of District
NT	New Town
NTPCO	New Town Project Coordination Committee
PDP	Periodic Development Plan
PPP	Public Private Partnership
PRA	Participatory Rapid Appraisal
QA	Quality Assurance
QMAS	Quality Management cum Assurance System

SWOT	Strength Weakness Opportunity & Threat
TDC	Town Development Committee
TOR	Terms of Reference
UN	United Nation
USD	United States Dollar
VDC	Village Development Committee
WUA	Water User Association

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PART ONE

# 1 PROJECT BACKGROUND

## 1.1.BACKGROUND

When it comes to the academic research or legislation making, big cities, metropolitan areas or primate cities are often placed at the center but not to ignore the importance and value of emerging towns, especially, when they aim to constitute significant percentage of urban population especially in underdeveloped country like Nepal. Emerging towns are the seeds of future urban life. These places have their own identity and a sociable and enjoyable way of life for their inhabitants, places whose inhabitants think globally but act locally (Khalil). They are bridges of regional, national and global economies but always challenged with aspects of globalization. Visvaldisa defends that growing cities are generally seen as more sustainable places to live in because of the absence of congesting forces, such as traffic, pollution and crime (Visvaldisa, Ainhoa, & Ralfs, 2013) but in the scenario of globalization and urbanization, oligopoly economy have created depletion in natural resources and social character of such cities. If we take cases of some western towns or cities of that size -50,000 to 300,000 Population we can conclude the functions of cities as: Goods supply, housing, labor and culture (Visvaldisa, Ainhoa, & Ralfs, 2013) which can be contradicted in case of south Asian cities where small cities are younger stages of big cities, waiting for their chance to boom without any sustained vision of development.

Urbanization policy in Nepal does not address and envision the ideal urban area as having facilities beyond transportation, communication, health, education and sewerage. It fails to address the need for places for recreation and other luxury. Moreover, it has been quite a problem to provide adequate services in the field of water supply, road transport, sewage and sanitation, health, and education (Devkota, 2012). Urbanization in Nepal, therefore, faces numerous challenges, including the issues related to health and sanitation, solid waste management, electricity outage, inadequate infrastructure, deteriorating law and order situation, among others. (Devkota, 2012). Nepal's urbanization process is rapid and imbalance compared to regional context. This trend is concentrated mainly in Kathmandu Valley and other cities of Terai or fertile land topography. The result is that the large cities are failing to cope with the demand of infrastructure services; job opportunities and are increasingly whirling under the externalities of the haphazard urbanization. Environmental degradation, congestion, urban poverty, squatter settlements, unemployment and lagging provisions of infrastructure services have become increasingly visible phenomenon in these large cities. Hence, much of the economic gains acquired from urbanization have been eroded from its negative externalities. Despite non-agricultural sector being a major contributor to gross domestic product (GDP), urban centers in the country have yet to emerge as the engines of economic growth and contribute to reduction or urban or rural poverty alike. Despite all these problems, government's responses have been grossly inadequate. The responses tend to be scattered and ad-hoc, rather than planned and coordinated. A weak institutional capability has been one of the leading factors in poor performance of the government agencies. Above all, lack of the long-term development respective or plans has led to

uncoordinated actions of agencies involved in urban development. Therefore, the result is poor or limited impact in urban development efforts. Consequently, economic development has not taken place in the desired manner consistent with the pace of population growth.

Nepal's urban areas have the potential to drive economic growth to the benefit of the entire country. From the ancient hill towns in the west to the compact historic city cores of the Kathmandu Valley, Nepal's urban settlements are rich in cultural heritage and located amid unparalleled natural beauty. The intangible heritage that flourishes in the cities – art, music, dance and elaborate public celebrations and religious observances – add vitality and meaning to the built heritage and urban fabric. The conservation of this unique heritage, both tangible and intangible, can be a catalyst for urban revitalization by preserving city livability, and creating a wide range of income-earning opportunities, especially for the poor (The World Bank, 2013).

Whatsoever, Nepal has experienced some settlement planning attempts since 1944; the first city Rajbiraj was planned to resettle people from Hanuman Nagar. In 1956; first National Periodic Plan (Economic Development Plan) was originated. At present, 13<sup>th</sup> Plan is in implementation. During 1960s many people from hill and mountain (especially displaced from natural disaster, national parks etc.) were resettled in Terai plains. In 1969, Preparation of Physical Development Plan of Kathmandu Valley was a turning point in urban planning sector in Nepal. After this, so many development plans of Kathmandu Valley were prepared but never implemented due lack of institutional/legal mechanism and financial resources. In 70s, regional Development concept was initiated in Nepal; master plan of four regional headquarters (Dhankuta, Pokhara, Surkhet and Dipayal) was prepared and implemented in some extent. In the late 80s, structure plan of all designated urban centres was prepared. Similarly, IAP was popular in 1990s before the self-governance act enacted by government of Nepal. In 2000 long-term concept of Kathmandu valley (vision 2020) was prepared. Currently, periodic planning of urban centres (municipalities) is in practice. Despite these attempts were made, it provided neither approved land use plan nor concrete physical plan implementation mechanism regarding the major urban centers in the country. Municipal plans prepared in the past employing integrated action planning technique or structure planning is found to focus mainly on physical aspects. Besides, IAP's overwhelming concentration on ward level problems has also led to neglect of municipal level vision and desires. As a result, though several municipalities show some improvement in physical aspects, progress is still found lagging in several critical urban areas such as education and health. Issues such as social exclusion or deprivation, urban poverty, environmental conservation, economic development, financial mobilization and municipal capacity building have remained largely unattended in the previous planning efforts.

Keeping in view of this context, the Government of Nepal has already enacted and has been implementing National Urban Policy since 2007. The policy is conspicuous by prioritizing investment to the lagging regions of the country. While fostering development of regional cities and intermediate towns as well. Therefore with an objective of reducing migration to capital and other larger cities, encouraging planned development of potential hill cities and building infrastructure that can facilitate about one hundred thousand population in hilly cities the

Government of Nepal has initiated to develop ten new towns in the junctions of Mid-hill Highway and North-South road corridors. Hence the government prioritization on the development of Mid-Hill Highway (MHH) and the recent policy intention through its budget speech for the development of these new towns (NTs) comprises significant economic base of the nation development.

Therefore as a long-term policy initiative, GON is providing technical and financial supports to facilitate the integrated development Plan (IDP) preparation, urban base map and profile of base information; building bye- laws and to promote their planned development and improvement in the quality of life of people of new towns along mid hill highway (MHH).

## **1.2. PROJECT OBJECTIVES**

The main objective of the proposed assignment is to prepare Integrated Development Plan and Building Bye-Laws for Burtibang, Baglung. However, the specific objectives are:

1. To set out Long-term Vision and overall Goal, Objective and Strategies for new town development
2. To prepare Physical development plan, Land Use Plan, Social, Cultural, Economic, Financial, and Institutional Development Plan; Environmental and Risk Sensitive Land Use Plan, Climate Change Perspective Plan, Multi-Sectorial Investment Plan (MSIP) etc. on the basis of Sectorial Goal, Objectives, Output and Programs.
3. To prepare building bye-laws to regulate development in the town integrating Land Use and road network plan and long-term vision of the town.
4. To prepare detailed feasibility prioritized 3 subprojects at Burtibang, Baglung.

# 1.3.UNDERSTANDING OF STUDY OBJECTIVE AND TOR

## 1.1.1 Project Location



Figure 2 Land Topography of Burtibang, Baglung( Source: Google Earth)

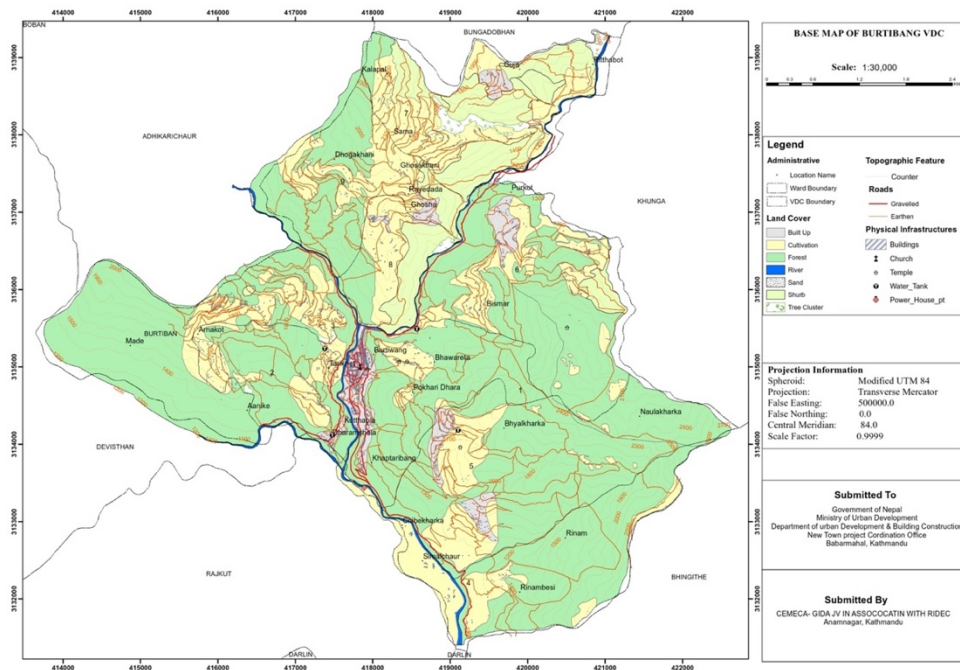


Figure 1 GIS Base Map of Burtibang

## **BURTIBANG-BAGLUNG**

Burtibang is a market center which lies in the Burtibang VDC of Banglung district. Burtibang is connected to Banglung –Pokhara and palpa- Butwal with road network. This market lies on the bank of Badi Gad Khola. According to the population census 2068 the total population of Burtibang VDC was 8,771.

With 8-10 hours off-road drive from Baglung, the town is accessible, which also serves as the market center for nearby VDCs. Burtibang is a small town surrounded by the mountains with difficult land topography. Near to the National Dhorpatan Hunting reserve, Burtibang is also touristic destination for adventure tourism. One of the major challenges for the site is its difficult geographical terrain which provides less opportunity of land development. Lying on the difficult terrain and with very limited land available for development, it was a challenge for urban development in limited area of less than 500 hectares to develop town for one lakh population.

### **1.4. SCOPE OF SERVICE**

The scope of consulting services for preparation of Integrated Development Plan & Building Bye-Laws (as mentioned in expected output) has included but not necessarily limited to the following:

- a) Review the documents prepared by the feasibility study committee and all necessary documents related to the town.
- b) Setting out vision of the town for next 20 years and preparation of integrated development plan of the town.
- c) Make necessary study, survey and data collection required for the preparation of integrated development plan of the town.
- d) Preparation of integrated development along with the investment and implementation plan for long term, medium term and short term with inclusion of possible stakeholders in each plan.
- e) Preparation of different plans as mentioned in TOR as a part of IDP as well as preparation of Land use zoning plans as per the plan.
- f) Preparation of Building bye-laws that has clearly spelled out minimum in the following areas regarding the construction of building: (a) Minimum land area (b) maximum ground coverage (c) maximum floor area ratio (FAR) (d) maximum building height (e) maximum no. of floors (f) right of way of roads (g) set back in four sides of the building (h) minimum parking area (i) lift U) minimum distance to be left in both sides of stream/river.
- g) The building bye-laws of the towns has been prepared in accordance with "Bye-laws 2064, of Kathmandu valley" prepared by Kathmandu Valley Town Development Committee and building bye-laws prepared by MoUD, NBC, Building Act and Apartment Act of Nepal.

- h) Preparation of detailed feasibility of priority sectorial sub-projects.
- i) Preparation of physical model of the town, mentioning the proposed infrastructure and land use which could be used for future purpose as well.

## **1.5.OUTPUT EXPECTED**

The completed Integrated Development Plan, program and Building bye-laws/ project report included followings; and are subject for further addition as per the requirement of the project:

### **a) Town profile:**

An up to-date profile of the town has been prepared, comprising of base line information of the existing physical, social, economic, environment, financial and organizational state of the NT. Apart from the key statistics, such base line information includes textual descriptions, thematic maps, charts, diagram, and key problems prevailing in the settlements and the municipality/ VDC.

### **b) Analysis:**

The section has contained at least of the followings:

**Trend analysis:** The analysis has revealed among other things growth trend of population, migration, land use, infrastructure provisions, import-export of goods, agricultural outputs, jobs, and other economic opportunities.

**SWOT analysis:** This has revealed potentiality of the NT based on its strength and opportunities. The analysis has also revealed the weaker side of the town which tends to pose threat to the future development of the NT. Moreover, study has focused on the opportunities and the strengths of the town.

**Spatial analysis:** The analysis has clearly revealed demand and supply situation of vacant land, besides including land develop ability analysis. The analysis, therefore, has clearly showed the location where the future growth can be channelized

**Financial analysis:** The analysis has revealed income potential and financing sources including TDC/ NT expenditure pattern of the NT for the fifteen-year plan period.

### **c) NT vision:**

To make the vision operational, necessary development principles to guide the sectorial activities also were outlined. Vision and principles were formulated with broadly participated TD committee meeting and was endorsed by the public hearing.

#### **d) Sectorial goals, objectives, output, programs:**

These were formulated mainly using Logical Framework Approach (LFA), and were supplemented by performance indicators and means of verification of such indicator as far as practicable. In the process of development and analysis of data, LFA was also modified as per available information. Sectors, which were required to be included, were included at least physical, environmental management, social, economic development, disaster management, Climate Change, financial mobilization, and organization development. Such Sectorial plans and programs were formulated by forming Sub-Steering Committees, with isolated sub committee or combined committee of similar themes. Sectorial plans and programs were prepared giving due attention to national concerns such as poverty reduction and social inclusion.

#### **e) Long-term physical development plan (PDP):**

Such physical plan (physical master plan) essentially revealed the future desired urban size and form of the NT, keeping in view of planning horizon of 20 years and also classify the Town land revealing broadly urban areas, urban expansion areas, natural resource areas and also disaster prone area. Such physical plan were separately supplemented by the relevant data and thematic maps of existing land use, environmentally sensitive areas, and infrastructure services such as road network", water supply and drainage system, sewerage network, telecommunication network and electricity distribution network. Also hierarchy of the open space were also be justified within NT areas. Plans were supplemented by social and economic data and thematic maps revealing the social and economic infrastructures of the NT. The proposed land use plan was justified with geological investigation, hydrological & metrological parameters of the NT area, and were overlaid with base and cadastral maps too. There were strategic steps/suggestions to make available land for NT urban infrastructures. The master plan was supported by some critical local area plans especially of CBD of the Town.

#### **f) Social Development Plan:**

Social development plan significantly contributed to bring qualitative improvement in the lives of the common people. Attention were given focus on social development programme when social development programme was getting priority in the present context. Plans were formulated on the basis of the analysis of social condition of municipal / town area. Such plans essentially covered the following aspect:

- ❖ Education
- ❖ Public health
- ❖ Security (physical as well as social)
- ❖ Main streaming GESI (Gender Equity and Social Inclusion): Inclusion of women, dis-advantaged groups, children, elder, physically challenged etc.
- ❖ Cultural and Sports
- ❖ Hierarchy of Parks & open spaces

- ❖ Other urban social service centers (information, library, and space for social gathering)
- ❖ Others as per NTs requirements

#### **g) Cultural & Tourism Development Plan:**

Culture makes a distinct identity of the place and people, way of life and level of civilization. Cultural development plan significantly contributes to bring qualitative improvement in the conservation of local cultural heritage, art and architecture. Similarly, more attention were given to the preservation of tangible and intangible cultures. Cultural planning has been integrated with other planning. Such plan essentially covered the following aspect:

- ❖ Identification, preservation and promotion of important Cultural heritage sites within the NT area and hinterland
- ❖ Identification of specific non-material cultures in the area
- ❖ Plan for conservation of both material and non-material cultures and linked them to tourism development plan
- ❖ Culture center (local craft, paint, architecture, museum, culture exchange, exhibition)

#### **h) Economic Development Plan:**

One basic contemplation from the consultant regarding economic development plan was that the project should be made socially as well as economically sustainable. Hence it is must for a town of one lakh people to have direct job opportunity of twenty thousand population viewing the present socio-cultural status.

An Economic development plan which directly contributes in economic activities of the town and support in the development of the NT is also main component of the study. It was focused so as that the town will have its own economic identity. The proposed integrated development plan were to support to have the NT with identity based on its potentiality. Such plan has essentially covered the following aspect:

- ❖ Economic development plan: Area of comparative analysis
- ❖ Industry development (as per comparative advantage of the NT/ hinterland):
- ❖ Trade promotion, Tourism development
- ❖ Employment generation, poverty reduction
- ❖ Agricultural development (commercialization of agro-forestry products, cold storage, vegetable market )
- ❖ Rural urban linkage- strategic location of different market center/ product collection centers
- ❖ Micro/small industry and entrepreneurship/ business promotion
- ❖ Possible EZs based on local economic growth potentials (driving forces)
- ❖ Others as per NT requirements

**i) Financial Development plan:**

Financial Development plan has essentially included:

- ❖ Financial analysis and assessment of possible financial resources for the implementation of IDP in each NT.
- ❖ Analysis and projection of town income and expenditure, Revenue improvement action plan
- ❖ Allocation of Development budget (for coming five year), cost sharing among sectorial agencies, and expenditure management action plan
- ❖ Promotional strategy of private sector and civil society (PPP)
- ❖ Financial and economic analysis of proposed priority sub-projects
- ❖ Others as per NT requirements

**j) Institutional Development plan:**

Human Resources Development plan and organizational development planned are the areas of the institutional development plan. Following things were considered in the formulation of institutional development plan:

- ❖ Decentralization, good governance and mobilization of people's participation
- ❖ Institutional coordination and establishment of network
- ❖ Organizational capacity and capacity building
- ❖ Others as per NT requirements

**k) Environmental Management Plan:**

The environmental management has remained as the major problem of the NT. The environmental management plan were formulated by studying and analyzing in detail site study. Such plan has essentially covered the following aspect:

- ❖ Solid waste Management: 3R promotion- reduce/ reuse/ recycle, Sanitary land fill site
- ❖ Waste water Management
- ❖ Air, water, visual and Noise pollution
- ❖ Urban Greenery (forestry, Agriculture), park, garden
- ❖ Control and management of built environment
- ❖ Conservation of environmental sensitive areas
- ❖ Assessment of requirement of EIA/ I EE of major sub-projects
- ❖ Others (such as emergence of low carbon city, loud green city, garden city etc. concepts) as per requirements

#### **l) Disaster Management Plan:**

The Risk Sensitive land use Planning/ Mapping of the NT due to the following disaster causes has included:

- ❖ Landslide/ soil erosion, Floods Earthquake, Fire
- ❖ The vulnerability mitigation plan through the vulnerability mapping/ geological study of the area, a proper strategy was adopted to formulate the action plan for Disaster management. This formulated plan may be of
  - ❖ Pre- Disaster Plan
  - ❖ Action Plan for During or immediate after disaster
  - ❖ Post- Disaster Plan
- ❖ Disaster/calamity occurred previously in that were overlapped in the updated geological and disaster event maps (overlays or historic events)

#### **m) Climate Change Adaptation plan:**

The Climate Change perspective study has covered:

- ❖ Hydrological and metrological study of the area.
- ❖ Scope/ area of CC in the context of particular NT
- ❖ Vulnerability Assessment, analysis of impact of CC, its trends, projection
- ❖ Adaptation Plan/ Measures
- ❖ Main streaming CC in Planning and implementation of NT projects

#### **n) Building Bye-Laws:**

The complete planning and building bye-laws were formulated with basic consideration of NT vision and land-used objectives. The Bye-laws has covered following:

- ❖ General definition
- ❖ Zoning classification and bye-laws/ regulations
- ❖ Implementation mechanism & procedures etc
- ❖ Expected behavioral change from NT citizens

#### **o) Multi-sectorial investment plan (MSIP):**

Any project needs a detailed investment plan for pragmatic implementation of the project. Such plan has revealed short and long-term programs/projects, cost estimate, and probable financing sources prioritized in sequential manner for the planning period of each five years. Such programs/projects has catered both the short-term and long-term needs of the NT and the wards, and was consistent with the long-term development plan, sectorial goals and objectives, and the vision. Furthermore, MSIP has clearly reveal programs/projects for each fiscal year for the first five years. Such MSIP has tried to made pragmatic, and consistent with the financial

resource plan. The city level plan/projects (Mega project) and the projects that can be implemented exclusively by NT were clearly mentioned in MSIP. It was suggested that the plan/projects that have to implement by different line agency in MSIP. The cost estimate of the projects were done according to the approved district rate of the NT and prevalent cost estimation.

**p) Detail Feasibility Study of Prioritized Major Sub-Projects:**

In order to prepare reliable project banks for the recent execution of different sub-projects in NTs, consultants has prepared detail feasibility study of 3 projects in each NT. Necessary drawings, maps, economic and financial analysis, preliminary costing and other document has been submitted in different annexes.

Preparation of detailed project feasibility report has substantially included following:

- ☞ Examination of technological parameters.
- ☞ Description of the technology to be used.
- ☞ Broad technical specification.
- ☞ Evaluation of the existing resources.
- ☞ Schedule plan.
- ☞ General layout.
- ☞ Volume of work.

**q) Block Physical Model of Town:**

For more clarification and visualization, consultant has prepared a block physical model with 1:10000 to display the NT vision, land use plan and effect of implementation of bye-laws to the common public. CBD and important landmarks objects were presented in higher scale as possible.

The thematic maps of these all development plans were prepared in A-CAD drawing format in color A3 paper size. For the additional advantage on the utilization of the maps, such thematic maps were prepared in GIS environment. The study has contained but not necessarily limited to following maps and drawings of agreed scale and information with required explanation.

- ❖ Index Map/ Location Map
- ❖ Hinterland Map
- ❖ Existing and proposed Land use and zoning Map including an overlay of cadastral map, and contour line with approved intervals.
- ❖ Urban expansion area map: total Land area required for future town development were identified and demarcated. The planned area has network plan with contour map, detail drawings.

- ❖ Existing and proposed Road Network Map, road sections, bus bays/stop, bus park (inter/ intra city), truck yards, and location of underground infrastructures etc
- ❖ Existing and proposed water supply network Map
- ❖ Existing and proposed Sewerage/Drainage network Map
- ❖ Existing and proposed of electricity network Map
- ❖ Existing and proposed communication network Map
- ❖ Proposed Solid Waste Disposal /Landfill Site Map with an overlay of contour line of agreed intervals.
- ❖ Environmental Sensitive Map
- ❖ Geological sensitive area map
- ❖ Map showing proposed location, site plan and tentative sketch/size of social/cultural/ economic infrastructures such as City Hall/ convention centre, public parks, sport complex, security center, public toilets/ urban service centers, museum, zoo, cold store/ dry port etc.
- ❖ Detail Architectural/ Engineering Design/Drawing of selected priority sub-projects.

## **2 METHODOLOGY**

### **2.1 CONCEPTUAL FRAMEWORK**

Similar kinds of problem exist in all the communities which lack the common vision and collective set of goals followed by set of objectives to achieve the desired future. Lack of comprehensive planning or integration in different planning agencies result in multi-directional growth, which is quite often observed in Nepali planning context. “Every year in some community, the state transportation department improves the roads on the east side of the town, while the public works department extends new sewer and water service to the south and the school district decides to build on the west side of the town, on the land that turns out to have been a bargain because it has poor road access and no sewer or water service. Communities ought not to make such mistakes in planning their own futures.” (Kelly & Becker, 2000, p. 17).

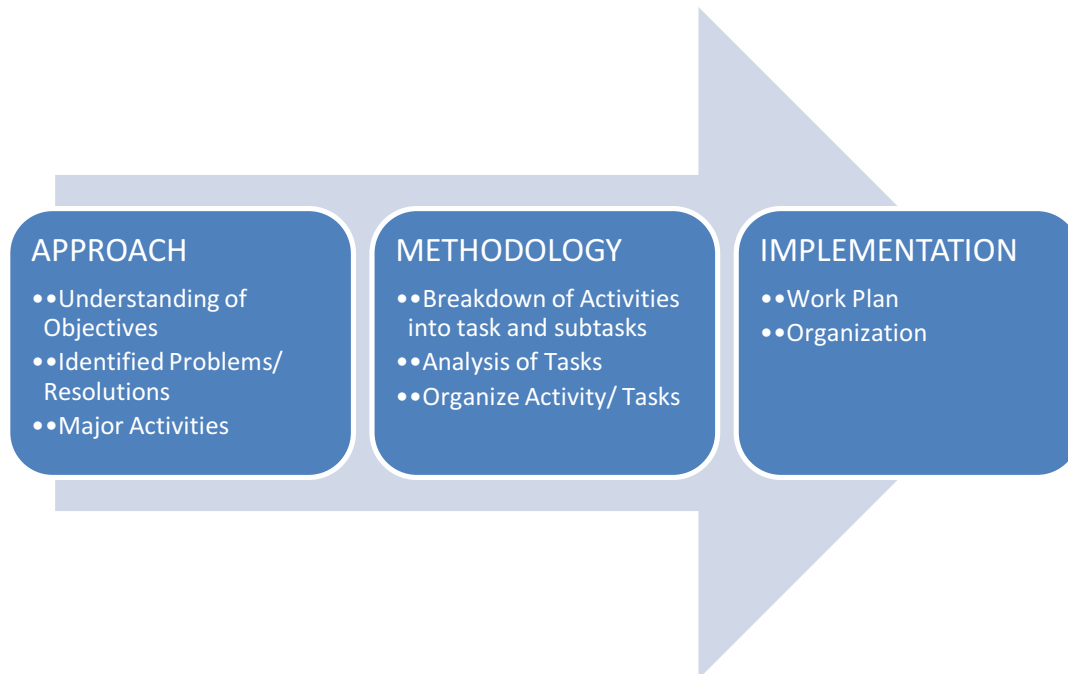
The best example of lack of coordination of planning was outrageously witnessed by all the Kathmandu residents in recent time of road expansion, where it took months to complete task of single day lacking the coordination of road department and electricity department for shifting poles. Loss of irreversible infrastructural investment is yet to follow where recently made road is to be dig up again for laying water (Melamchi) and sewer pipelines. Thus such lacking coordination in planning are major challenges in recent time especially in underdeveloped countries like Nepal. Hence it is important to make conceptual framework for the study which enables for the integrated approach of planning and comprehend things which are not observed at the moment but are must in nearby future.

Project has been carried out in two primary phases where in the initial phase contextual case study and field study was done followed by the important phase of project identification or planning phase. Consultant is aware about the importance of ground/ contextual study as well as increasing influence of globalization in planning culture. In the literature or field study, expected framework is to come up with theorizing “Why we need comprehensive plans and how can we improve the effectiveness and efficiency of plans, for sustainable development of emerging towns” and “How can we achieve?”, which was followed by more rigid planning approach in next phase including land use plans, infrastructure services plan and other different types of plans mentioned above. The study is expected to be conducted on the basis of both the exploratory and descriptive methods in the first phase followed by recommendation of integrated plan for the sustainable development of town.

Similarly, different data through the primary sources collected through focused group discussions with stake holders, key informants and direct observations. From the above sources it can conclude that what are existing condition of the site, perception of people towards development, development trends and the impacts of urbanization in changing land use, social spaces, infrastructure planning, etc. and how that change can be tackled by planning in sustained growth. Lastly all the information collected, analyzed and evaluated for final analysis and recommendation for integrated planning made with extensive public participation. Planning phase extensively inclusive in its process where vision of the IDP set in the primary phase and planning done to

achieve the target set in the vision. Planning carried with the consideration of existing planning legislations, standards, policies and requirements of modern planning approaches. Plans made to make it more achievable with its implementation plan and its investment plans, i.e. MSIP.

## 2.2 APPROACH OF CONSULTANT



### 2.2.1 General Approach:

The following outlines the Consultant's approach to the project. The Consultant has drawn on its extensive experience in providing consultancy services for similar projects, and the Consultant's general approach is based on:

- ❖ Development of a close working relationship with the client.
- ❖ A comprehensive response specific to the requirements of all works carried out on the project site at all times in a manner that ensures the attainment of the requirements of the design, specifications, budget and time schedule.
- ❖ Inspection in all critical activities by backup senior consultant of JV firms.
- ❖ Maintaining all necessary records, books, diaries, minutes and project records including all correspondence by administration of JV firms

### 2.2.2 Project Management Approach:

Project Management services for all project phases were provided through well established procedures/processes. Project Management activities span the life of projects beginning with the conceptual design phase and ending with the defects liability and occupancy phase.

### **2.2.3 Quality Management Approach:**

The firm has a comprehensive quality assurance program which includes a set of procedures that cover all key processes in the business including outputs and this has been laid down by the management team to this assignment. Adequate logistic and administrative support to provide adequate backstopping to the Project Team was made available. The firm's assigned Project Manager for the task who was made responsible for insuring the effective application of these procedures and project management methodologies for entire project period. Orientation and training were conducted in various stages of the project to maintain the quality of work i.e. data collection, analysis, planning etc.

### **2.2.4 Technical Approach to the Services**

In order to achieve various requirements of TOR, the approach has been conceived and developed to fulfill the objective and scope of the service. The Consultant firmly believes that the approach presented herein reflects the commitments for providing high quality services for the successful implementation of the project in time bound manner.

Based on the understanding of the works and the scope of works as stated in the TOR general approaches to the proposed works were based on the followings:

The Consultant Team has adopted a "system perspective" or approach in the following tasks in particular:

- The Consultant intends to apply optimum combination of the proven methods, expert professionals and recent available technology familiar with site-specific required studies/analysis, strategic importance and sound professional judgment based on practicality to fulfill the Client's requirements with optimum satisfaction;
- Selection and timely mobilization of team members;
- Close contact, interaction, and consultation with the Client, and the beneficiaries/WUA, and all other concerned personnel and authorities;
- Regular briefing to the client and DUDBC concerned personnel regarding the progress, out comes, and problems encountered;
- Completion and reporting of the services in time.

Apart from some basic standards of technical approach in planning, consultant is aware about the importance of public participation and social inclusion in the ground. Consultant is cautious about the political inclusion during decision making, hence has actively played role in endorsing the decision by as many as possible among political parties and local representatives.

Moreover, for the completion of the work in designated time frame effectively the concept of Back stopping Support has been also introduced. The back stopping support chart has been shown as below:

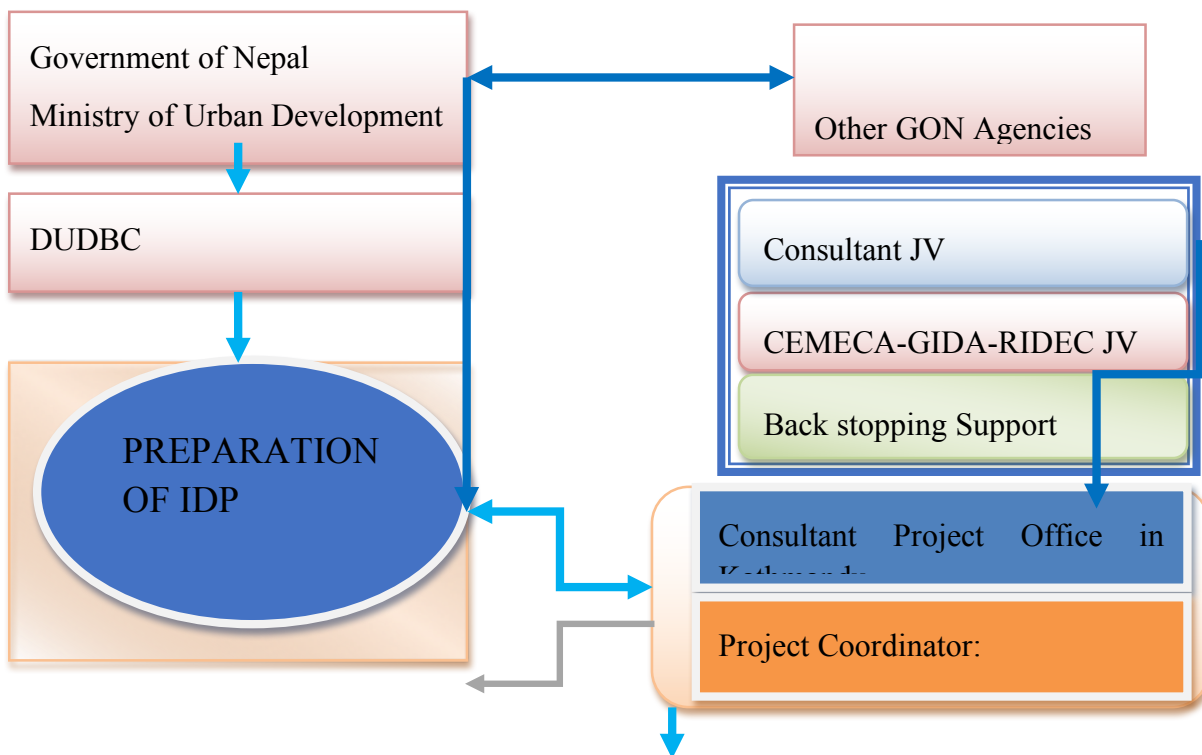


Figure 3 Back Stopping Support

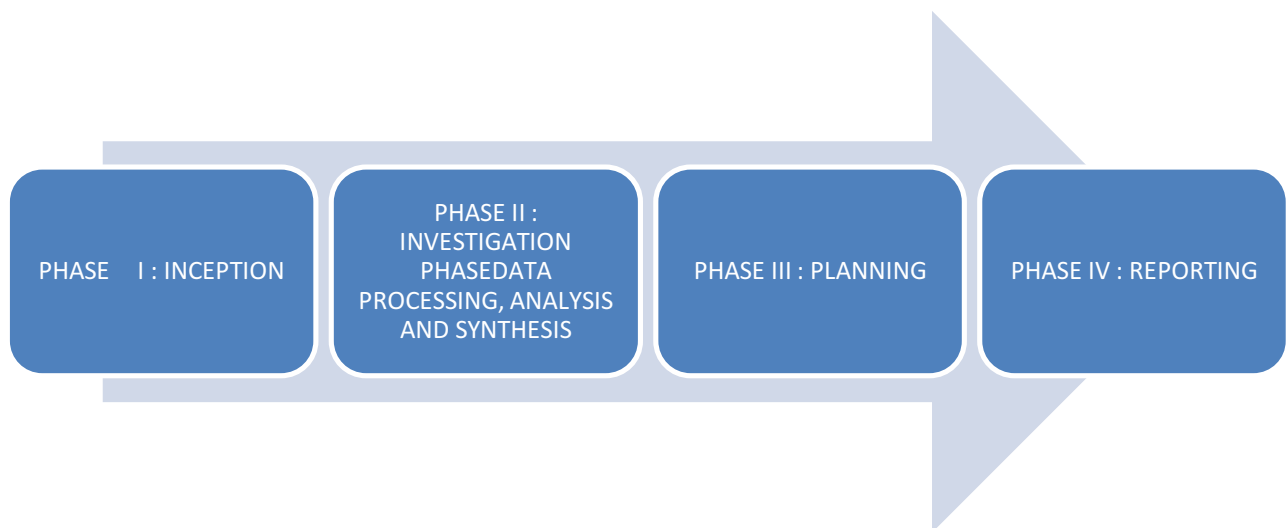
Figure 4 Experts Team

Ajay Chandra Lal	Urban Planner
Apil K C	Urban Planner/ Architect
Suman Meher Shrestha	Architect/Infrastructure Planner
S.B. Bajjaracharya	Architect
I. N. Shrestha	Water supply
R.K. Shrestha	Civil Engineer
B.K. Chaudhary	Environment Engineer
B. M. Shakya	Geo-tech Engineer
A. Mishra	Electrical Engineer
A. Bajjaracharya	GIS Expert
S. M. Chaudhary	Economist / Financial Analyst
P. Parajuli	Sociologist/ Community
Dinesh Yadav	Institutional Development

## 2.2.5 Phase Wise Development

The phases proposed in the technical approach have been further broken down into task series and specific tasks according to the intended content of the task, to help ease in comprehending the methodology planned for carrying out the task. Analysis has been carried out for the input requirements of discipline experts and the output expected for each task. Since the methodology has been developed in the form of phases formulated in the Technical Approach, their compatibility has been assured. The problems that normally come up in such projects have been identified. Phase included in the approach and methodology address them adequately. Task and sub tasks have been organized in a sequence, to run in series or in parallel.

The project is divided in to four distinct Phases detailed below:



### 2.2.5.1 PHASE I: Inception Phase

Responsibilities:

Urban Planner/ Team Leader, Urban Planner, Architect, Water supply and Sewerage Engineer, Civil Engineer, Environment Engineer, Geo-tech Engineer, Electrical Engineer, GIS Expert, Economist/Financial Analyst, Sociologist/Community Development Expert, Institutional Development Expert, Office Assistant support staff.

Task Description

#### 1. Collection of Secondary Level Data and Literature Review:

Various relevant documents and Maps relevant to the study were collected from the concerned authorities and critically reviewed. Findings of these secondary sources information were outlined and tabulated. Pertinent VDC profiles, DDC Periodic Plan, VDC Plans and other reports were critically reviewed. The topographical map of the Study area were collected and a hinterland

base map of the study region were prepared depicting name of VDCs, settlements, road, canal, water body, contour, environment sensitive area, agriculture, forest and other pertinent geographic and geological (mines and minerals) information in the vicinity of the VDC area. Similarly cadastral map of the bazaar and surrounding settlement within the VDC were collected and used as base map of the bazaar area. The base map were used for all planning purposes during the study. The VDC/ward level information were collected from CBS and other published reports.

However, other relevant documents pertaining to Mid-hill Highway and planning related documents prepared by various government and non-government organizations, the project office, the previous DPR reports, existing reports on corridor study, physical development planning report, periodic planning reports, cadastral map of the settlements were collected. Moreover, other relevant information were collected from MoUD, NPC, DOR, MoFALD, DUDBC and other libraries. Similarly, relevant acts, regulations and standards regarding preparation of Integrated Development Plan and Building Bye Laws, DPR preparation, Settlement plan, Physical Development Plan and other relevant documents and details were collected from the project settlements as well as from central offices.

The following documents, literature, maps and photographs were collected and reviewed.

#### I. Maps

☞ Topographic maps of concerned settlements prepared by Survey Department/ FINIDA 1:25000 scale

- Concerned VDC map prepared by Survey Department of scale 1:15000
- Concerned district map
- Aerial Photographs/GIS base Digital maps (if any) of concerned Settlements
- Land Use, land cover maps, soil maps etc.

#### II. Existing literature, reports and other socio-economic data

Feasibility Study of the Development of Urban Growth Centres and Urban Infrastructure of Selected Settlements along Mid Hill Highway (MHH) Corridor of Nepal

- Local Self Governance Act (LSGA) 2055, LSGA Regulation 2056
- Strategic planning documents of regional perspectives if any
- Environment Protection Act, 2053 and Rule, 2054
- Planning norms, guidelines, etc.
- Others Planning related existing laws, policies, plans and strategies,

☞ Existing planning documents/reports (including IAP report, Physical development plan report, periodic plan report, dense settlement plan) relating to the concerned Municipalities and VDCs.

Demographic, socio-economic data from CBS, DDCs, VDCs, Municipalities of concerned settlements or towns.

### III. Critical Review of Past Experiences in New Town Planning

Review critically on the success and failure of the towns that were planned and implemented since last forty years period such as the five regional development centers, Kohalpur new town and other Terai towns and recommend planning and implementing tools that might play a major role to succeed town plans of new towns. Other documents like Population Census Report at VDC level, area of wards/village, Agricultural Census Report, District Transport Master Plan (DTMP), District Periodic Plan ct( DPP.), Poverty Mapping of District(NPC) National ( 3 years Interim plan) Plan, relevant sectorial development plans, Aerial photographs, topo map, satellite imagery where accessible and other related materials were collected and reviewed.

Output: Required secondary data and information collected.

#### 2. Preparation of Questionnaire and Checklists:

The scope of the study clearly indicates the importance of the primary data and information for the preparation of meaningful and implementable plans and programs for the balanced development of bazaar area and its linkage with the hinterland. On the basis of literature review and scope of work checklist are prepared for data collection, Focus Group Discussion with different stakeholders like local people, local leaders, women group, Dalit Janjati, business community etc. Similarly a key informant survey questionnaire has been also prepared to collect views from recognized individual, experts and institutions like VDC/DDC officials, DUDBC Division office, NGO/INGO, other district line agencies etc. These questionnaires and checklists are attached in annex section.

Output: Fully prepared Consultant's team.

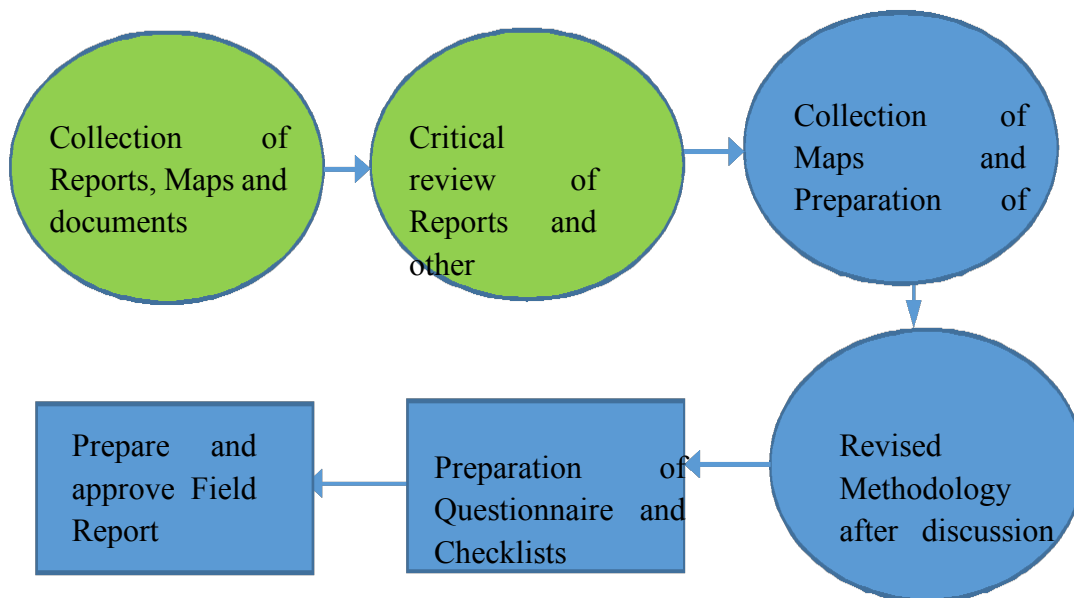


Fig. 2.6 : Flow Chart Inception Phase

### **3. Prepare and submit Inception Report:**

Consultant had prepared and submitted draft Inception Report to the client within 7 days from commencement order of service. The report has covered the requirements of inception Report as per TOR.

Output: Inception Report

### **4. Incorporation of Client's Comments on Inception Report and Submit Final Inception Report:**

After the Draft Inception Report reviewed by the client and available of comments the consultant has prepared the Final Inception Report incorporating the comments and suggestions provided by client.

Output: Finalized Inception Report

### **2.2.5.2 PHASE II: Investigation Phase**

#### **RESPONSIBILITIES:**

Urban Planner/ Team Leader, Urban Planner, Architect, Water supply and Sewerage Engineer, Civil Engineer, Environment Engineer, Geo-tech Engineer, Electrical Engineer, GIS Expert, Economist /Financial Analyst, Sociologist/Community Development Expert, Institutional Development Expert, Office Assistant support staff.

#### **TASK DESCRIPTION**

The study team had mobilized to respective settlements and a consultative meeting were organized with the client and relevant stakeholders in each project settlements immediately. The concerned TDC were activated and sub committees were formed to facilitate the field investigation, contribute in planning and its execution. Such committees were chaired by member of TDC and has included experts from concerned line agency, people from local groups, NGOs, CSOs, private sector etc. Secondary information concerning to the selected settlement were collected from the field.

Task II.1: Primary Data Collection: Physical Survey, Social Survey, Data Collection and Discussion:

The Study Team has used mainly observation, measurement, photography, FGD, formal and informal discussion/consultation with local people and stakeholders, Interview etc techniques to gather information, opinion and views of the development of the TDC.

The Study Team were equipped with following equipment:

- Measuring Tape 30m long
- Camera
- GPS
- Local Body (Municipal, Market centers, VDCs) contact names and numbers
- Checklists and Questionnaires
- Pens, Pencils and clip boards
- Calculator
- District Unit Rate

- Base Map

As the study relies on both primary and secondary sources of information, primary data were collected through onsite observation, mapping and interviews with the local social workers, leaders, teachers, local administrative officials and other related stakeholders. The prospect, problems and development issues of the study area were thoroughly identified by the way of field observation, extensive interaction and discussion with key stakeholders including DOR/MHH project Office, DUDBC Division Office, Local bodies and other relevant agencies. The socio-economic data were extracted by secondary sources like official records or archives and published reports including CBS and others. In the case where settlements are not confined in a single or clear political boundary, the geographical boundary were ascertained. Primary information were collected thoroughly as following methods:

**a) Consultation with Stakeholders**

The consultant has consulted with the local stakeholders such as VDCs, TDC, user's committee, concerned line agencies, local people residing within the study area. An interaction were made with the local stakeholders about the project being carried out by the consultant. They were fully informed about the objective and the scope of the project. Consultant has tried to eliminate any negative rumors about the project and ambiguities are cleared during the discussion. The consultant not only expects the co-operation from stakeholders but also has tried to achieve participatory approach in execution of the project. The objective of the above consultation is to gather information, sensitize local stakeholders and identify problems which are done through:

**b) Focus group Discussion**

Focus group discussion concerning to the development plan in the selected settlements were conducted to know the key potentials and problems related to development planning. Issues such as the economic potentialities, possibility of future expansion of the settlements, rural-urban linkages, major problems facing/may face in the future and key projects to be focused with were covered during the focus group discussion. This information were helpful to identify the most potential sectors and major problems of the settlements. Furthermore, this information has suggested for preparing DPR of the selected projects of the particular settlement.

These methods were helpful for identifying lead sector, potential function, function of hinterland areas, selecting key project for DPR, possible urban growth of the settlements etc.

**c) Observation**

Observational information were collected using the checklist. Basically information relating to existing infrastructural condition, possible expansion areas of the settlement, physical location, environmental situation and existing social infrastructure were collected. This informations were important while coming into the phase of data analysis.

**d) Key Informants Interview**

Key information relating to the project were collected through key informants. Key informants including the representative of civil society, political parties, local focal person, college lecturers, technical persons and local aged people were collected. Information such as changed on land use and local practices for developmental works, key information regarding potential sector of the settlements, economic, social linkages etc were collected through this method. This method were useful for collecting focal/key information of the settlements.

**e) Questionnaire Survey**

If required, questionnaire survey were conducted to collect household socio-economic and demographic information. Information such as population composition, trend of migration, age-sex composition, language and ethnic composition etc. were collected through questionnaire survey in each settlement. Similarly, economic condition of the household, occupation, source of income etc. were collected through questionnaire survey. This information was useful for preparing provisional list of the settlement and detail profile of the project settlements.

**f) Information from Line Agencies:**

A checklist and data collection format were used to collect information from the line agencies about their past, present and future activities in the selected settlements.

Output: Primary data collection completed

**Task II.2: Vision Workshop**

A vision workshop was organized in the VDC or any convenient place. All stakeholders has participated including local people, line agencies, NGOs, CSOs, private organizations, Media Person, DUDBC officials, TDC members and subcommittee members and FNCCI etc. A working paper was presented by the consultant depicting the potential and prospects of the settlement and its possible lead sectors. The consultant then facilitated the workshop to set a long term vision for the settlements along with the lead sectors to achieve the vision. The Vision for

the Integrated Development Plan has articulated the desire of the Town and its citizens based on prospects, roles and function of the new town, and has provided the guiding principles and priorities for the plan's implementation.

Output: Data collection about desire of town and its citizen completed.

### **Task II.3: Identification and collection of Ward and Town Level strategic resources**

Strategic resources/project at major settlements/village centres was ascertained through Participatory Rapid Appraisal (PRA) by holding citizens gathering/meeting. The location for such gathering could be ward office/VDC office or any other convenient place/ location of the town.

Strategic resources/project at major settlements/village centers were identified through opinion survey of prominent citizens, official of the VDC and government agencies, and through the town level meeting which may include meeting of the town Development committee (TDC) and subcommittee if any, Data on physical Environment, social, economic, financial, and institutional were gathered from sources such as office records or archive, VDC reports, ward profile, published academic or professional reports, and data published by CBS. Analysis includes both trend, spatial Analysis using GIS, and interpretation of aerial photographs

*Output: Identification and data collection of Strategic resources/project at major settlements/village centres.*

### **Task II.4: Project Identification Workshop at Local Level:**

The study team after collecting all the information and data were prepared with initial analysis and conducted one-day workshop at bazaar level. The participants were people from VDC, DDC, NGOs, GOs, DUDBC division office, civil society and local party representatives. During the workshop, the perception of local people and institutions were collected. The long term vision along with the major problem faced by local people and the bazaar area was discussed. At the end of the workshop, the major program and projects required for the representatives.

Output: Workshop for collection information at local level completed.

### 2.2.5.3 **PHASE III: Planning**

Responsibilities:

Urban Planner/ Team Leader, Urban Planner, Architect, Water supply and Sewerage Engineer, Civil Engineer, Environment Engineer, Geo-tech Engineer, Electrical Engineer, GIS Expert, Economist /Financial Analyst, Sociologist/Community Development Expert, Institutional Development Expert, Office Assistant support staff.

Task Description

TASK III.1: Data Analysis:

The information collected through Observation, Measurement, FGD and key informant interview along with information from secondary sources were analysed using following techniques:

**Flow Analysis (goods and people):** It gave the information regarding the relationship of selected settlement with other settlements in the vicinity, surrounding market centers

**Resource Potential Analysis:** It was done to outline the resource endowment in concern TDC and its surrounding area. Human Resources were analyzed in terms of education level, population, economic activities and availability of skilled and unskilled labor within the region. Institutional capability of government and nongovernmental organization to provide services in agriculture, industrial, resource development and social development were assessed and analyzed.

Regional linkages and importance of the site were deeply considered while analysing its potential analysis while this is the most important to develop the town as the regional center.

**SWOT analysis** to evaluate the opportunity and resources of the VDC were carried out. The analysis finally presented the VDCs/Market Center wise strength, weakness, opportunity and threat of the area. The SWOT analysis was supplemented with the problem, cause and effect analysis to explore for proper planning intervention in the VDC.

Demographic Analysis:

VDCs/Market Center wise population, ethnicity wise population, religion wise population, Poverty profile of population was outlined, analyzed.

Socio Economic Analysis:

Work force composition, Economically Active Population, Land holding, farm size and sectoral analysis of Agriculture, Planning, Fishery, Livestock, Mining, Industry, trade and commerce, market linkages, physical and social infrastructures etc.

Environment/ Hazard Vulnerability Analysis:

Data regarding the hazard and environmental sensitivity was collected and hazard vulnerability assessment was carried out. Data was analysed by generating specific tables. As a part of data analysis series of maps were prepared through GIS (if applicable) method.

Output: Data analysis and synthesis is completed.

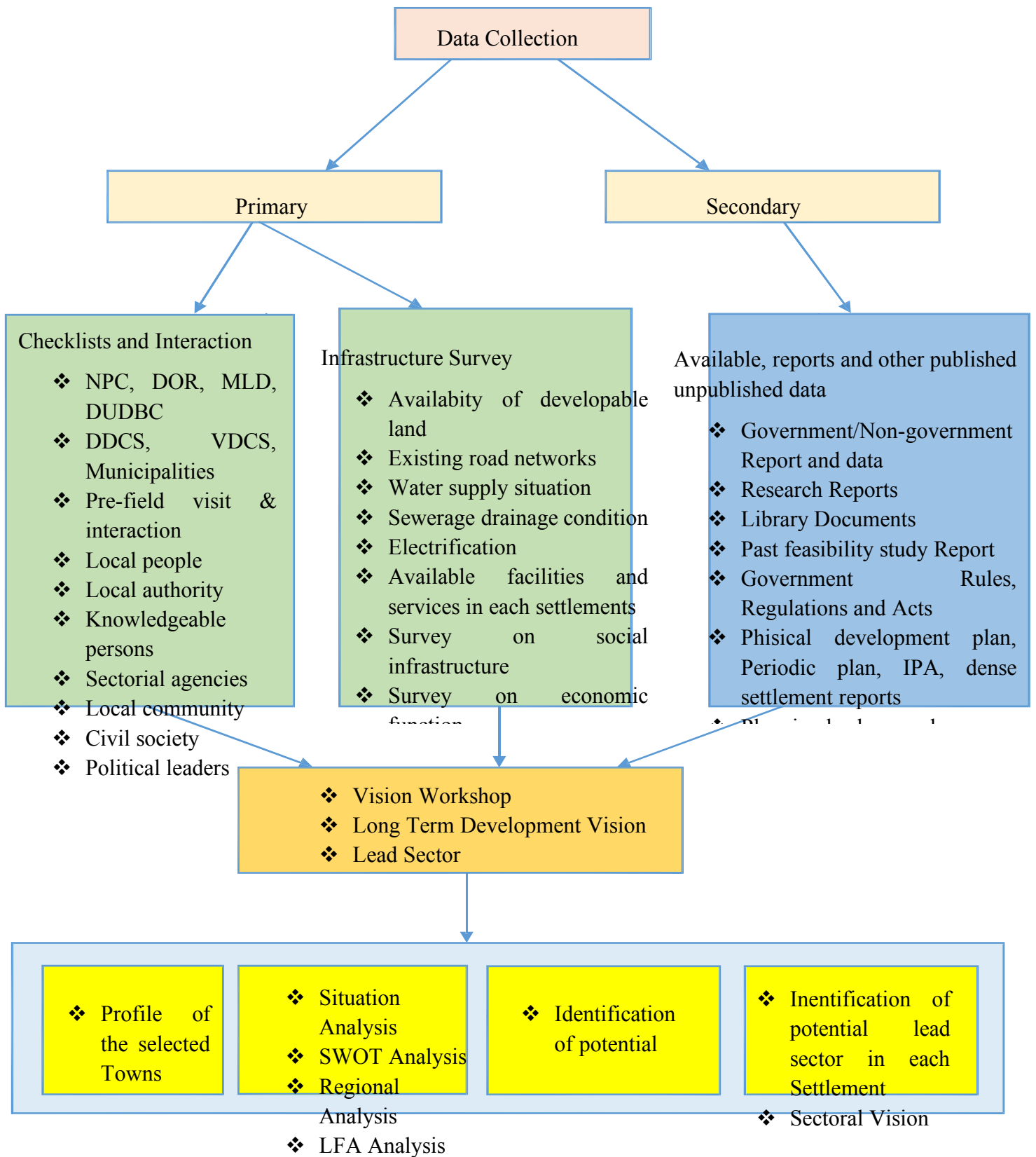


Figure 5 : Flow of Data Collection and Analysis



### **TASK III.2: Preparation of Plan**

Based on the interaction with local authorities and local people, local supporting committee, and findings of different analysis / interpretation, integrated development plan and Building Bye Laws of the selected settlement was prepared.

Planning process:

Planning process was a participatory one. The role of Town Development Committee (TDC) is emphasized and been formed in each town to guide preparation of Integrated Development Plan and building bye laws. The role of TDC is two- fold. First it coordinated between sectorial agencies to channel capital investment and enable plan implementation, even after the completion of plan preparation. Second, broader participation in TDC included concerns and aspirations of all the sectors and stakeholders therefore land credibility and legitimacy to the integrated development plan and building bye laws.

The subcommittee was envisaged to include local bodies, ward offices, government agencies, and political parties/leaders, civil societies such as NGOs, CBOs, TLOs, intellectuals, prominent professional bodies, and planning team. TDC was referred as key body to formulate policies and guidelines related to plan and building bye laws preparation. This has met to advise on various aspects of plan preparation including identifying problem and issues of the town, formulating and reviewing of town vision, goals, objective, and programs. TDC and its subcommittee were the key forum to set the vision of the town.

Planning team were responsible to present all necessary analysis in all stages of planning process and to facilitate necessary meeting and workshops. Planning team comprised of technical personnel from DUDBC/DO, VDC besides experts from the consultant firm. Town level meeting composing of officials of VDC, citizens, NGOs, CBOs, and TLOs were held to determine the town level problems and needs. Accordingly, process was identified. To ensure adequate participation in the planning process of deprived groups such as Dalit, janajatis and disadvantages groups such as women, children, disabled; separate interactions with these groups were carried out as and when necessary. The internally displaced people (IDPs) and squatters also needed to be duly included in the planning process. To make meaningful participation of children, elders, physically disables, women, business group, leaders/officials and marginal groups innovative ideas were introduced i.e. sketch competition between children with prize was carried out.

TDC members lead Working Sub-Committees to facilitate the focused Group Discussion (FGD) and enabled the specialized input of the experts so as to prepare sector-wide plans and programs. The Working Sub-Committee with the support of planning team formulated Town sectorial plans and programs, using Logical Framework Approach (LFA). Such Plan clearly revealed the sectorial goals, objectives, outputs, activities, progress indicators, means of verification of these indicators and implementation strategies. The Plan covered the development sectors identified earlier. The planning team also elaborated consultation with the concerned Sub-Committee to

formulate the development principles and guidelines for the preparation of Integrated Development Plan and Building bye-laws. The town was planned on the approach of trickle down urban design approach consisting of various incentives making it more meaningful and attractive to public and private investors. Consultant has designed realistic investment plan and operation maintenance plan of town so that private sector with in the interest of public sector is attracted in the implementation of town's project. Similarly options such as the resources that were mobilized could recover from the development benefits were also be worked out.

Output: Planning process identification completed

### **TASK III.3: Planning and Identification of different component of study.**

**Town Boundary and Land Use pattern:** The integrated development plan comprises of physical /Social/ Economic/ Infrastructure/ Financial/ Institutional Development plan, and Disaster/Environment Management plan etc. interrelated to multi sector investment plan and followed by narrative description, analysis, facts and figures. Land Use Map of both existing and proposed were developed considering new town boundary. The proposed Land Use Plan was integrated with transport network plan of new town and adjoining hinterland.

**Economic Development, Population and Demography:** Current trends and pattern of local economy, population growth and distribution were analyzed and forecasted for next 5,10 and 20 years. Analyze future economic growth sectors such as service, trade, and industry etc for 5, 10 and 20 years period that may also change in demographics and migration trends.

**Housing and Population:** The present trend of urban expansion and housing construction were analyzed. The potential area for urban development based on land suitability and other factors were identified. Consultant analyzed present and future (5,10,20 years) housing needs/market stock conditions and recommend strategies for land acquisition, distribution of land and housing in future for all age/income levels as per the study.

**Physical Infrastructure:** Consultant conducted studies on present and future (5,10 and 20 years) supply and demand of physical infrastructures of town and recommend strategies for addressing the deficiencies if necessary. Demand analysis were carried out in different scenarios with facts and figures. The recommended complete network plan with additional space for urban services were worked out in details. The network plan and recommended urban service spaces of physical infrastructures, both existing and proposed and were shown in base maps with other detailed drawing and unit rate cost estimates.

**Social Infrastructure:** Consultant has provided a full study (inventory, analysis, and recommendations) of the Social Infrastructure addressing present deficiencies and future demands of 5, 10 and 20 year. Consultant has showed the land area and location of such infrastructures and services existing and to be provided in coming 5, 10 and 20 years in the base maps. Work out architectural and structural drawings and cost estimate in unit rate basis.

**Economic Infrastructure:** Consultant conducted study on pull and push factors that may attract people from hinterland and other parts of the country. Consultant analyzed existing acts/regulation/directives etc. that may substantially affect in migration to the new towns and interrelated to the vision of towns. Propose location and areas with details of the infrastructures were identified in the horizon of long term plans.

**Government/Public Land:** Consultant has provided a full study of existing Government and Public Land Identify and assessed area for future development and expansion of the town including land for government and public purpose. Plans related to such lands were mentioned in necessary sectors.

**Natural Resources/Open Space Conservation and Preservation:** Consultant has identified critical and sensitive natural resources and area including parks, green belts, recreational area, along with strategies for their protection, preservation and stewardship in the course of future development.

**Natural Hazards:** Consultant has identified and assess natural hazards, including how significant weather events have and assessments impacts, which may cause a threat to the Vision of the Integrated Development Plan, along with strategies for avoidance/mitigation of such hazards in the course of future development.

**Cultural and Historic Resources:** Consultant has identified and assessed existing resources, and recommended strategies for their preservation and protection against adverse impacts from other/future developments.

**Preparation of Building bye-laws:** Consultant has conducted detail study on Land Use and recommended Bye-Laws for the regulation of Building and other Infrastructures that may appear in the Towns in future. Bye-Laws was prepared in accordance with Sample bye laws, 2071 prepared by MoUD and "Bye-Laws 2064, of Kathmandu Valley" prepared by Kathmandu Valley Town Development Authority.

**Implementation Strategy:** The consultant has recommended an implementation strategy (including a suggested action program that generally describes the actions, cost time frames, responsibilities, procedures and the Town's capacity to use them) necessary for implementing the Master Plan of the town and prepare separate report by volume of each integrated development plan, Building bye-laws, Infrastructures development and management plans etc for each town.

**Investment Plan and operation Maintenance Plan:** Consultant has prepared realistic investment plan and operation maintenance plan of all existing and proposed infrastructures so that concerned authority could allocate required resources for smooth running of all infrastructures

Output: Planning of different component of the study completed.

### **TASK III.3: Preparation of Integrated Development Plan**

Incorporating all the analysis and plan that have been discussed above were incorporated and integrated development plan were prepared along with the Building Byelaws to guide and control the urban development in the selected town. The master plan was in different volume with following outputs:

- Separate reports with maps/drawing of integrated development plan and Building bye-laws, DPRs and other plans for each town.
- A complete **town profile** were established with all relevant up dated primary and secondary data base and information; maps and drawing, issues and problems with proper analysis (including trend, spatial, resources and aided with tables, charts, diagrams etc), interpretation and findings about the planning / project area in local (ward), city and regional level/context.
- The town were devised by **Long term development vision** very logically and rationally with a wide range of participation of stakeholders in the workshop organized at the city level.
- Framing of **Sectorial goals, Objectives, Output and Programs** for all planning / project components with performance indicators and means of verification by LFA approach.
- Integrated Planning / Project document of different components like Master plan, Physical Development Plan, **Social** Development Plan, **Economic** Development Plan, and **Environment** Management Plan and **Disaster** Management Plan; with interrelated Multi Sectorial **Investment Program** (MSIP), **Operation and Maintenance**(O&M) plan, Building bye-laws; **Brief Project Report** on major Sub project including all relevant maps, drawing were prepared.
- Overall planning document contains following maps and drawings of agreed scale (digital also) and information with required explanation.
- Index Map,
  - Location Map
  - Hinterland Map
- Existing and proposed land use and zoning Map including an overlay of contour line with approved intervals. Land use map has covered major Roads, Drains, Electricity Line, open spaces, play grounds, rivers, lake, ponds, religious centers /

- area, agricultural, forest, residential, commercial, institutional, urban area, administrative boundary etc.
- Existing and proposed Road network Map, road sections, bus bays/stop etc and Location of underfund infrastructures.
  - Existing and proposed sewerage/surface drain network plan showing surface drainage
  - Existing and proposed water supply network Map showing intake, treatment plants, transmission line, reservoirs, distribution line etc.
  - Existing and proposed electricity supply network Map with location of substation
  - Existing and proposed communication network Map.
  - Proposed Solid Waste Disposal / Landfill Site Map with an overlay of contour line of agreed intervals.
  - Environmental Sensitive Map with an overlay of contour line of agreed intervals.
  - Map showing government/guthi land, Bus Park, truck yard with an overlay of contour line of agreed intervals and other details.
  - **Detailed Feasibility Report** of 3 sub projects were prepared in **Burtibang**, Where
    - Detail Drawing/design of proposed social infrastructures (sports complex, city hall, security centre, convention centre, public parks, school, hospital, zoo, library etc.) including site/location plan.
    - Detail Drawing/design of intake, treatment plant, pipe network and reservoir tank etc. with site/location plan etc.
    - Detail Drawing/design of ring road, arterial road, major roads (contour map, profile, sections etc.) and bridges/ culverts etc. with site location plan.
  - Apart from the sections related to integrated development plan, a separate volume of **Building Bye-laws** for the sake of building control and urban development guidance were prepared as per the proposed IDP.

Output: overall integrated development plan preparation completed

#### **2.2.5.4 PHASE IV: Reporting Responsibilities:**

Responsibilities:

Urban Planner/ Team Leader, Urban Planner, Architect, Water supply and Sewerage Engineer, Civil Engineer, Environment Engineer, Geo-tech Engineer, Electrical Engineer, GIS Expert, Economist /Financial Analyst, Sociologist/Community Development Expert, Institutional Development Expert, Office Assistant support staff.

Task Description

##### TASK IV.1: Performing reporting requirements

Reporting were done in 4 stages. Each report were submitted to client and stakeholders as specified in TOR.

Preliminary draft of integrated development Plan, Building bye-laws, programs and other plans were presented first to the TDC, whose suggestion, comments, and recommendations were incorporated to prepare the inception draft of the integrated development plan and Building bye-laws. Such inception draft were put finally before the public gathering called by the VDC/Town. Suggestion received from them were incorporated to produce the final draft that were presented / submitted to the DUDBC for its approval.

The study report were detailed in different volumes. The report has covered all aspects of township development with MSIP and other requirements as specified in the TOR. Reporting were carried out in 4 stages:

##### a) Field Report:

Along with this report 5 hard and 1 soft copy of Field Report is submitted. The Field Report mainly consists of sketch of the final report, field team composition, and updated/manning schedule with clear cut role and responsibility of each experts, and field check list, critical review on prevailing related acts, rules, and guidelines and policies, lesson learned previous physical and other development planning attempts in Nepal as per TOR.

##### b) Field Report:

5 hard and 1 soft copies of field Report were submitted within 4 months from agreement of work processed. The Report were provided in the format as described in TOR.

c) Final Draft Report

7 hard and 1 soft copies of Final Draft Report were submitted within 7 months from agreement. The report were provided in the format as described in TOR.

d) Final Report

7 hard and 2 soft copies of Final Report is being submitted. The report has been provided in the format as described in TOR.

## **2.3 SOURCES OF DATA AND COLLECTION METHOD**

### **2.3.1 Primary Data Collection**

Primary research was done by the direct interviews with different professionals, personal observations and discussions with stakeholders at the ground level. The primary information was essential to verify and validate the information obtained from secondary research. Data collected from the primary sources like local leaders, socially respected person and local professionals were seriously noted down and analyzed as the part of status quo situation and “ought to be” planning process.

#### **a) Key Informant Survey**

With the interviews from stakeholders and officials from different planning or implementing agencies, information and documents were collected. Key informants identified are; Members of Town development office, TDC presidents, local leaders, public hearings, local teachers District Development officer, and chief of municipality, department heads of DUDBC departments or planners of road, water supply, drainage and other. Information are to be collected from department of land reform and management and all the associated planning departments. Influential personalities in the locality like planning experts, journalists and authors, were identified in the process and were taken into consideration for their wise advice.

#### **b) Focused Group Discussion**

Open group discussion amongst the different stakeholders, politicians, government officials, social leaders and public representatives were the important source of data collection. Further discussion was held with 6-8 informants from diverse field to address the issues raised in open discussion. Apart from the public hearing, which were the most important part of data collection FGD was the important source of data collection as it was important way of getting rigid concept from ground root level.

#### **c) Special Group Discussion:**

One of the important part of modern planning is Gender Equity and Social Inclusion (GESI). To address the issues related to GESI and involvement from different sector of the committee, special groups were formed like: children friendly city development group, women empowerment group, physically challenged group, backward society group and other special groups to address the special demand in the community and offer more inclusion in planning.

### **2.3.2 Secondary Data Collection**

The secondary sources study started with international document research to seek experts’ views and ideas on land-use change, open spaces, urban sustainability, the principles and

ingredients of a sustainable city, as well as some suggested models and good practices which includes review of literature, websites, journal, article, annual and progress reports related with sustainable integrated development plan. Reports published by United Nation are basic guidelines in defining major terminology where books published on comprehensive planning were good references in making framework of the planning process.

### **3 LITERATURE REVIEW**

Literature review were carried out in order to develop the development concept and ideas for the assigned task. Development plans generally strove to increase output and employment; develop the infrastructure; attain economic stability; promote industry, commerce, and international trade; establish administrative and public service institutions to support economic development; and introduce labor-intensive production techniques to alleviate underemployment. The social goals of the plans were improving health and education as well as encouraging equitable income distribution. Although each plan had different development priorities, the allocation of resources did not always reflect these priorities. It shows that plan is essential for achieving overall goal of the nation and ultimately for reducing poverty. The following thematic literature has been reviewed which are:-

#### **3.1 CONCEPT OF PLANNING**

An old aphorism “If you don’t know your destination then any path you lead you there”, is particularized by Wildavsky (1977) in “You do not need a plan to get you where you were going to be. How, then, are new objectives created !” Planning can be termed as manipulator of the future, the vision planner wants to achieve is reflected in the plan (K C, 2015). Planning as "Foresight in formulating and implementing programs and policies." (Hudson, 1979), could also simply be put as an attempt to control the consequences of our actions, the more consequences we control, the more we succeed in planning (Wildavsky, *If Planning is Everything, Maybe It's Nothing*, 1973). Classical definition of Planning explains root of the planning out of the three sections ‘land-based professions’ of architecture, engineering, and surveying (Gunder, 2010), where Zhang (2006) believes as “Planning functions as an institutional arrangement between governments, the private sector and civil groups in a given society.” Dynamism in human society are the driving forces behind changes of all professions, including planning where evolution of planning theory reflects the changing society and its changing demand on planning (Zhang, 2006). Gunder’s (2010) planning as inherently ideological, because of its chosen and dominant belief, or value, systems is challenged by Zhang’s (2006) explanation of planning theory as segmental, diverse, and diverging, rather than integrated, uni-directional, and linear.

Scope of planning is rightly justified by Wildavsky in his words “Planning requires a knowledge of the relationships in each of dozens of areas of policy: from fisheries to foreign exchange.” Town planning or urban planning is inseparably bound up with the idea of ‘place’, a concern not only shared by many other professions, although planning is not alone (Roberts, 2002). Planning always stands between actors and their societies, the way they perceive their social problems guides their choice of solutions (Wildavsky, *If Planning is Everything, Maybe It's Nothing*, 1973). The modern idea of planning as Freidmann has described in his authoritative account of its intellectual origins is centrally linked to concepts of democracy and progress, it deals how their collective concerns can be managed with sharing space and time (Healey, 1992). Different scholars have linked the planning with the problem identification, project development, implementation, monitoring, and evaluation of plans, programs, and policies. Importance of planning is justified as it is systematic, efficient, coordinated, consistent and rational rather than random, wasteful, helter-skelter,

contradictory, and unreasonable (Wildavsky, *If Planning is Everything, Maybe It's Nothing*, 1973). But one can't judge the planning by its consequences or accomplishment, one must return to the problem of causality or revised definition of planning should be completed action achieving a set goal then only relative degree of success can be appraised (Wildavsky, *If Planning is Everything, Maybe It's Nothing*, 1973)

### **3.1.1 Concept of Settlement Planning:**

In 1976 Vancouver, the United Nations held its first conference on the issue of physical and spatial organization of human life on this planet, and on the national and international actions needed to accommodate the growing number of population in urban and rural communities. This conference, called *Habitat: United Nations Conference on Human Settlements*, established the concept of human settlements to consist of several elements that had been previously considered separately from one another - housing, building, planning and the relationship of these and such other activities as environmental change and national and international development. Vancouver Declaration defined human settlements as follows:

Human settlements means the totality of the human community - whether city, town or village - with all the social, material, organizational, spiritual and cultural elements that sustain it. The fabric of human settlements consists of physical elements and services to which these elements provide the material support (UN, 1976).

The physical components comprise, Shelter, i.e. the superstructures of different shapes, size, type and materials erected by mankind for security, privacy and protection from the elements and for his singularity within a community; Infrastructure, i.e. the complex networks designed to deliver to or remove from the shelter people, goods, energy or information; Services cover those required by a community for the fulfillment of its functions as a social body, such as education, health, culture, welfare, recreation and nutrition. Broadened concept of human settlements as a framework for economic and social development

Over the years, this concept of human settlements has been broadened to become a framework for an overall national socio-economic development in the context of formulating global shelter strategies for the year 2000. It is now contended that human settlements are the spatial dimension as well as the physical expression of economic and social activity. No creative act takes place without being influenced by settlement conditions. In turn, the creation of workable human settlements inevitably becomes an objective of, an indicator of and a prerequisite for social and economic development. Settlements are an objective of development in that places where people can live, learn and work in conditions of safety, comfort and efficiency are a fundamental and elementary need. Settlements are also an indicator, in that they are the most visible expression of a society's ability to satisfy some of the fundamental needs of its members: they can mark accomplishments as well as expose destitution, neglect and inequality. Finally, settlements are a prerequisite for social and economic development, in that no social progress for sustainable economic growth can occur without efficient settlements systems and settlement networks.

The second United Nations conference on human settlement was held in April 1996 at Istanbul, Turkey. Popularly called the "City Summit", it brought together high-level representatives of national and local governments, private sector, NGOs, research and training institutions and the media. The Conference adopted the Habitat Agenda, a global action plan to realize sustainable human settlements. The Regional Action Plan and the Habitat Agenda has become the major guide for countries of the region to improve the quality of life and promote the sustainable development of human settlements in the Asia and the Pacific region. What is now required is to follow-up the recommendations the Habitat Agenda and the Regional Action Plan in the country or city context with appropriate actions. This reveals that UN is also taking initiation for sustainable management of human settlement in the world and investing large amount in this sector. However, increasing urbanization trend in developing countries led to growth to unplanned settlements.

### **3.1.2 Concept of Spatial Planning:**

The concept of spatial planning lies in arranging different activities in space to create a more rational territorial organization of land uses and the linkages between them, to balance demands for development with the need to protect the environment, and to achieve social and economic objectives. Spatial planning comprises measures to coordinate and improve the spatial impacts of other sectorial policies so as to achieve a more even distribution of economic development within a given territory than would otherwise be created by market forces. Spatial planning is therefore an important lever for promoting sustainable development and improving the quality of life.

Spatial planning is a key instrument for establishing long-term, sustainable frameworks for social, territorial and economic development both within and between countries. Its primary role is to enhance the integration between sectors such as housing, transport, energy and industry, and to improve national and local systems of urban and rural development, also taking into account environmental considerations. This study on spatial planning is an overview document that draws the attention of policymakers to the importance of spatial planning. It also aims at raising awareness of the importance of increased community involvement and social cohesion as well as of the role of all parties concerned in territorial development in the implementation of housing and related policies and in environmental protection.

Spatial planning has a regulatory and a development function. As a regulatory mechanism, government (at local, regional and/or national levels) has to give approval for given activity; as a development mechanism, government has to elaborate upon development tools for providing services and infrastructure, for establishing directions for urban development, for preserving national resources, and for establishing incentives for investment, etc. Spatial planning aims to:

- Promote territorial cohesion through a more balanced social and economic development of regions, and improved competitiveness
- Encourage development generated by urban functions and improve the relationship between the town and countryside

- Promote more balanced accessibility
- Develop access to information and knowledge
- Reduce environmental damage
- Enhance and protect natural resources and natural heritage
- Enhance cultural heritage as a factor for development
- Develop energy resources while maintaining safety
- Encourage high-quality, sustainable tourism
- Limit the impact of natural disasters.

Effective spatial planning also helps to avoid the duplication of efforts by actors such as government departments, commercial developers, communities and individuals. This is of great importance, as many of the above issues are of a cross-sectorial nature and therefore were treated as such. Spatial planning is a public sector activity at all levels.

Spatial planning has emerged as a multifaceted tool encompassing different sectors to promote sustainable development. With emerging new issues like disaster risk management and climate change issues, the spatial planning is getting more and more promising. The spatial planning has numerous benefits outlined below:

Economic benefits:

- Providing more stability and confidence for investment;
- Identifying land in appropriate locations to meet the need for economic development;
- Ensuring that land for development is well placed in relation to the transport network and the labour force;
- Promoting environmental quality in both urban and rural areas, which can then create more favourable conditions for investment and development;
- Identifying development that meets the needs of local communities;
- Promoting regeneration and renewal;
- Making decisions in a more efficient and consistent way.

Social benefits:

- Considering the needs of the local communities in policy development;
- Improving accessibility when considering the location of new development;
- Supporting the provision of local facilities where they are lacking;
- Promoting the re-use of vacant and derelict land, particularly where it has a negative impact on quality of life and economic development potential; and
- Aiding the creation and maintenance of pleasant, healthy and safe environments.

Environmental benefits:

- Promoting regeneration and the appropriate use of land, buildings and infrastructure;
- Promoting the use of previously developed (“brownfield”) land and minimizing development on “greenfield” land;
- Conserving important environmental, historic and cultural assets;
- Addressing potential environmental risks (e.g. flooding, air quality);
- Protecting and enhancing areas for recreation and natural heritage;
- Promoting access to developments by all modes of transport (e.g. walking, cycling and public transport), not just by car;
- Encouraging energy efficiency in the layout and design of development.

### **3.2 PLANNING EFFORTS IN NEPAL**

Historical written evidences suggest that urban settlements of Kathmandu valley dates back to middle of 5<sup>th</sup> century AD, which is after 400 years of living by Lichhavi (Tiwari, 1999). Lichhavi followed the town planning procedures as prescribed in Hindu/Buddhist doctrines (Vastupurusha), which is seen in Deupatan: located at bank of river Bagmati and laid out in *Karmuka* layout (Tiwari, 1999). But Tiwari (1999) also looks the settlement of Kirat town as well planned on basic principles of sustainability where conscious ecological sensitive location was preserved with religio-cultural dogmas and settlements were sited at unirrigated higher lands leaving fertile plains for agriculture. Coming to golden period of Nepalese architecture and planning, Mallas elaborated and extended the concepts and strictures developed during Kirat and Lichhavi era.

However the modern urban planning concept evolved in 1962, after the formation of Town Planning office with expertise service of UNDP (United Nations Development Program) (Joshi, 2008) where, Nepal started her first national plan in 1955 with trend of global development planning wind, based on physical development model. Urbanization in Nepal can be considered relatively new phenomenon with only 3.6 percent of urban population in 1961 (Joshi, 2009, p. 51) to uprising around 25% in 2014 with 130 municipalities. Starting modern planning approaches in mid of 20th century, we have tested different theories and models of planning, where most prominent attempt of implementation are found within the territory of valley. With the changes in political scenario, planning process is also observed to have changed, where earlier planning processes were based on top-down approaches to later phases going bottom-top approach. Whether in wise or naïve intention, Nepal have always been ground of opportunity to use and experiment with different planning models where some reasons could be professionals educated in international school of thoughts, unstable government bringing new ideas and weak government inviting strong donor agencies for testing their new theories (Joshi, 2008, p. 3).

In Nepal, urbanization gained pace only after 1970s. Modern day town planning efforts in the country began with advent of physical development planning process. The Physical development Plan of Kathmandu Valley of 1969, which largely encompassed land use design of Kathmandu and Lalitpur, was the earliest planning initiative in the country. In 1970s more planned interventions were carried out in Dhankuta, Pokhara, Surkhet and Dipayal. This intervention typically consisted of blue-print of road layout and micro-zoning showing different land uses and building regulations. Town Development Committee (TDC) was the implementing institution and acquisition of private land was the cornerstone of plan implementation. This method was replicated in Mahendranagar, Dhangadhi, Birgunj, Hetauda and Tikapur. In the late 1980s, sites and services schemes implemented at Kuleswor and Galphutar in Kathmandu were also of this kind. Thus the planning intervention prior to 1990 was largely a technocratic, top-down and blue-print based master plan approach. In between, the less robust ‘structure plans’ were prepared for several more Municipalities. However, planning practices took a turn in the international arena—especially after 1970s—where post-industrial environmental burden, the car-led urban sprawl as well as fiscal limitations started hitting cities. This led to changes in the way city planning was carried out. The growth management including community participation and public private partnership started becoming the norm. Thus, the participatory planning approaches took off in the late 1990s. The political changes at the time also contributed to the shift. As a result, the government’s role transformed from that of a provider to a facilitator. Land Pooling and Guided Land Development (GLD) replaced site and services method, while Integrated Action Planning (IAP) was adopted in municipalities. This planning method emphasized community participation in resolving the community’s pressing problems. However, emphasis on small scale community projects could not match the ambition of municipal political leadership leading to its downfall. Subsequently, a new wave of planning—known as periodic planning—has come to be the mainstay of municipal planning since early 21st century. The periodic plan is essentially a hybrid that employs good elements of master plans and action plans. It has a long term development vision with a series of action programs and projects of different thematic areas. The themes go beyond physical development to encompass areas that are critical to the cities. Meanwhile, long term development plan of Kathmandu Valley (2002) takes a departure method-wise. It is strategic and takes on most pressing regional issue. This aims at containing urban sprawl by leapfrogging to the peripheral agricultural land.

The evolution of town planning in the country thus has had three distinct phases, comprising of master and structure planning of 1969-1990, integrated action planning of 1990-2000 and strategic and periodic planning of 2000-till now. This four decades of planning show mixed results. The early physical development plans also resulted in preparation of planning by-laws and building regulations. This to some extent helped secure road network. The road clearance and expansion drive now taking place in several cities including Kathmandu Valley is largely guided by building regulations drawn during 1970s and 1980s. Similarly, as a result of past interventions, cities such as Pokhara, Surkhet, Mahendranagar and Tikapur have become more planned and organized. However, in most instances, the earlier physical development plans suffer from poor implementation due to lack of funds and inadequate institutional capabilities of municipalities and TDCs. Still, municipalities are desperately short of town planners. And the country’s expenditure

on urban infrastructure remains small—estimated to be just around 1.5 percent of GDP. Thus the factors which caused poor implementation of earlier physical development plans are also responsible for weak implementation of IAP and periodic plans. Notwithstanding these limitations, IAP and periodic plans are inclusive in nature. These methods include deprived communities in planning and development process and help them prioritize and resolve their problems. Until today, IAP and periodic plans continue to guide communities in selecting their projects. On the other hand, limited central and local funds for infrastructures resulted in innovation of urban development techniques as well. Consequently, the participatory land development techniques such as land pooling and GLD programs were implemented after 1990. These played a significant role in financing urban infrastructures and improving the living conditions in many communities. Land pooling is now widely used as a formidable urban development instrument across the country. Kathmandu, Lalitpur, Bhaktapur, Gorahi, Tulsipur, Nepalgunj, Bharatpur, Banepa and several other cities and emerging towns are now using land pooling techniques with varied degree of innovation. The land pooling self-finances infrastructure development through beneficiary's contribution of land and it works best at the neighborhood level. In lieu, beneficiaries are provided with serviced and improved land. In the same vein, GLD Program is instrumental in securing the right of way and improving accessibility in several communities in Kathmandu Valley: more than 250 km road in the Valley have been upgraded through this technique. These results are small but significant steps towards building and internalizing planning system in the country. The Town Development Act (1988), Local Self-Governance Act (1998) and National Urban Policy (2007) have further reinforced this internalization process. A critical lesson of the four decades of planning is that community participation, local capacity and partnerships are fundamental in city planning and plan implementation.

Nepal is a developing country with its low per capita GDP of USD 2420 (World Bank) and one of the poorest in south Asia. Four-fifth of its land form comprises of hills and mountains and more than 50 percent of its population lives in the rural areas which suddenly elevated after the declaration of municipality by government in past 2 years. The rural areas lack minimum physical

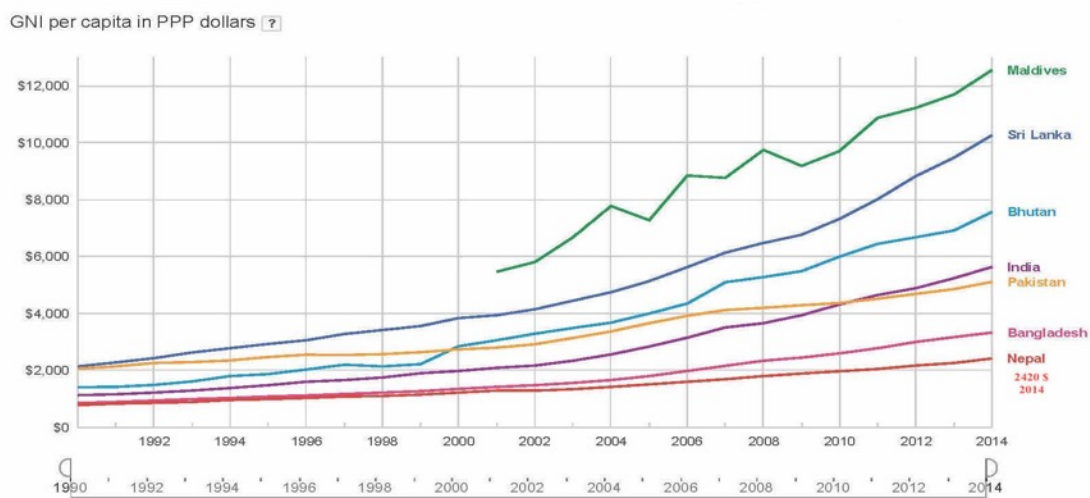


Figure 6 GDP of South-Asian Nations

infrastructure facilities like of road, water, electricity, sanitation and services. The major challenge for Government of Nepal is to provide adequate infrastructure to these remote and scattered settlements and come up with integrated solution to address their needs. Infrastructure development in Nepal started during 1950 and until then Nepal had no infrastructure linkages to the rest of the world. Since then, the government has been making efforts to provide increased access to education, transportation, communication, health services, electricity and other infrastructure services. Despite these efforts Nepal remains one of the poorest countries with poverty reduction as the major challenge. One of the most dominant challenges of Nepal is to develop the basic infrastructures to accelerate its pace of development. For this, transportation plays a vital role in the overall development and socio-economic transformation of a country. In Nepal, road transport has predominant role because it is the only means for public transportation except the limited air service to some part of the country which is not affordable to common people. Therefore, Road infrastructure serves as a backbone for an overall socio-economic development of Nepal. Negligible length of Railways available in Nepal has diminished surprisingly in the last 4 decades. Janakpur Jainagar Railway which is a narrow gauge in poor condition is the only railway facility in Nepal. Since the overall development of Nepal is pivoted around Infrastructure development focused at road transport and aimed at poverty reduction, Government of Nepal has its priority in this sub-sector.

### **3.2.1 Planning Practices in Nepal**

Some of the major planning practices held in Nepal, especially in Kathmandu are briefly described here:

#### **3.2.1.1 Master Planning approach**

One of the fundamental premise of the master plan is based on the western concept of ‘zoning’ which outlines a land use pattern by dividing the city into zones, where those traditional master plans had physical planning approach translated into spatial plans (SPA, Thesis, n.d). The physical planning strategies are geared towards identifying and targeting development, by conserving the available priorities, risk, opportunities and gaps in the urban and regional areas. (Wapwera & Egbu, 2013). Wapwera and Egbu defines master plan as a comprehensive long range plan intended to guide growth and development of a community or region including analysis, recommendations, and proposals about the community’s population, economy, housing and basic infrastructure as well as land use. Further it is also criticized by international scholars to be more static in nature and attuned to a scenario of slow urban growth where physical planning approach have tended to pay scant regard to the ecological, social, economic and political processes, which together make up the environment of man, be it urban, regional, national or supra national (Jiriko, 2008; Chaolin, Xiaohui, & Jing, 2010, Wapwera & Egbu, 2013)

P.B. Chhetri believes that new approaches of planning should be preceded by understanding of planning and development policy and programs after radical political change of 1950-51. Chhetri considers the coronation of King Mahendra (1955) and Queen Elizabeth’s visit (1962) as introduction period of modern urban planning which was soon followed by UN Technical assistance program in 1962 for planning initiation Kathmandu Valley. The study resulted “The

Physical Development Plan for the Kathmandu valley” in 1969 also called as Master Plan or the first comprehensive planning document in the country, referred to as “1969 Plan” as well. Based on the “Survey-Analysis- Evaluation- Implementation”, master plan approach of planning took enormous time in collection and analysis of data (Joshi, 2008, p. 95). Further on the analysis results on alternative solutions where best alternative is selected and developed into master plan (Joshi, 2008).

### **3.2.1.2 Structure Plan**

Alternative to master plan, structure plan was introduced in 1988- 1991 for municipalities in support of Department of Housing and Urban Development (DHUD) in the name of Management Support of Urban Development (MSUD) (Irwin & Joshi, 1996). Structure plans were prepared for 33 municipalities but were limited to policy statements and details were not worked out (Joshi, 2008). Moreover, the approach which was introduced to overcome the shortcomings of master plan approach, continued to be physically biased and unrealistic. The plan basically lacked the consideration of realistic scenario of financial, institutional and other dimensions in the ground which could majorly affect the implementation strategy through municipalities (K C, 2015). Maps and explanatory texts included in the plan showing vector analysis of urban growth, infrastructure networks and social services were good approaches in planning which rarely had any detailed work out and implementation strategies (Joshi, 2008). Joshi (2008) explains the possibilities of structure plan to be successful than Master Plan on the basis of its dynamism, feasibility in updating plans as per demand and rightful allocation of budget wherever is public demand.

Structure plans were backed up by series of action plans which were detailed local area plan which provided legal basis for development control and brought planning issues before public (Joshi, 2008). Another learning steps from the structure plans were indicative plans where Joshi explains in his book “Planning approaches in Nepal” that simple, feasible and understandable plan has better chance to success, where everyone gets to participate in the process and decision making.

### **3.2.1.3 Integrated Action Plan**

Integrated Action Plan as the word suggests, ‘Integrates’ physical elements of planning with economic, financial and management aspects (Joshi, 2008). It deals with the live policy choices and designed to solve genuine and immediate problems hence it is broadly defined as community driven, highly participatory and need based planning process that facilitates development through implementable and realistic projects (Joshi, 2008). Mattingly & Winarso, (1999) identifies Integrated action planning (IAP) as a simple form of urban planning involving participatory events of the people who are affected, in order to achieve a greater feeling of ownership of the policies that will lead to more effective implementation and considers the financial resources available to the local as a rolling investment plan for the next five years of projects that follow a physical plan (UDLE, 1997:10). Integrated Action Planning was introduced at a time of decentralization of responsibilities and of expected increases in funding for urban infrastructure to overcome deficits and serve rapid urbanization (MHPP, 1992) (Mattingly & Winarso, 1999). An alternative to conventional approaches of planning, it was more action oriented and realistic as it translates and implements the goals of strategic planning within shorter time frame. (Irwin & Joshi, 1996). It

was understood that Integrated Action Planning would become integrated into the regular activities of a municipality, such that the municipality would prepare its annual development investment budget as the first year of a 5 year rolling multi-sectorial investment programme, while continually updating and implementing its physical development plan (Mattingly & Winarso, 1999). Joshi (2008) pushes the fact that IAP is more appropriate in case of Nepal where urbanization is rapid, resources are constraints, institutional capacities are inadequate and planning processes needs to be simplified and less time taking.

Joshi (2008) explains about the process adapted during the IAP, where professionals works closely with municipal staff for about three months. Some of the steps carried out are explained as: Community consultation and problem identification with series of discussions and meetings are held where problems are identified in realistic way and people’s expectations are not raised beyond affordability. The purpose of the community consultation is to understand the problems experienced within the municipality from community to town wide perspective (Irwin & Joshi, 1996). Parallel to the community consultation, analysis of acquired information are conducted to determine and evaluate the opportunities and constraints existed in resources & institutional capacity of municipality, legislative framework and existing project (Irwin & Joshi, 1996). Parallel

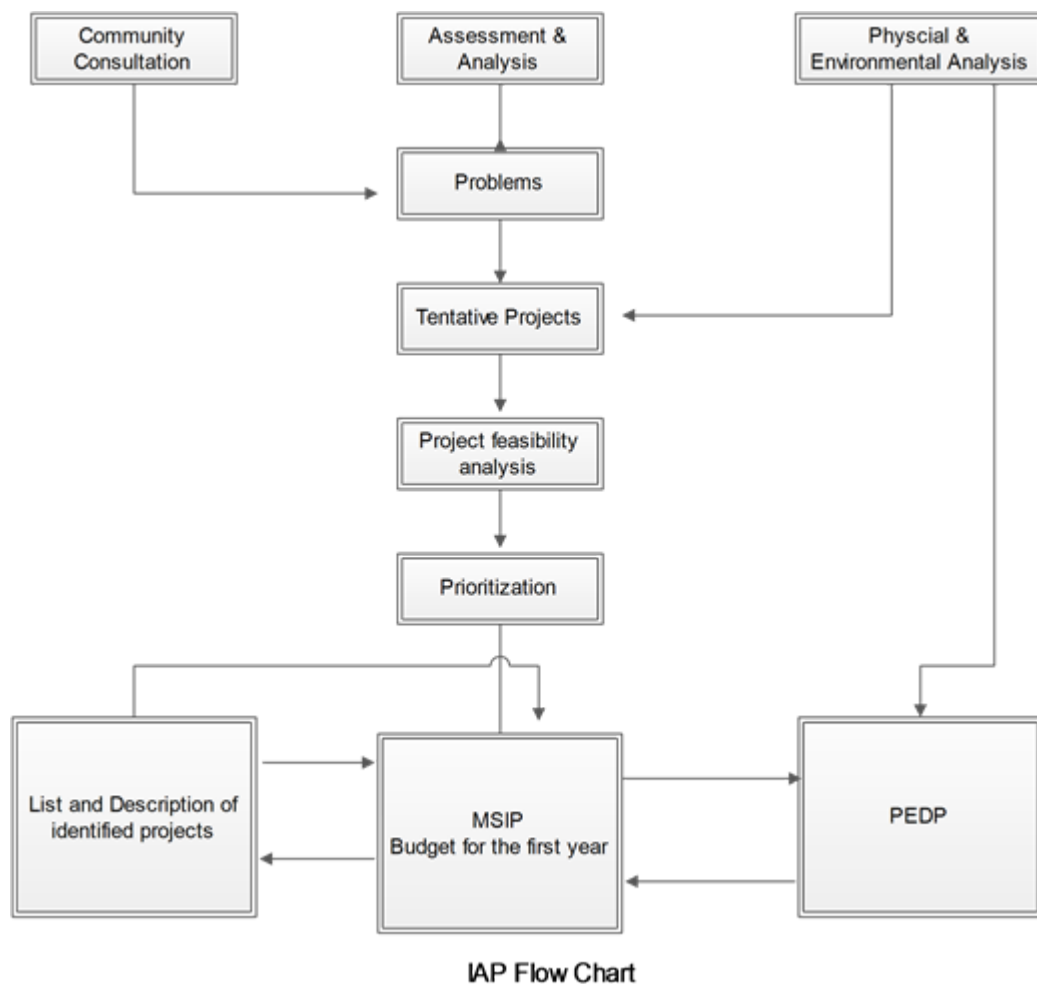


Figure 7: IAP FLOW CHART (Adapted from Joshi, 2008, Pg. 103, Source: (K C, 2015))

to earlier steps, physical and environmental analysis of the locality is done to conduct the SWOT analysis of site by preparing thematic maps, assessment of land use, identifying trends and patterns of growth, resource distribution and others (Joshi, 2008). Based on the previous collected information, problems are identified and prioritized, projects are formulated with solutions to each problem. Projects formulated are examined on the basis of their social, physical, topographical and financial feasibility, and applicable projects are set to implement. Most of the towns are using IAPs which generates two mutually integrated planning tools, MSIP (Multi Sectorial Investment Plan) covering projects to satisfy the present needs of the people and PEDP (Physical and Environmental Development Plan) helping to sustain the ecological base. These two tools MSIP and PEDP were elaborated in next sub-chapters.

Mattingly & Winarso (1999) claims that Integrated Action Planning was expected to promote the use of spatial planning as well as to improve investment programming. Different studies have proven the IAP concept is widely praised in Nepal but some of the steps are questionable. “Municipal residents and maybe some ward leaders and representatives have mistakenly thought IAP as a funding agency, probably because its introduction opened up access to the Town Development Fund and possibly some funds of the DHUD” (Mattingly & Winarso, 1999). Identifying the problems and prioritizing the projects at ward level meetings with extent of participation can be considered as good democratic process but often misguided by ill political will (Joshi, 2008). Mattingly & Winarso (1999) argues that changes to the sources of local government revenue has destroyed the foundation behind many investment plans and increased many times the difficulty of estimating future municipal incomes which showed the potentials that IAP were not fully realised. Irwin & Joshi (1996) further add that many municipalites find it difficult to implement urban projects as tehre is sever lack of manpower, resources and urban awareness.

### 3.2.1.4 Periodic Plan

Periodic plan is a long term plan of generally 5-7 years, picturing the future image of that locality comprising different disciplines of plan such as physical, social, environmental, financial, economical and institutional development. It consists of plan, policies & regulations related to the programs, investments and implementation of the program including budgeting and allocating tasks for responsible line agencies. According the guideline published by government, it can be taken as ‘ participatory and inclusive plan’. With the enactment of the Local Self Governance Act, 1999, municipalities were required to prepare their periodic plans themselves where udle supported MLD to prepare a manual for municipal periodic planning (gtz: udle, 2006). Periodic plans integrate different thematic plans according to social, economic, environment, physical, financial,

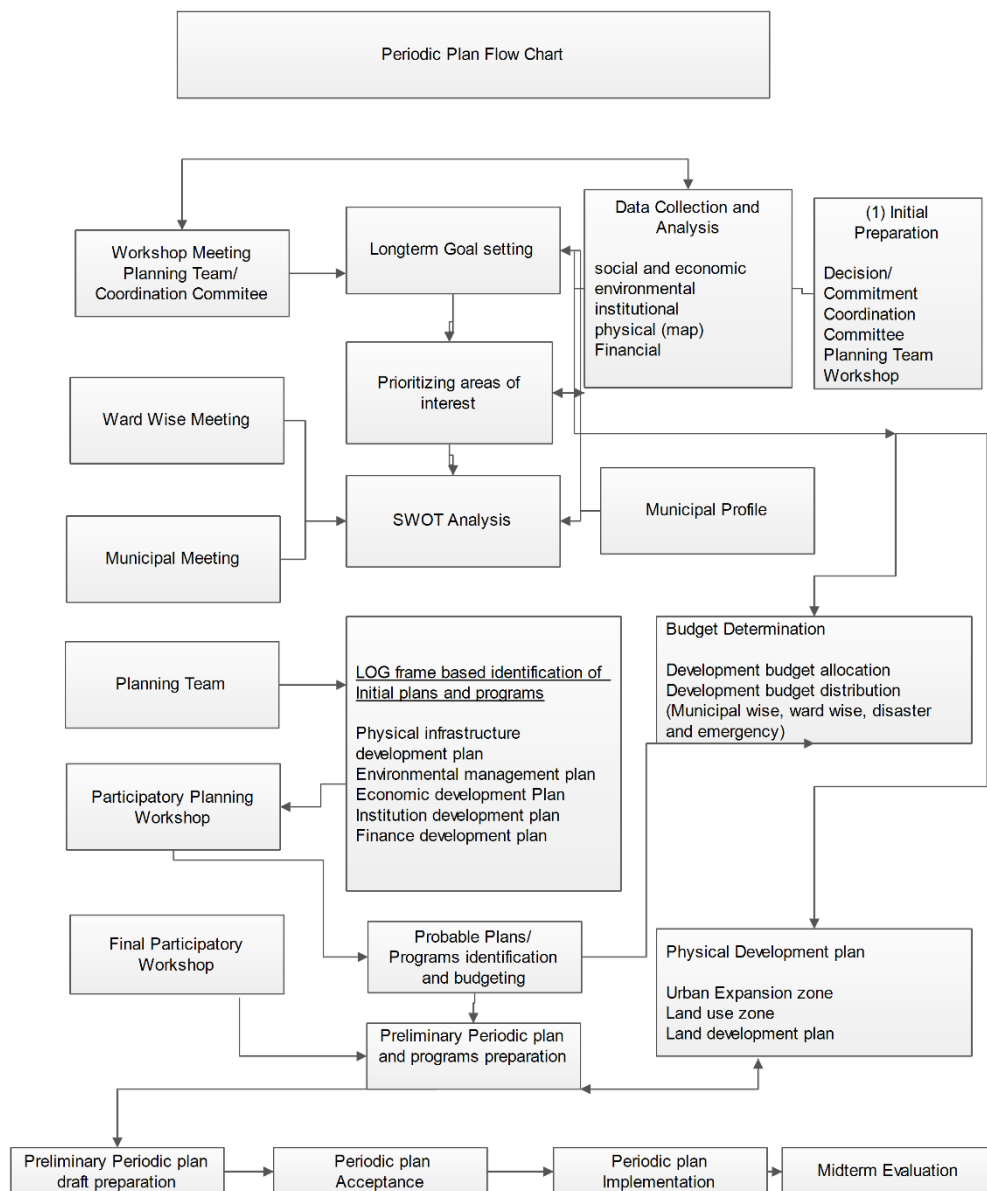


Figure 8 Periodic Plan Flow Chart: Adopted from Periodic plan directives for Municipality, 2059 (Source: (K C, 2015)

and institutional aspects and ensures that the concerned stakeholders in the respective district

authorities get due support in the overall periodic planning process in order to translate the legal provision into action (Ministry of Local development, 2059). It require a municipal data profile and a participatory planning process with a log frame format that includes a rolling budget. Compared to Integrated Action Planning, comprehensive nature of periodic plan is considered as more realistic because of its legal status of Local self governance act and regulations (2058,2059), hence these are also considered as one of the performance indicators of municipalities (gtz: udle, 2006).

Periodic planning processes have been extremely slow due to endless data collection, lengthy public participation, the limited analytical capacity to utilise existing proxy data, the unwillingness to make decisions due to the changing political climate and the conflict within the country, the lack of local representation, weak insitutional capacity and other priorities that override periodic planning (gtz: udle, 2006). These are often viewed as tools that provide legitimacy or fulfil bureaucratic necessities rather than as management tools that actually organise the future development of municipalities according to agreed and balanced priorities voiced by local people. These are often argued as overloaded with a holistic planning approach, which is far beyond realistic implementation and service capacity (gtz: udle, 2006).

But periodic plans have certain benefits over other sorts of planning because of its integrated nature of planning, legal and financial base for planning and budget allocation, foreign agencies in enhancing the institutional capacity building of municipalites and participatory appraoches. GTZ/ udle believes that the changing political scenario in Nepal will help to provide a more realistic management approach that will provide strong guidelines for urban development where, with a joint vision decided by all stakeholders will strengthen the legitimacy of all municipalities as being dedicated service providers for local communities.

### **3.2.2 Issues and Challenges**

Nepal has started modern urban planning after 1950s with international expertise of UN, when country was freed from century of feudocracy of Ranas. Since then we have gone through series of new urban planning processes to control the haphazard urbanization, where the present doesn't shine as was planned in the past (K C, 2015). Many scholars like Dhakal (2004), Joshi (2008) and Irwin (1996) believe that plannings in Nepal were limited in papers without taking in consideration of ground reality and unexpected scenarios. So far the first kind of master plan for Nepal prepared by UN experts in 1969, covering a number of aspects in planning and conservation for next 20-30 years was not really well accepted by government in its policies (Dhakal, 2004). Dhakal blames that 'Kathmandu Valley Physical Development Plan, 1976' which consisted many subplans like urban design, residential development, zoning, etc always remained in the file and in reality greens were converting into greys.

Local Self Governance Act,1999 authorises local bodies to prepare periodic plans and annual plans with support of guidelines by planning commission, DUDBC and MLD which were also failed due to institutional incapability of the local authorities. Two major planning authorities of Nepal Town Development committees and Municipalities itself are merely 'Jaw-less bodies' (Dhakal, 2004). LSGA authorises TDC to prepare plans and policies for that locality but lack of budget, technical

competance and human resources, they are merely as sleeping except KVDA ( which was previously established as KVTDC now changed to authority). According to article 96 (b) Municipality are also mandated to frame landuse, prepare housing plans, management plan for drainage and drinking water, plan recreational space, and approve the construction of building. But, problems are similar for the both institutes in their inefficiency and incompetency of planning urbanization. Lack of coordination between private and public sector, national and international development agencies as well as among the sectorial line agencies in the implementation of urban projects has been a problem since long time.. Technical competence for implementing the municipal projects is also severely lacking (Irwin & Joshi, 1996) where factors like privileged coordination of various actors, trend to violate laws, insufficient zoning regulations and improper planning consciousness are distorting the urban features (Dhakal, 2004).

Scarce supply of urban land, high cost and slow mechanism for land acquisition act is also considered as major challenges in implementation of big urban infrastructural project (LSGA, 1977). Prolonged public participation and often misguided by ill political will are hindrances in implementation of many urban projects. Joshi (2008) adds that present planning guided by political feasibility, is becoming more complex to control the situation from external mechanish or intervention as it is no more controlled by a single actor. As Roy (2009) describes about the situation of urban governance in India as 'regime is itself an informalized entity, one that is a state of deregulation, ambiguity, and exception'. She further adds on that 'incontrovertible argument about the failure of planning in India: that informality and insurgence together undermine the possibilities of rational planning, and that therefore India cannot plan its cities,' which is exactly the similar ground reality of Nepal. Law rendered as unrestricted and subject to multiple elucidations and interests can be positioned as, 'law as social process is as idiosyncratic and arbitrary as that which is illegal' (Berry, 1993; Holston, 2007, Roy, 2009).

One of the major challenges, that piercingly stands in planning arena is lack of coordination and failing to take advantage of synergy between projects. Tendency to deal with overlapping issues like environment, landuse and expansion zones as isolated sectors have made planning implementaion more complex and disputable. Planners and politician acting as two opposite poles and blaming eachother has been problematic by keeping people out of the center of interest (Joshi, 2008). While in present, dominance of improper urban plan due to haphazard development became the major reason about shortfall of basic urban services (Dhakal, 2004).

Joshi (2008) explains that many attempts have been made to make planning more comprehensive , mechanishms to integrate different aspects are either not in place or very weak where such failures to integrate these sectors explains why planning has failed in Nepal. Plans in Nepal has always lacked the 'harmony withinn and among the organization' (Joshi, 2008). Integarted plan finding practical, effective and meaningful ways to individual citizens is an important challegnge. Kelly & Becker, (2000) explain that success in planning is determined by the effort of its leadership, that can be governing body or planning commission or working together, which is one of the major drawback of planning institutions in Nepal. Joshi (2008) adds that institutional incapacibilities of planners or implementing agencies to consider the unexpected scenario caused due to external factors is making planning incompetative in Nepal. He highlights the

implementation as ultimate goal of any plan hence it should be strategically ready to cope up with situations due to changes in environment, both internal and external

### **3.3 LEGAL FRAMEWORKS**

Infrastructure development has remained a priority of the government right from the beginning of first five year plan. With a view to facilitate and to create enabling environment many legislations have been enacted since then. Rules, Regulations and Guidelines have been developed and put to use. Policy documents have been passed and practiced so as to streamline the direction of the development. In this connections the following Acts, Regulations, policy frameworks etc. have been brought in place:

1. National Urban Policy, 2007
2. National Urban Development Strategy, 2015
3. Planning Norms and Standard, 2015
4. National Land Use Policy, 2012
5. Local self-Governance Act 2054 and Regulations 2055
6. Town Development Act 2045
7. Land Acquisition Act (1977)
8. Land Survey and Measurement Act
9. Environment Protection Act (2055 B.S)
10. Solid Waste Management and Resource Mobilization Act (1987 A.D)
11. Guthi Corporation Act-1976
12. Ancient Monument Preservation Act (1956)
13. Motor Vehicle and Transport management Act (1993)
14. Public Road Act (1974)
15. National Road Standard (2070)
16. Nepal Urban Road Standard prepared by DUDBC (2071)
17. Nepal Urban Drain Standard prepared by DUDBC
18. Town Development Fund Act 2053
19. Industrial Enterprise Act (1992)
20. Labor Act (1992)
21. Building Bye-Laws
22. Land Use Policy (2069)
23. Public Procurement Acts 2063 and Regulations 2064
24. Public Roads Act, 2031
25. Contract Act, 2023 and 2058
26. Construction Industry Acts 2055
27. BOOT Acts 2063 and Regulations 2064
28. Public Infrastructure Build, Operate and Transfer Policy 2057
29. National Transport Policy, 2001
30. National Agriculture Policy, 2004
31. Tourism Policy, 2008

## 32. National Industrial Policy, 2011

For carrying out the study above mentioned all the policy documents, acts and legislations are very important to consider. Consultant is well aware of growing number of legal challenges in the planning process hence, will consider all other legislations apart from mentioned here in the planning process. Few of the important planning legislations are described below:

### **3.3.1 Local Self Governance Act, 2056 (1999):**

In order to develop Nepal as a welfare state, government has established a number of fundamental directive principles and policies of the state espousing equitable distribution of resources, opportunities and benefits to all citizens, removing social and economic inequalities across regions and social groups, maximum involvement of citizens in the governance process through decentralization (Paudyal, *The Concept of Decentralized System of Governance in the Context of Balanced Development of Nepal*, 2001). Decentralized system of governance is one of the fundamental policies to achieve those objectives outlined in the constitution. The Local Self-Governance Act 1999 has provisioned broad based organizational structure, devolution of authorities, special provision to promote disadvantaged communities, planned development process and judicial authorities to local bodies, where whether the Act has provided enough legal basis for the development of a capable, responsive and accountable local self-governance system is itself an issue. However, looking at the experience of the past 15 years in general, it seems that more and more party-political rivalry and unhealthy competition among all development players have created a confusion and chaotic situation at the local level (Paudyal, *The Concept of Decentralized System of Governance in the Context of Balanced Development of Nepal*, 2001).

Some of the major issues that can be critically analyzed on the self-governance act and other acts related to decentralization can be grouped into three areas: Fundamental issues (Essence of the Act), Institutional issues and Implementation issues.

#### Fundamental Issues:

The initial concept of self-governance (*Sthaniya Swayata Sasan Ain, 2055*) is understood as decentralized governance system as an attempt to make the center powerless while empowering the local level. Decentralization, in fact, means defining responsibilities at each level. For example, local level would require technical, human resources, research and other support from the regional and central level when authorities relating to health, education, housing, water supply, transport etc. are devolved to them (Paudyal, *The Concept of Decentralized System of Governance in the Context of Balanced Development of Nepal*, 2001). Similarly, there are other sectors involved in local development such as NGOs, INGOs, donors and private sector, whose responsibilities is not clearly defined. Decentralization policy has been popularly termed as a measure "to devolve authority from Singha Durbar to the village level", but it is apparently expected to be less successful where the institutional structure and decision making processes of the "center" itself is characterized by incapable, unorganized and weak institutional framework and decision making processes. Paudyal (2001) bitterly puts that "...the government, in fact, does not take major policy

decisions without a green signal of the donors. In this scenario, from where the "power" is to be decentralized to the local level? Thus, the center itself needs major reform, restructuring and reorientation to make policies in a more organized and coherent manner.”

In fact, decentralization is a system of governance for balanced development in a heterogeneous geographic, social, cultural and economic setting like ours. However, the essence of this policy needs to be understood, visualized and developed at the political level where professionals and donors are only complement in designing, implementing and institutionalizing the policy, once it is conceived with commitment at the political level. Some of the principle essence of the act are: effective participation of the people in the governance process, equitable distribution of resources across the regions, organized presence of the government at all levels, empowerment of disadvantaged communities and enhancement of production and job creation. Such policy can be designed and implemented only when the major political parties can visualize such potentialities. The contents of the policy are not important at this stage. The past experience suggests that without proper understanding and commitment at the political level, a decentralization policy, be it with full of ideal program policies, backed by enough acts and regulations, will not be effective.

#### Institutional issues

The organizational structure of local bodies is unresponsive and unaccountable to the voters and most of them function on an undemocratic manner, especially when it lacks the locally elected bodies. Even with the elected personnel from ward or Illaka (DDC), there is no institutional mechanism for the voters to monitor the activities of their leaders and question and expel them, if so required. Thus, all the representatives of DDC, as well as VDC and Municipality (Mayor), remain in their seat for full term irrespective of their performance, further which functions not on a parliamentary style guided by the majority, but on a presidential style guided, mainly, by the Chairman.

Another case is contradictory institutional arrangements: if VDC/Municipality/DDC are executive bodies, what are the sectoral agencies working at the local level? There are none. Any plans related to the municipality have direct relation with different sectoral agencies which have no any pragmatic legal accountability towards Municipal plans. Local bodies have people's mandate to set policies on resources allocation, monitor implementation process, mobilize people's participation and quality control for optimal use of resources, while on the other hand, the sectoral agencies have professional expertise, experiences, institutional support and quality control mechanism to implement projects. But lack of legal coordination abandons them to come up with integrated plans which is really backed up by any legal basis.

#### Implementation issue

One of the major challenging issue of self-governance is implementation gaps in policies. One of the strength of the decentralized system of governance is the equitable distribution of resources and opportunities across all regions, groups and communities. Majority of the poor and

disadvantaged communities are living in an unorganized, vulnerable and scattered manner, much below than the reach of decentralized institutions. However recent guidelines for municipality in making their development plan strategy have guided them to invest 40% of municipal budget in scheduled caste, women and children in area of infrastructure development, social, skill development, and economic development.

In most of the cases like LGCDP (Local governance and community development Program) have made effort to strengthen the municipal institutional capacity but in other sense they are making more defunct and donor dependent due to their own implementation strategy and parallel institutional mechanism. In another picture, most of the NGOs and INGOs make their plans and projects without any coordination without local bodies. Paudyal (2001) who has done his doctoral thesis on strategies of local level development concludes as “The decentralization policy of the past has not been effective to achieve the balanced development of the country. While, the central level leadership could not internalize true meaning of decentralization in the Nepalese context, thus it could not provide political support to design and implement the policy with its proper spirit. At the same time the local bodies also could not ascertain their rights and duties, whatever was devolved under the present legal framework, and implement with the true norms and values of a democratic institution. Consequently, a huge resources and opportunities channeled through local bodies were captured by a limited group of people, leaving a large number of people out of the development mainstream. Decentralized system of governance is one of such approach by which the national and local resources can be optimally combined and allocated for taking area specific comparative advantages and enhancing income and employment opportunities of the people.” There is no doubt that institutional capacity of most of the local bodies is incapable to perform the authority as much devolved to them by central government. He further adds that concurrent monitoring and evaluation is required to understand whether the Local Self-Governance Act is properly implemented, local institutions are capable to implement it and, indeed, whether the Act itself is enough to capture the essence of the decentralized system of governance where based on evaluation, further analysis, advocacy and sensitization at the policy making level is required to make necessary reforms.

### **3.3.2 Town Development Act, 2045 (1988)**

Town development Act, 2045 can be taken as one of the prominent act related to land development which authorizes Town Development Committee (TDC) for supply of urban land. Especially in case of this project Integrated Development Plan, TDA authorizes TDC to be the core authorized body for planning and implementation of the project. It entitles local body to carry out physical development in an integrated manner with reconstruction, expansion and development of existing towns as well as to build new towns. It is provided with policy of land pooling and land development in urban areas in order to supply urban land in well facilitated manners. Town development committee which functions on legal base of TDA couldn't function with full expectation because of inefficient institutional framework and unnecessary political intrusion in development work. Lack of technical and administrative manpower in the TDC, essence of TDA is not reflected, where TDC merely acts as a planning institution. Act authorizes TDC to ask fund from Town Development Fund for carrying out plans and urban land development projects, but

lack of interest and institutional framework makes it more lifeless in any urban development programs.

### **3.3.3 The Land Acquisition Act, 2034 [1977]**

It is common knowledge that urban planning involves large-scale acquisition of land as their lack public land and public space has different values in urban area. Most of the land are either private or forest area in Nepal. Public land or government owned land is limited. So, for provision of space for public purpose in urban planning, land acquisition is the most required procedure. In land acquisition, there used to be conflict between different concerned person and even with Government. So, Land Acquisition Act, 1961 was passed to provide legal provision and procedure to acquire private land. With change in condition and time requirement, this act was revised in 1977 and enforced as “Land Acquisition Act, 1977” in 2034/5/22 (1977/09/07). It has 43 Sections and sub sections starting from the definition of act to initiation and procedure of acquisition. This act has helped to solve problem of delay in urban planning work due to conflict in land. It provided legal provision for acquiring land for public purpose. This act ensures the justice to individual and community in the regarding land property as no one even government can arbitrarily acquire private land without compensation.

#### **Salient Features**

The Land Acquisition Act, 2034 [1977] empowers the Government to acquire any land, on the payment of compensation, for public purposes or for the operation of any development project by government institutions or other institutions.

- Preliminary actions, conditions and decision provision for acquiring land (Section 4,5,6,8,9,10)
- Provision of land acquisition in emergency condition (section 25)
- Provision of compensation of land, property and other losses (Section 7, 13, 14, 15, 16, 17,18, 19, 20, 21)
- Allocates authority to officers for different acquisition procedure (Section 5, 13, 40)
- Provision of Land ownership transfer (Section 22, 23)
- Provision of giving information and notices (Section 6, 9, 10, 18, 19)
- Ensures right to complain file (Section 11, 18)

Land acquisition Act is a legal document having wide range of effect from individual to community and even country as a whole. So, it should have clear meaning in every word. It should be able to solve the dispute clearly neither raise more conflicts. Land is also a major property in which many conflicts arise. Land acquisition act has empowered government to acquire land for development work. Although it has incorporated many aspects like assign authorities, compensation, time allocation, procedures etc., it fails to include issues like time frame of compensation, guideline for amount of compensation, social and cultural aspects. With integration of these issues, land acquisition can be much more free disputes and urban development can be more effective. With the changing and imposing political system where honesty is rarely experienced, there are lots of

possibilities of turning the act into individuals' will which needs to be monitored with good intention.

### **3.3.4 National Urban Policy, 2007 & National Urban Development Strategy 2015**

The National Urban Policy (NUP), 2007 and National Urban Development Strategy is formulated through incorporation of: the views put forth by the urban sector related institutions, intellectuals and experts at the several consultation meetings and interaction programs organized at different phases and the written comments and suggestions from the concerned professionals. The NUP has put forward mainly three objectives: firstly, to achieve a balanced national urban structure through proper guidance to development of and investment in the infrastructural facilities: second, to raise the living standard of the urban residents through development of clean, secure and economically vibrant urban development; and third, to achieve effective urban management through institutional strengthening and legal empowerment of the local bodies, as well as through promotion of proper cooperation and coordination among the different institutions involved in urban development.

National urban policy is found to be more integrated, updated and comprehensive document addressing the major issues of urban planning and its implementation. It basically focuses on the problems related with urban planning and come up with solutions expressed by different institutions, intellectuals and experts. Majorly focused on issues of Kathmandu Metropolitan areas, it identifies the reason behind urban services delivery deficiency due to ineffective infrastructure, weak institutional capacity and inadequate resources. It admits the existence of policy level confusion of local body and central government agency due to lack of integrated approach in urban development. Lack of national vision in urban development and institutional or policy coordination, have made ineffective contribution for economic development as well as poverty reduction. NUP identifies unbalanced urban structure, weak rural-urban linkages, environmental deterioration due to haphazard urbanization, lack of clarity in national policy, weak municipal institutions, urban poverty as major issues related to urban sector. It further adds that weak institutional capacity and lack of coordination between local bodies and other agencies related to urban development, are the reasons behind LSGA lacking in plan and execute urban plans and programs as per the expectations. NUP adds the need of 'close cooperation and coordination between the central agencies and local bodies; and the areas which can be left solely to the local bodies.'

Three major objectives forwarded by the policy are:

- Achieve balanced national urban structure through proper guidance to development
- Raise living standard of urban residents through clean, secure and economically vibrant urban environment
- Achieve effective urban management through institutional strengthening and legal empowerment of local bodies.

To achieve those objectives, NUP has proposed several policies and strategies such as industrial promotion, urban infrastructure investment, linking highways from North to South, etc. NUP has proposed several strategies for urban development like:

- Develop local bodies as prime institutions implementation of plan and programs by strengthening their institutional capacity.
- To build necessary legal and institutional mechanism to set up an integrated urban planning and monitoring system.
- Execute special programs for conservation and protection of cultural heritage and sensitive natural resources.
- Develop plans related to land development, housing, and regularize land market.
- Develop inclusive plan for physically disabled, women and aged people.
- Develop sustainable public transportation system.
- Prepare disaster-management plan
- Redefining the designation of municipalities.

Despite being very exciting kind of strategies and policies involved, it basically lacks any incorporation in the national policy. Present haphazard designation of municipalities without any proper consideration of population, infrastructure and revenue is one of the example. Long term vision of any municipal area and backed up by the legislations and public participation is one of the major point to be addressed in the policy. Generalization of the policy into strategies tries to address most of the urban issues such as land, housing, infrastructure, services, road, open spaces and all others but it doesn't consider about restructuring the agencies, authorized body and local bodies along with legislations associated with them. National Urban Policy can be taken as good framework of addressing many challenges related to urban development where with minor addition like long term vision, regular upgradation and policy reforms could make the policy more effective, none the less it lacks implementation portion which needs lot of analysis, evaluation and recommendations as per the local problems.

Because of slow pace of NUP implementation and its internalization— especially policy activities pursuant to objectives of urban environment and management; the National Urban Development Strategy (NUDS), 2015 has been formulated. On the other hand, fast pace of changing urban dynamics—that included, emergence of new growth factors and context (international and national), changing urban and metropolitan form, and establishment of MoUD—required expedited response. The objectives of NUDS, therefore is not to replace NUP, but to complement and expedite its implementation. It includes 8 thematic areas, which includes 4 themes and 4 mechanisms. The Themes are urban system, urban infrastructure, urban environment and urban economy. Similarly, the Mechanisms are urban investment, urban finance, urban governance and urban land management. NUDS, 2015 includes 41 desirable conditions or milestones envisaged for different themes, 65 indicators to measure the desirable conditions, 86 thematic strategies to achieve the desirable conditions or milestones, 164 activities identified to operationalize the strategies. It is prepared considering the 15 years planning horizon.

### **3.3.5 Others:**

Many other acts, directives and legislations related to urban planned development have been approved by Nepal government to authorize, guide and promote local bodies in urban

development programs, but result doesn't seem to be more effective in most of the urban areas. Some of the major policies as: National Shelter Policy, Apartment Act 1997, Build Operate Transfer Policy (2000) for promoting public private partnership, directives for municipality in guiding urban development plans, and monitoring guidelines or policies like MCPM (Minimum Condition and Performance Measures) Assessment Manual of Municipality 2009. Building bye laws prepared by municipality can also be taken as one of the important legislation for urban form management. Shelter policy 1996 seems to have undertaken important policy initiatives in the housing sector of country where LSGA has entitles local bodies for planning promote public participation. MCPM assessment of planning has made local bodies more attentive towards different aspects of planning including financial success, participatory approach, well governance, project implementation, community empowerment for backward group and women and many more. MCPM has also made local bodies more conscious over the minimum conditions and performance in response to local development with community participation, as it is directly linked with the conditional and unconditional grants provided by central government to them. With start from Decentralization act 1982 of which preamble suggests the goals and objectives of:

- Wider mobilization of people in resource allocation and distribution
- Formulation and implementation of medium terms and annual plans
- Involving local people in decision making and development

Many upcoming plans have tried to make the urban development issues more devolved and participatory. Paudyal (1994) have pointed major points like limited institutional capacity, lack of support from central government, informal power structure, attitude amongst the local administrator, excessive political intrusion and unrealistic scenario analysis on planning as the reason behind result being far short of expectation in local level development. Contradictory policies like periodic plans for 3-7 years and yearly plan making for fulfilling MCPM makes more tedious in coordination amongst the legislations. LSGA which gives authority to local institution for governing municipal regions in localized context of democratic politics and bureaucracy is contradictory with TDA which is supports exclusive political nomination in planning milieu. Different urban planning legislations, policies and programs are prepared by government and NGOs in order to support balanced and planned urban development but it is not reflected in national decision making nor in the implementation at ground level. In most of the case, acts and legislation are not user friendly where they are defined as per interest of particular group of exclusive leaders, depriving inclusive participation of citizen in planning process. Policies and legislations are also not fully equipped with implementation resources and good governance which leads to the ultimate chaos and ineffectiveness of overall system.

## 3.4 Planning Practices in Global Context

### 3.4.1 Garden City Concept: Letchworth City

There is a long tradition of planned town-making in Britain, arguably dating back to the model communities and settlements of the 17th and 18th centuries. The notion of a programme to provide planned new communities in the public interest emerged at the end of the 19th century. New communities were first built through philanthropic and private initiative, as exemplified by the Garden City movement, but were subsequently developed by public authorities through the government new towns programme. This history is well documented and is not considered in great detail here (Town and Country Planning Association, 2007). Letchworth is the world's first Garden City. Garden cities were a reaction against the overcrowding of cities and poverty of rural areas in the late Victorian period, with the profits

from land development going towards the local public good. Letchworth town centre is the Garden City's most prominent public 'face'. In recognition of this historic importance, large parts of the town, including the whole of the town centre, are designated a conservation area. (North Hertfordshire District Council, 2007).

As from the website of Letchworth City (Heritage Foundation: Letchworth Garden City, 2015):

"Letchworth Garden City has a special place in the history of town planning as the world's first Garden City. Established in 1903, it is based on the theories of Ebenezer Howard in his book 'Garden Cities of Tomorrow', which outlined how new, ideal communities could be created by combining the best of town and country. Houses were constructed to harmonise with each other and architectural features were designed to add visual interest and variety."

There are other differences, too, between theory and practice. The very term garden city soon took on a generic meaning for any development with a generous allocation of gardens and tree-lined avenues which would be self-contained settlements with a mix of land uses, with a clear separation from neighboring urban areas (Hardy, 2011). . A garden city was defined by Howard as, "a town designed for healthy living and industry of a size that makes possible a full measure of social life but not larger, surrounded by a rural belt; the whole of the land being in public ownership, or held in trust for the community". The related development form of the urban extension was first sponsored by public authorities under the auspices of the Town Development Act 1952 of Britain.

Today, the 'sustainable urban extension' is an important element in a portfolio of solutions to the problem of meeting the need for housing and related development. Both new settlements and urban extensions provide opportunities for concentrated rather than sprawling development. By virtue of their scale, and if carefully designed and developed to produce integrated, 'holistic' settlements, they can encourage and accommodate highly-sustainable patterns of living. Garden cities had varied range of achievement, environmentally, socially and economically, and many are among the greenest places to live in the UK today. In 2007 there were the beginnings of a new wave of new settlements and urban extensions.

The purpose of the literature review carried out for this report is to provide an impression of the textual sources on urban extensions and new settlements published since the new town



completed. The origin of the new village lies in a decision made by Solihull Metropolitan Borough Council (Solihull MBC) in 1989, in response to its housing allocation requirement of 8,100 new homes between 1988 and 2001. The adopted 1997 Solihull Unitary Development Plan (UDP) originally proposed a settlement of 850 houses adjacent to the existing hamlets of Cheswick Green and Tidbury Green.

The masterplan approved in 1995 was underpinned by four key overarching principles:

- The village should have a clear identity which gives residents a sense of place and belonging.
- It should echo the traditional features of village development, including homes, employment, recreation and social and welfare facilities, intermixed to create a cohesive whole.
- The village should provide a range of housing from first-time through to family houses, together with smaller units for the elderly, thereby creating a mixed community for all ages and incomes.
- The village should create a safe and pleasing environment for pedestrians while still accommodating the car, but without allowing it to dominate.

The key to the design of the master plan for the village was the creation of a series of public places that are attractive and enjoyable to walk through. The overall aim of the layout at Dickens Heath is to encourage street activity by making it easy, convenient and pleasurable to move around the settlement as a pedestrian. The design ethos focuses on a range of shared public spaces, as opposed to dispersed estates which tend to foster lifestyles focused around the private car.

The master plan prepared by John Simpson & Partners does not treat houses just as isolated objects, but instead arranges them as a backdrop to a system of squares, streets and lanes to create an identity and sense of place. Simpson claimed in a proof of evidence dated May 1991 that ‘for a village to work, [with] the sense of being a recognisable community with a distinctive identity and character, it must be perceived as one cohesive whole’. This ethos underlies the whole design and development at Dickens Heath, and all the facilities and components that make up the village are therefore within walking distance of each other. The site has strong physical boundaries, with the Stratford upon Avon Canal to two sides, and a site of nature conservation importance, football playing fields and existing development forming the other boundaries. The buildings around the center are closely packed, and the public buildings such as shops, a post office, church, village hall, library, surgery and public house are placed so as to relate to each of the public spaces. A series of blocks have been developed, radiating out from the village centre and providing sufficient flexibility to cater for the housing needs of today. Housing is built close to the edge of each block, with the centre reserved for parking, garaging and the development of smaller mews-type development, containing an element of sheltered housing, small studios and workshops, and housing suitable to meet the needs of disabled people. A great strength of the settlement is a feeling of maturity from the start. The linkages and connections with the Stratford upon Avon Canal, and the relationship of the canal to the topography of the land, are also very important in establishing views of the canal from the settlement core. The central main village square is located at the highest point in the village, at the junction of two main routes. The street frontages

around the square contain a mix of uses, and along the radiating streets the pattern of uses is predominantly retail at ground floor and residential and commercial at first- and second-floor levels. The creation of a village centre and village square, with short walking distances between different uses and activities, encourages pedestrian movements and thus significantly reduces the number of car movements made by residents within the village. Housing development across the village site follows a traditional pattern, wherein an urban system of higher densities and more enclosed spaces is found towards the centre of the settlement, with decreasing densities towards the periphery. Low-density housing has been developed on the edge of the settlement, with houses hidden behind hedges and walls and larger detached properties facing out towards the canal. The housing densities on the periphery are at 6-10 dwellings per hectare, rising to 10-14 dwellings per hectare moving towards the village, and rising again to 14-18 dwellings per hectare near the urban core. The urban frontages to the high street and parts of the interconnected squares take a similar form to the special edge treatment area and include landmark buildings and non-residential uses within the street frontage.

As a conclusion: Dickens Heath has attracted a mix of businesses and residents. Despite its proximity to larger urban centers, a sense of community cohesion has been established, as borne out in the range of retail, restaurant and commercial uses in the village centre. There are issues to be resolved related to car parking and the inadequate provision of public transportation. However, in terms of the planning policy context and the process of steering the scheme through the local and sub-regional planning systems, Dickens Heath offers a valuable lesson in delivering growth on the ground and in achieving good relationships between local authorities and developers. The scheme was developed at a time before sustainable construction techniques and the on-site energy generation agenda began to emerge into the mainstream, but Dickens Heath nevertheless offers many lessons for a new small-scale settlement developed within or close to the green belt.

### **3.4.3 Comprehensive planning in India/ Case of Bangalore**

Bangalore is one of the fastest growing cities in India with population more than 8 million in municipal area of 226 sq.km (Increased to 565 sq. km city area in 2003) and growth rate of 3.25% (Bangalore Development Authority 2005, School of Planning and Architecture 2010). Like any other growing city, Bangalore's issues are concerned with: Provision of housing, civic amenities and alternate modes of transportation, protection of natural areas and supply of adequate infrastructure facilities and so on. It is also important to understand that physical structure (Planned growth) of Bangalore has always given advantage for its spatial planning and land use development. One report from School of Planning and Architecture (Alternative Approaches to Master Plan, 2010) explains as :

“...Economic, social and population growth translated into spatial development of the city indicates an urban form of Bangalore that is characterized by a radio-concentric system structured by ring roads, five major radial roads and five secondary radial roads that converge towards the centre of the city. The major and secondary radial roads that form a ten-pointed star, constitute the

organizational system of the city, and are important as they support both industrial and commercial development...”

It is also important to understand the legal framework of planning institution in Bangalore which is explained as (School of Planning and Architecture, 2010) :

“The Bangalore Development Authority (BDA) is responsible for the task of preparing the Comprehensive Development Plan as per the Karnataka Town and Country Planning (TCP) Act, 1961. The Act has laid down rules for planning of Local Planning Area (LPA) and its section 25 mentions that the Plan needs to be revised every 10 years. The Comprehensive Development Plan 2005-15 for the LPA has been prepared under the same legislation.”



Figure 11 Planning Legislation history of Bangalore (Bangalore Development Authority, 2005)

Bangalore has been preparing comprehensive development plan since 1985 with changing scenario of legislation and new urban challenges. To tackle with the changing time frame and legal

framework , majorly 4 components are initiated simultaneously (School of Planning and Architecture, 2010):

PLAN	Year of Notification/ Publication	Perspective Period	Planning Area	Preparing Organisation
Outline Development Plan	1971		Local Planning Area/ Bangalore Development Area	Bangalore Development Authority
First Comprehensive Development Plan	1985	1985-1995	Local Planning Area/ Bangalore Development Area	Bangalore Development Authority
Second Comprehensive Development Plan	1995	1995-2005	Local Planning Area/ Bangalore Development Area	Bangalore Development Authority
Third Comprehensive Development Plan	2007	2005-2015	Local Planning Area/ Bangalore Development Area	Bangalore Development Authority
City Development Plan	2007	2007-2013	Bangalore Mahanagar Palika Area	Bangalore Mahanagar Palika

Figure 12 Chronology of Plans in Bangalore: (Bangalore Development Authority, SPA 2010)

- A holistic data collection process among the main private and public stakeholders.
- A comprehensive existing land use survey

- "Urban diagnosis" and furnishing the "scientific" elements for 2020 "Bangalore vision"
- The mapping and data consolidation activities, comprising of the preparation of the spatial data for urban planning and city management perspectives (data modelling, detailed data base and GIS design, etc)

It is important to understand the fact that vision of comprehensive development plan (2005-2015) was formulated with parallel of the City Development Plan 2007-13, which was carried out with series of stakeholder meetings by Bangalore development authority. Whole process of planning took 48 months(2003-2007) inspite of sheduled 24 months. Some of the major issues addressed in the plans are:

- City Growth
- Economic Development

- Environment and Energy
- People and Well-being
- Leisure, Art, culture and Sports

The Comprehensive Development Plan of BDA proposes to address long-term sustainable development and structured continuity through the following directive principles of nature, economic efficiency, social equity and historical heritage (School of Planning and Architecture, 2010).

Process of forming comprehensive plan is very tough job as it is clearly understandable from the processes involved in preparation of BDA's Comprehensive development plan. Spatial and Non-spatial data were extensively collected such as basic demography, density and land use analysis, housing, infrastructure and other demands of people which validates the plan. Headings of proposed plan involves (School of Planning and Architecture, 2010):

Physical Aspects	Environmental Aspects	Social Aspects	Economic Aspects:
<ul style="list-style-type: none"> <li>○ Settlement pattern and Land use</li> <li>○ Shelter</li> <li>○ Infrastructure               <ul style="list-style-type: none"> <li>▪ Water Supply</li> <li>▪ Sewerage and Sanitation</li> <li>▪ Solid Waste Management</li> <li>▪ Drainage</li> <li>▪ Electricity</li> <li>▪ Transportation</li> <li>▪ Education</li> <li>▪ Health</li> <li>▪ Recreational facilities</li> </ul> </li> <li>○ Urban form</li> <li>○ Built Heritage</li> </ul>	<ul style="list-style-type: none"> <li>• Natural Resources</li> <li>• Climate Change:</li> <li>• Urban Environmental Quality</li> <li>• Disaster Management:</li> </ul>	<ul style="list-style-type: none"> <li>• Inclusivity:</li> <li>• Equity:</li> <li>• Capacity Building &amp; Community Empowerment:</li> </ul>	<ul style="list-style-type: none"> <li>• Local Economic Development:</li> </ul>

Bangalore development authority and other institutions involved in this planning has done tremendously hard work and extensive detailed out work but it is not free from some basic drawbacks which are listed out as follows:

- Investment plan for this decade long plan is not detailed out
- Public participation are ignored in many cases which is also criticized in many democratic grounds

Lack of clarity in institutional framework of implementation and monitoring could be one of the major reason of failure in long term. As explained earlier, Bangalore development authority was a nodal authority in development of this planning process but there are many other institutions and legislations involved in implementation and overlapping in jurisdictions. Some institutions/ departments like: Bruhat Bangalore Mahanagar Palika (BBMP), Bangalore Metropolitan Transport Corporation (BMTTC), Bangalore Water Supply and Sewerage Board (BWSSB), Karnataka Slum Clearance Board (KSCB), ITBT, Bangalore Metropolitan Region Development Authority (BMRDA), Karnataka State Road Transport Corporation (KSRTC), Heritage Board, Karnataka Housing Board (KHB) and many others are backed up by self governance legal status.



Figure 13: Bangalore Development Authority, a Draft Master Plan 2015

Concluding comprehensive planning of Bangalore, it is taken as one of the best plans in India as it addresses all the emerging issues in more integrated manner. Bangalore is also the first city to have private consultant this plan as a part of Indo-French Collaboration, involving first ever ecological mapping in India. BDA has played on pivotal role in balancing and putting all the institutes and issues at a center. Despite it's

integratedness, it is always a challenge that BDA or Bangalore will face in coming future about coping with new emerging issues, institutional delays, revision of plans (timely upgradation) and legislative hindrances.

It is important to understand from the above case that Bangalore coming up with the similar bureaucratic hassles and legislative hindrances like of Nepal, has accepted the importance of comprehensive planning. Different topics of plans and isolated implementing agencies has made the concept of comprehensiveness more viable and practicable.

### 3.4.4 Singapore- The Concept Plan

Intelligent island of Singapore is one of the youngest yet most developed country with interracial population of 5.5 million and 277 sq. mile area. Singapore was the archetypal 'colonial city' in south-east Asia, a product of British planning and development where land was allocated with

rigid guidelines regulating a range of aspects from street patterns and lot sizes to covered walkways, for government and commercial uses and for the various ethnic groups (Yuen, 1996).

When the People's Action Party (PAP) government came into power in 1959, Singapore was on the verge of a severe socio-economic crisis, with high unemployment (about 10 percent), labor strikes and civil riots (Goh, 2006). The new nationalist government decided to move away from the laissez-faire attitude of the British colonial administration and to adopt a more interventionist approach with quickly transforming its economy from its traditional base in entrepot trade to its current base in export-oriented manufacturing and international services (Goh, 2006). Goh(2006) explains that formation of strong co-ordination statutory body was one of milestone in changing planning dynamics of that small state. He further adds "...One of the immediate strategies of the PAP government was to create a number of powerful statutory boards to look into the problems of economic and urban development. The two most important statutory boards were created in 1960: the Economic Development Board (EDB), to promote economic and industrial developments, and the Housing and Development Board (HDB), to undertake the comprehensive task of clearing land, redeveloping the urban area, and building and managing public housing..."

Economic prosperity and planned development in this tiny citystate can be attributed to its adaptability in dynamics of the changing international economy (Goh, 2006). It's early adaptation of IT in its national economy can't be ignored which changed the face of entire nation against the back drop of geo-economic scenario. The first phase of IT planning, 1980-1985, started with Civil Service Computerization Programme (CSCP) and formation of the National Computer Board (NCB) in 1981, as the statutory board for computerization planning and development. Later it focused on local IT industry supporting in business competitiveness, and telecommunications infrastructure (Reid, 1997). Singapore government recognized the importance of information technology in planning and implementation exploring the new opportunities of globalization.

The Concept Plan is a strategic land use and transportation plan that guides Singapore's development over the next 40-50 years. Reviewed every ten years, the Concept Plan ensures that there is sufficient land to meet long-term population and economic growth needs while providing a good quality living environment for our people (Singapore Government, 2015). The first Concept Plan was formulated in 1971 and laid the foundation for Singapore's growth for a better quality of life with new towns, transport infrastructure and access to recreation further subsequently reviewed in 1991, in 2001 and in 2011 to factor in changes in local and global trends, and ensure the plan remains relevant to address future challenges and meet needs. At present, Singapore is expecting 6.5-6.9 million population by 2030 (Singapore Government, 2015). Regular public consultation through different surveys, FGD, and public forums have helped to upgrade the plan as per the global as well as local demand.

The Concept Plan is a strategic land use and transportation plan that guides Singapore's development over the next 40-50 years. Reviewed every ten years, the Concept Plan ensures that there is sufficient land to meet long-term population and economic growth needs while providing a good quality living environment for our people. Concept Plan has played a vital role in helping us balance our many land use needs, such as housing, industry, commerce, parks and recreation, transport, defense and community facilities coping with major problem of limited resource

availability. In reviewing the Concept Plan, we take into account all major land needs in collaboration with relevant government agencies. Public consultation is on crucial component of the Concept Plan process. In every Concept Plan Reviews, extensive public consultation has been carried out through various channels such as surveys, focus group discussions, and public forums.

The latest Concept Plan review of 2011 took into account the public feedback gathered by the National Population & Talent Division (NPTD) on building a sustainable population for Singapore. This population discussion resulted in the release of the Population White Paper in January 2013, which set out the key considerations and roadmap for Singapore's population policies and also projected Singapore's potential population by 2030. The Land Use Plan is a conceptual plan that outlines the strategies to provide the physical capacity to sustain a high quality living environment for a possible population of 6.9 million by 2030. The strategies to sustain a high quality living environment included:

- Providing good affordable homes with a full range of amenities
- Integrating greenery into the living environment
- Providing greater mobility with enhanced transport connectivity
- Sustaining a vibrant economy with good jobs
- Ensuring room for growth and a good living environment in future

Today, Singapore's total urban socio-spatial infrastructure has been developed essentially according to the Concept Plan. Concept plan has been on major contributing factor to the rapid development of the republic's socio-spatial structure, which formed the spine of the nation's economic prosperity and political stability (Goh, 2006).

Co-ordinated institutional structure, comprehensive plan, honest implementation, adaptability of new challenges and timely upgradation of new emergin issues has helped Singapore to succeed in becoming world-class state of 21<sup>st</sup> century (K C, 2015). It is important to understand that the first physical development plan of Kathmandu which is of similar size of singapore was prepared in late 50s where Singapore adopted Concept plan in the similar time frame. In these half centuries, Singapore is updating its concept plan and has formulated different local plans as per the strategic concept laid out earlier, where Kathmandu has experienced series of planning process one after another. Adaptation of information technology in planning has helped Singapore becoming the Business information hub of Asia. We can't ignore the political interest and strictness in implementation of plan which has been the weakest portion of planning process in Nepal.

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PART TWO

## 4 BURTIBANG

### 4.1 SITE INTRODUCTION

Burtibang is a market center which lies in the Burtibang VDC of Banglung district. Burtibang is connected to Banglung –Pokhara and palpa- Butwal with road network. This market lies on the bank of Badi Gad Khola. According to the population census 2068 the total population of Burtibang VDC was 8,771.

With 8-10 hours off-road drive from Baglung, the town is accessible, which also serves as the market center for nearby VDCs. Burtibang is a small town surrounded by the mountains with difficult land topography. Near to the National Dhorpatan Hunting reserve, Burtibang is also touristic destination for adventure tourism. One of the major challenges for the site is its difficult geographical terrain which provides less opportunity of land development. One has to consider about the terrain structure if it is to be developed as the town of one lakh population.

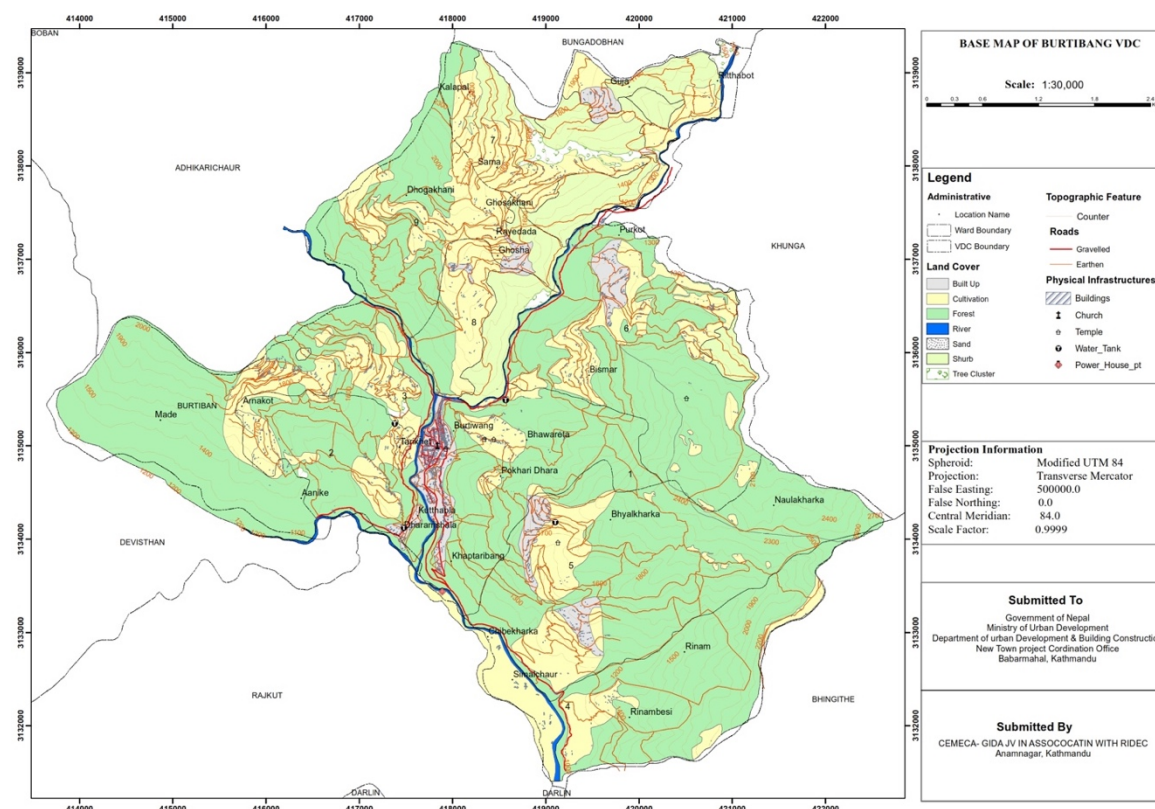


Figure 14 GIS Base Map of Burtibang

#### 4.1.1 Location

Around 120 Km off-road from the Baglung city area, we can reach to the Burtibang via Mid-Hill Highway. The access to the site is not very easy because of the difficult road structure. Located in

the Western Development region, Dhaulagiri zone- it is the western edge of Baglung district closer to Dhorpatan region. By road it takes around 8-10-hour drive from Baglung city area. It is also similar time distance to travel from Butwal. Nearest airport to the Burtibang are Pokhara and Bhairawa which are frequently made flight by national airlines where Rolpa and Dhorpatan are also equipped with basic facilities of Airport.

#### 4.1.2 Geography



Figure 15 Land Topography of Burtibang, Baglung( Source: Google Earth)

Burtibang market area lies at the valley of mountains and lies at the altitude of more than 1250m from the sea-level. Difficult terrains surrounding the small settlement put some threat of landslide as well as it is imperative to consider for the further detailed geo-technical study, regarding the vulnerability of the site with land slide and others. Burtibang Bazaar at the bank of river is also considered as the most fertile cultivable land in the region, but with the limited availability of land and construction technology, market is expanding in that cultivable region. Difficult geography also puts threat to the development of road and other strategic infrastructure in terms of cost and technology.



Figure 16 Burtibang Town

### 4.1.3 Historical introduction

There are many opinions on how name of Burtibang existed. Magar community used to be dominant population in Burtibang. Land is called “*Bang*” in Magar language and most of the land in Burtibang are acquired by “*birta*” from Kings. Thus land acquired by birta “*Birta-Bang*” became “*Burtibang*”.

Another version of story derives the word of Burtibang to be Burti and bang which converts to open land which is fertile. Apart from many stories associated with the place, everyone agrees since time immemorial, it has been used as the resting place and later developed as the market town for nearby VDCs. Since longer time, market is dependent towards the Butwal Market which meets at the Kharbang. Located at the proximity of other nearby VDCs, it is significant market town and education center. Before the road connection from Rukum, Parvat and other region, Burtibang was also considered as the education town for those districts as well.

For a longer period of time, major three caste group; i.e. Thakali, Chantyal and Kaami (Metal Worker). Depending upon their business involvement and their working expertise they made the perfect group as the miners, where Thakali as the investor, Chantyal as the labour who would extract iron and other ores from the mines and finally Kaami would refine the metals from the ore, and they would make good business out of it. Hence, we can find plenty of these caste group in

this region an there are many iron ores and other ores. These ores are not used as the commercial purpose because of its expensive extraction cost and lack of government intervention.

#### 4.1.4 Climate

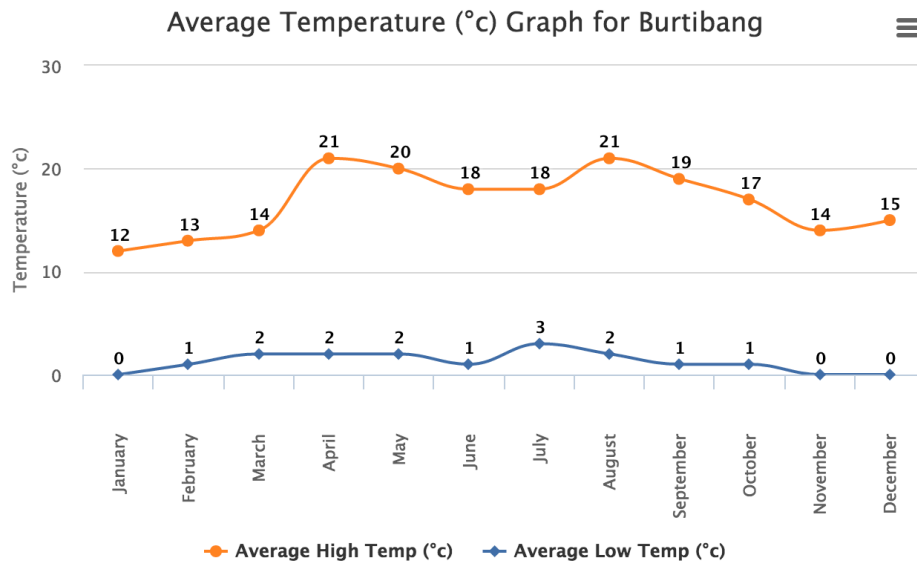


Figure 17 Average Temperature (Source: <http://www.worldweatheronline.com/burtibang-weather-averages/np.aspx>)

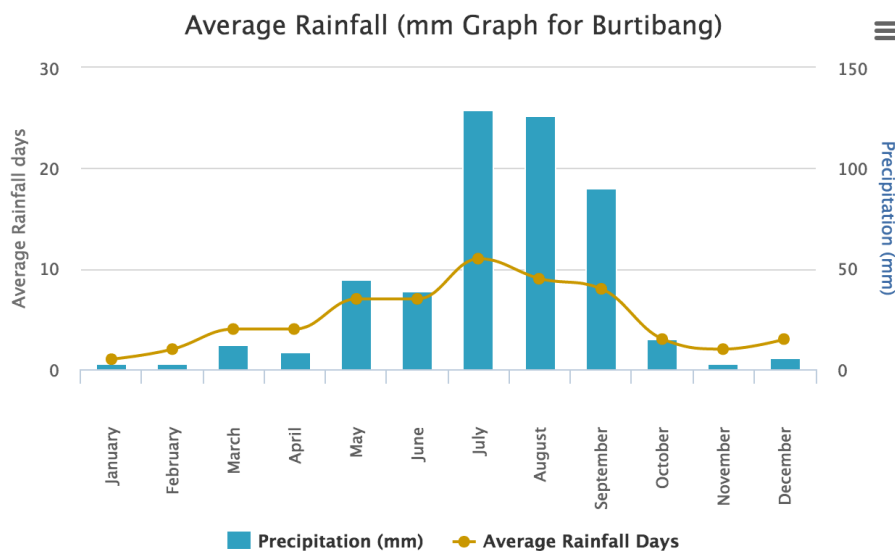


Figure 18 Average Rainfall (Source: <http://www.worldweatheronline.com/burtibang-weather-averages/np.aspx>)

Climatic condition of Burtibang is fair with average temperature of 16-20 degree Celsius and below 5 degrees during winters. At the edge of mountains, Burtibang has good rainy season of average more than 120mm rainfall. Because of the the vegetation and good environment, we can experience the fogs in the morning.

## 4.2 TOWN PROFILE

### 4.2.1 Demography

Burtibang is multi-cultural and multi-ethnic in its social character. Chhetri, Magar, Newar, Bramhin, Thakali, Dalit and Magar are some of the predominant ethnic groups. With total 1262 household in the VDC, total population counts to 7587. People use different languages like Nepali (Khas), Magar, Newari, Kham etc.

*Table 1 Census 2011: Source CBS*

Ward No	Total Family	Total female Pop	Total male Pop	Total Population
1	269	719	739	1458
2	147	419	394	813
3	154	491	454	945
4	121	418	417	835
5	136	414	424	838
6	122	390	395	785
7	122	360	398	758
8	62	213	198	411
9	129	345	399	744
Total	1262	3769	3818	7587

Thakali, Chantyal and Kaamis (Blacksmith) were the major caste group in the region with their special involvement in the region of ore extractions. After the 2036/46 revolution, Muslims also migrated at the places for business purpose from Arghakhanchi. Around 30-32 families of Muslims live in the locality, where they are not included in the above data because of their non registration in VDCs (No Migration). One muslim family has built house in the market area. There is 1 Mosque and 1 Madarasa in the locality to facilitate Muslim people. Religious harmony is observed between different community where as per the local resources, there is still case of caste system of untouchables. One key informants informed us in the focused group discussion that, “We can definitely say that caste system has been more open and embracing in last few years, but we can’t say that there is complete abolishment of differential caste system”.

## 4.2.2 Social Data

### 4.2.2.1 Education

One of the first attention that we get is the number of schools and other educational institute in Burtibang. Being such a small town with less than 8000 population it is critical to consider that VDC caters more than 2000 students. Most of the students from nearby VDCs and District (Especially Rukum) come to Burtibang for educational purpose. Here are few data shown as below including the number of male-female students and number of Dalits and Janajatis. Students from the following VDCs come to Burtibang center for educational purpose as well.

- 1) Burtibang VDC
- 2) Bobhang VDC
- 3) Adhikar chaur VDC
- 4) Nisi VDC
- 5) Bohara Gaun VDC
- 6) Khunga VDC
- 7) Bunga Dhovan VDC
- 8) Bhing githi VDC
- 9) Devisthan VDC
- 10) Taman VDC
- 11) Khunkhani VDC
- 12) Darlin VDC
- 13) Rajkut VDC
- 14) Ransin Kiteni VDC"

Table 2 Student Distribution as per Caste Group and Gender in Burtibang

S.No.	Name of the Institution	Male	Female	Total	Dalit (M)	Dalit (F)	Dalit (T)	Janjati (M)	Janjati (F)	Janjati (T)	Remarks
1	Shree Simalchour Primary School	50	52	102	9	10	19	41	27	68	
2	Shree Jan Chahana Bal Bikas Center	11	7	18	7	2	9	1	1	2	

3	Shree Jan Chahana Primary School	25	33	58	6	8	14	11	11	22	
4	Sarswoti Bal Bikas Center	10	11	21	0	0	0	1	2	3	
5	Sirsire Bal Bikas Center	10	5	15	0	0	0	0	0	0	
6	Shree Jan Joyti Bal Bikas Center	13	10	23	5	1	6	8	8	16	
7	Shree Nava Joyti Primary School	66	72	138	6	5	11	8	6	14	
8	Shree Sarswati Primary School	49	41	90	15	15	30	15	8	23	
9	New Modern Academy	270	188	458	91	82	173	169	95	264	
10	Uttar Gnaga Higher Secondary School	452	639	1091	81	90	171	162	192	354	

Table 3 No. of Educational Organization currently operating in Burtibang VDC

S.No	Name of School	Address	Running Class
1	Uttar Ganga Higher Secondary School	Burtibang-1	10-12
2	Sarswati Primary School	Burtibang-1	Up to 5
3	Ganga Primary School	Burtibang-1	Up to 2
4	Janata Secondary Boarding School	Burtibang=1	Up to 10
5	Riverhead Academy	Burtibang-1	Up to 10
6	New Modern Academy	Burtibang-1	Up to 10
7	Janjagriti lower Secondary School	Burtibang-2	Up to 8
8	Jan chetana Primary School	Burtibang-3	Up to 5
9	Arnakot Lower Secondary School	Burtibang-3	Up to 8
10	Simal Chaur Primary School	Burtibang-4	Up to 5

11	Jaldi Primary School	Burtibang-4	Up to 5
12	Nav Joyti Primary School	Burtibang-5	Up to 5

S.No	Name of School	Community	Institutional
1	Child Development Center	7	-
2	Primary School	7	-
3	Lower Secondary School	4	2
4	Secondary School	-	1
5	Higher Secondary School	1	-
6	Campus	1	3
	Total	20	3

Table 4 Education institutions in nearby VDCs of Burtibang

S.No	Name of VDCs	No. of Secondary School	No. of Higher Secondary School
1	Devisthan	2	1
2	Adhikarichaur	2	1
3	Rajkot	1	-
4	Darling	2	-
5	Bhingithe	1	1
6	Jaljala	N.A.	1
7	Gwalichaur	N.A.	1
8	Khuga	2	-
9	Bungadobhan	N.A.	1
10	Bohragaun	2	1



Figure 19 Education Institutes at Burtibang



Nishi-bhuji Multiple Campus is the central campus for the higher education in bachelor level for the region. It is central campus of the different 8 other nearby VDCs. Except of science faculty, all other faculties are available in the college. Students come from more than 20 VDCs come to Burtibang Bazaar for higher education. In +2, 436 students are studying whereas in multiple campus only about 150. Reason for decrease in this number is due to student terminating their study for foreign jobs and higher level study in other cities.

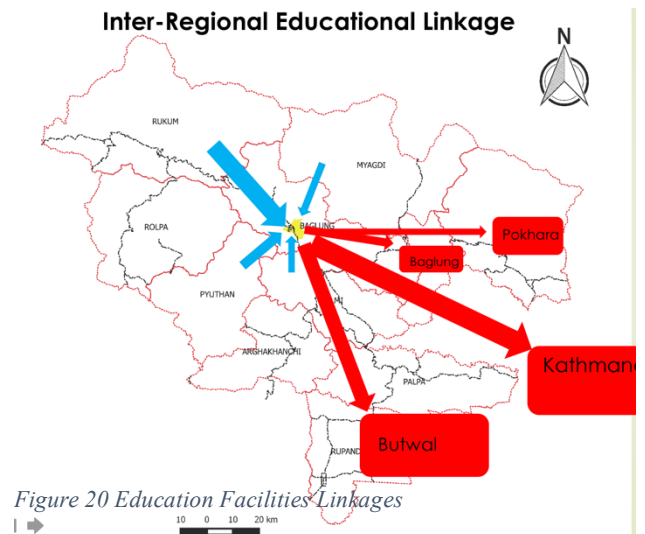
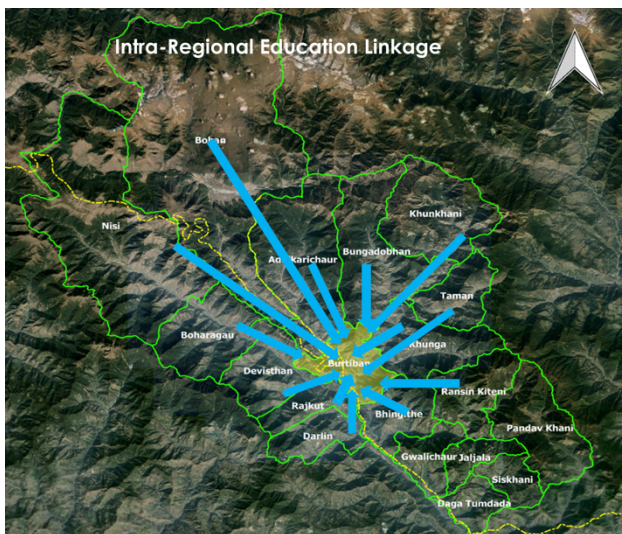


Figure 20 Education Facilities Linkages

#### 4.2.2.2 Health

Burtibang has one district hospital of 13 bed where more than 25 staffs are employed including medical and administrative staffs. Apart from that, there are also 2 other private hospitals with tens of health clinics and pharmacy in the VDC.

Table 5 Health sectors at Burtibang

S. No	Name	Address	Bed No	Area	Number of Staff					
					Permanent			Temporary		
					Dr.	Nurse	Extra	Dr.	Nurse	Extra
1	Burtibang District Hospital	Burtibang-1	13	7 ropani	1	4	6	3	4	9
2	City Hospital	Burtibang-1	1	1 ropani				1	1	4
3	Uttar Ganga Hospital	Burtibang-1	5	1.5 ropani				2	6	5

Among the three PHC located in Baglung district, one is located in the Burtibang VDC. It was established a year ago. Though it is named only PHC, later facility were provided as a district hospital. It is running under District Public Health Office (DPHO), Baglung. 20 health post are running under this hospital administration. PHC generally should have 3 beds but now 6 beds are available. Maternity room (CS rooms with 2 beds) are separate. For critical medical cases, patients are referred to Baglung, Pokhara, Palpa and Kathmandu.



Patient comes from- Rukum, Bhimgithi, bobang (Dhorpatan), Taman, Khunga, Adhikarichaur, Devasthan, Nishi, Boragaun. Service provided to around 100 numbers of patient normally.

Figure 21 Health post at Burtibang



Figure 22 Medical Clinic at Burtibnag

Typhoid, Viral diseases, Fracture, Injury, Family Planning, Abortion are quite general cases. Water Borne disease used to be more in previous years but now a days very low. People come very few in number for HIV/AIDS. Generally, AIDS are found on those returned from India. - General OPD, Delivery, Family Planning (Temporary & Permanent), Abortion, Lab ( X-ray, USG, ECG, Blood Test)

Main problem in health sector is only minor cases are provided so compelled to refer to other cities for major cases. Since National grid is not connected in so problem in enough power. As well as lack of sufficient equipment and waste water directly to the river.

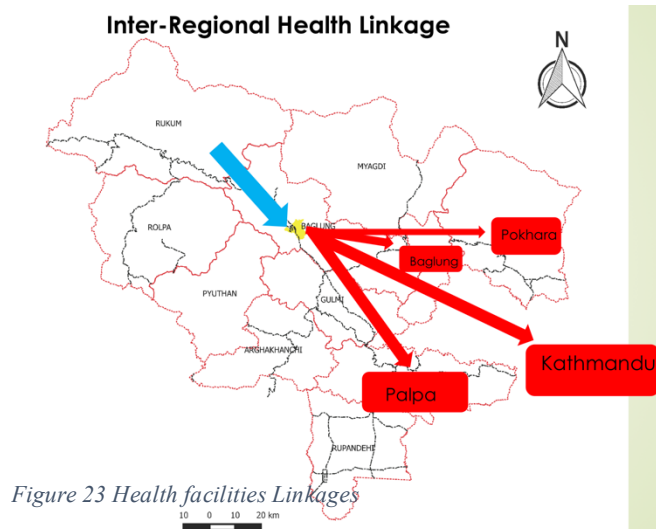
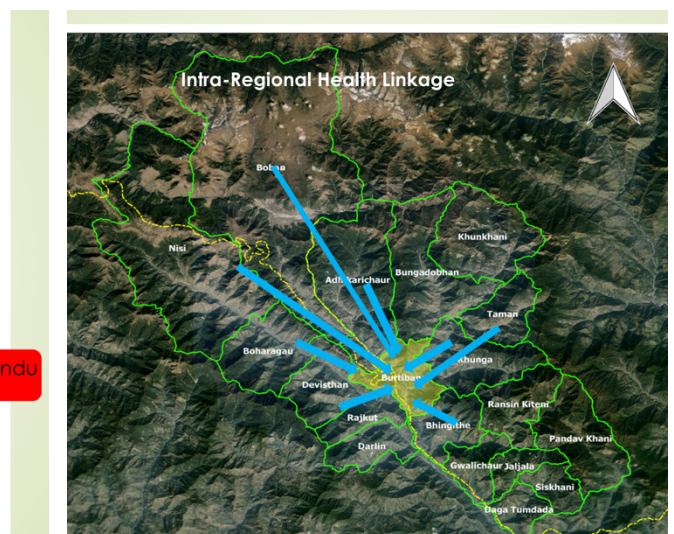


Figure 23 Health facilities Linkages



#### **4.2.2.3 Recreational facilities**

As the means of recreation the town is facilitated with one cinema hall, open play grounds and a covered hall. Average number of 30-40 people visit the Cinema Hall daily for some Nepali, Hindi and occasional English movies. The cinema hall is also recreation center for all other people from nearby VDCs who come to the region for market purpose. Apart from the the cinema hall, a covered hall made by the community is an important recreation center with badminton and other indoor games.

#### **4.2.2.4 Security**

Current status of crime shows that there is average number of 2-5 criminal cases recorded in the local police station which is equipped with 30 police staffs. The station is located at the center of the local market. Present police station occupies around 3 Ropani of land where it is not sufficient, and placement of the security office needs to be reconsidered. Location of the police station at the center of the market with such a big boundary is itself a trouble some for growing market and for police station itself. With millions of investment in the police station, it is another challenge to shift as well. Police administration is also claiming for the road in the southern side or western side, as it has contributed land on both side for the road development.

### 4.2.3 Physical infrastructure data

#### 4.2.3.1 Urban Form

Burtibang is small market area with around 6 to 7000 population with around 1000 households. Most of the households are directly or indirectly involved in the road side market. Linear market is developed on either side of the old narrow road, known as the old market. where there are some intersection in the market with new wide roads. Developed at the bank of river and at the narrow valley of mountains, Burtibang is developing in the linear format which is now extending towards East-West direction (towards hilly terrains). In the market area, most of the buildings are built in frame structure with no good construction practices. Buildings are built with no consideration of earthquake resistance and lack of good supervision. Most of the buildings are built in the single bay structure with corridor of 3 to 4 feet and building width of 12 to 15 feet. Double storied building are the most common type where recent buildings are growing vertically towards 3, 4 or even 5 story. Existing road width of 4 meter and of 6-8 meters are yet to be expanded as per the Right of Way, hence good urban form (shape) is yet to be explored to its extent.



Figure 24 Google Map of Burtibang (2015)

#### 4.2.3.2 Existing Land Use/ Land Cover:

Burtibang, as the center for western Baglung district, serves as market center for nearby 15 VDCs and serves as the service center for nearby market center as well. With difficult geographical terrain, very small market of Burtibang is growing and extending to the foot hills. As clearly understood already, Burtibang has scarce of land, especially flat land. Slope extending from 30° are difficult for building construction as stated in different standards and norms. That's the reason town is completely dependent upon the import of goods and agriculture products. Scarce land makes the limited supply of land hence is very expensive in regard to its urban infrastructure available. As we have to consider whole Burtibang VDC as the planning base and start with the locus of Burtibang Bazaar, most of the area is covered with forest especially community forest.

Agriculture field are hastily changing into residential or market plots with private intervention of land use changes without prior planning. Newly developed land pooling project at the Naya Basti is expected to produce some planned residential plots for the town which is to be detailed out in later phase of planning. It is equally important to consider the fact that with lack of good land use policy, most of the land use are randomly transformed by owner without proper guidance of land use planning.

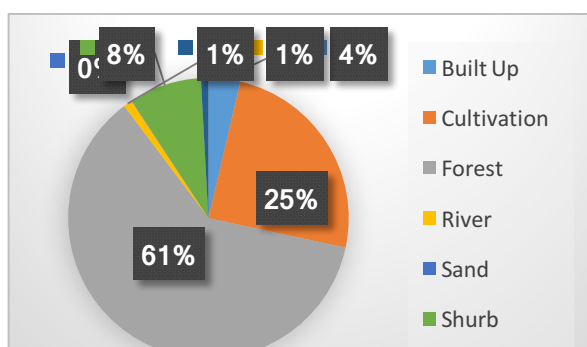
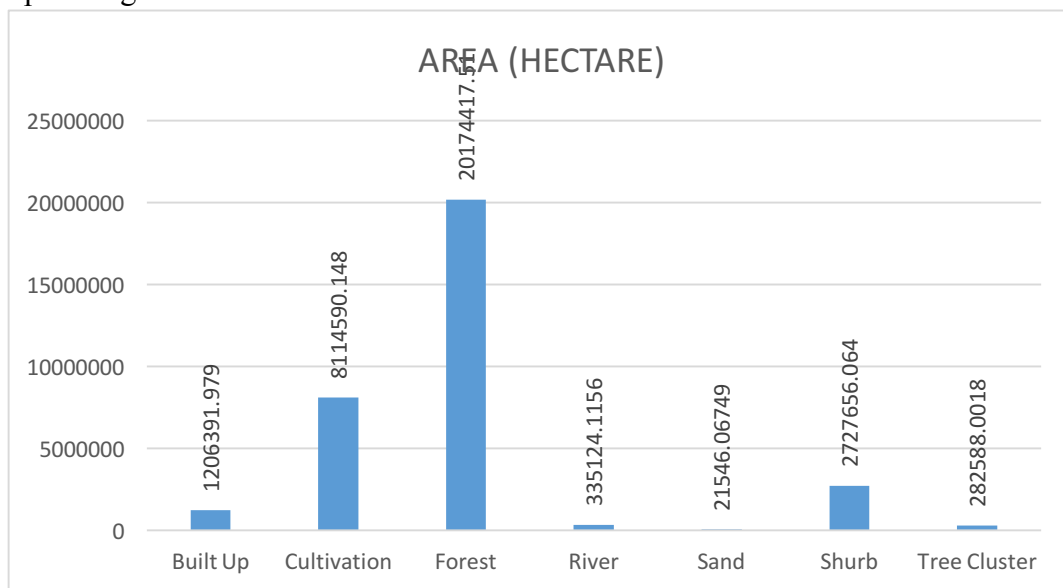


Figure 25 Land Cover (Burtibang)

### 4.2.3.3 Transportation (Road)

After around 10 hours' off-road travel by Jeep in the mid-hill highway, we reached Burtibang. Quality of road is intermixed to difficult turning, gravel and some sections are black topped.

S No	Road Name	Level
1	Arnakot-Chaura-pang khola to Dhorpatan	Track only
2	Devisthan-Bohora village-Nisi-bhalkot to way to rukum district	Mid-hill
3	Tarikhet to Nisikot	Track only
4	Burtibang-Tarikhet-Salamkot-Arnakto Arnakot Deurali	Track Only
5	Burtibang to Baglung	Mid-hill
6	Burtibang to Palpa	Grable Road
7	Burtibang to Rajkut	Track Only



Figure 27 Bridge connection at Burtibang

Burtibang is linked with the Baglung, Palpa and Butwal with the track road with difficult access where it is linked with mid-hill highway.

Average number of 17-20 public vehicles reach to the Burtibang via Baglung or Palpa route. According to General secretary of Dhorpatan Transportation committee, average number of 40 to 50 public vehicles including small jeeps and around 150 private vehicles especially for importing and exporting purpose, arrive at the Burtibang.

According to the secretary of Burtibang Bus Committee there are currently 7 transportation committee active in the area under which around 15 bus and 30 jeeps operate daily carrying

people into and from the core area of Burtibang. Also around 15-20 trucks enter the Burtibang area from Butwal carrying loads daily.

Most of the buses operate on the Mid-Hill highway joining Baglung and Burtibang whereas jeeps operate on diverse fields from tracks to graveled road. After the arrival of road accessibility, the

number of mules operating in the area has decreased significantly (from 300 to 50 now). Also, the price of goods have decreased in noticeable amount after the arrival of road in the area (from Rs10-11/kg to Rs3-4/kg).



Figure 28 Road Linkage between districts

#### 4.2.3.4 Water supply

Most of the households are served with the water from the local resources where government has some plans for water facilities like: Arnakot (2,3) Drinking water project, Burtibang Drinking Water Project, Bharweta Drinking water project, etc.

BDWC is a total local committee in which government has no role. Its office is at a small room near Buspark. Currently 4 people are employed (in which salary of 1 is Rs. 5,000 and other 3 is Rs. 2,000 per month only). BDWC is economically sustained by charging Rs. 5,000 per house for the connection to water supply. At the moment, there is no monthly charge to pay, as most of cost is incurred with new installation and monthly expenses is covered with community approach.

Drinking water supply in Burtibang comes from 3 sources (1 at Chipleni and 2 at Chharchhare) through plastic pipes. BDWC has 3 water tanks (1 is 1,00,000 litre capacity and other 2 are 20,000 litre capacity). In normal days, water is supplied from 5am to 9am in morning and 3pm to 5pm in the evening whereas in dry days water is supplied for only 2 hrs per day. Used pipes are of diameter 140mm, 125mm, 110mm, 90mm, 75mm, 63mm, 50mm, 40mm, 32mm, 25mm.

#### 4.2.3.5 Drainage System and Sanitation

There doesn't seem to be the good drainage system in the road side, whereas in some places open drain are visible. Most of the houses have good sanitation facilities of indoor toilet with septic tanks in every household. Where as there is no good monitoring and evaluation of the building codes implementation, most of the houses are built with no proper guidelines hence putting challenge for future expansion of drainage and sanitation facilities. Small drainage between Cinema Hall to Dev Chowk (115M) and Burpark, Newroad to River (260M) was constructed in recent time.

#### 4.2.3.6 Electricity and communication

Baglung district, as a whole is popular for being most number of river streams and potential of good micro hydro-electricity. Burtibang doesn't have electricity from the national grid but sufficed with the electricity produced by the local micro-hydro projects. It is the only and most important



Figure 29 Saw Mill with the help of 22KW micro hydro at the town (Source: (Alternative Energy Promotion Centre, 2011)



Figure 30 Micro Hydropower at Burtibang

source of electricity where government is soon planning to link the national grid to the site.

All together 76KW (22+34+40) of three micro-hydro projects are running at the community/private level. Bhugikhola Micro Hydro, Nishi Dovan Micro Hydro Power project are the few ones at the nearby site. In total, the Micro hydro powers are serving more than 800 households. The projects are mostly serving the households from ward 1, 2, 3 and 4. As at the market area, during the peak hour, electricity load is not sufficient and with the micro-hydro it doesn't seem possible to have some large scale economy to develop, hence connection to the national grid should be the top priority in the development phase.

#### **4.2.3.7 Communication**

Landline phone is available nearly in all Burtibang market area. Mobile phones are of common use in the Burtibang now with both NTC and NCELL towers constructed in the area. Currently one shop is collecting the bills in the area and payment of whole area is done through that shop. Recent prepaid payment has made that easier as well. 3 PCOs are available inside the market town. One Elaka post office is still at function. Most of the people use the mobile with NTC and NCELL network where telecommunication is provided with 2 local cable lien and Dish home facility.

Burtibang area has two local FMs namely Pariwartan FM 91 MHz and Dhorpatan FM 104.1 MHz. Pariwartan FM, which was established 4 years ago is heard in 19 districts of Western Nepal. It broadcasts from 5am to 10pm. Its Broadcast tower is at Kala Pole. It has employed all together 12 employees for its function (2 in tower and 10 in station). Funded by Janashanchar Sahakari and some locals of Burtibang this FM earns from advertisement of information broadcast. Dhorpatan FM is also the community based FM station, considered as an important source of information.

#### 4.2.4 Cultural and Tourism

The Burtibang area comprises of people living of different caste and creed. The society is heterogeneous with mix of people of different community, cultures and beliefs. There is no such typical language, culture, tradition or festivals in that area which is the uniqueness of that area. People belonging to different cultural groups celebrate their own festivals. The Hindus observe Dashian and Tihar as the main festivals. The Gurungs and the other indigenous groups celebrate Loshar. The Muslims visit the Mosque.

In the Bhagawati Pith of the bazaar area, there is a great celebration on the day of Kogagrath Purnima of Dashian. This festival is the second largest festival of the Baglung district. People from the whole Baglung district visit Burtibang on that day. Similar celebration is made on the day of Janai Purnima in the month of Shrawan at the Bais Dhara of Dorpatan area. Thousands of sheep and goats are sacrificed during the fest. People from Righa, Taman, Burtibang, Myagdi, Baglung, Gulmi, Butwal and even from Kathmandu come here during this fest. It is believed that Goddess will fulfill their wishes, if they bath in all 22 taps. Also in Dorpatan area there is a religious river, Uttar Ganga. People visit this river to take holy bath.



*Figure 31 Bhais Dhara (22 Taps)*



*Bhagawati Temple*

#### 4.2.4.1 Dhorpatan:



*Figure 32 Snow season at Dhorpatan, Deurali*

Dhorpatan hunting trek is off the beaten path and less thronged trekking trail of Dhaulagiri trekking region Nepal. Established in 1983, the hunting reserve covers 1325 sqkm and is distributed among Rukum, Myagdi and Baglung districts in Dhaulagiri range in Western Nepal. Dhorpatan hunting



*Figure 33 Dhorpatan in Dry season*

trek offers an opportunity to discover areas, which remain practically, untouched and still retain an idiosyncratic lifestyle without being affected by western influences. Controlled hunting is allowed with proper license and in certain seasons in the year. Hunting permit and license is issued by the Department of National Parks and Wildlife Conservation in Kathmandu. Dhorpatan hunting reserve is characterizing by alpine, sub-alpine and high temperate vegetation. Common plant species include fir, pine, birch, rhododendron, hemlock, oak, juniper and spruce. Dhorpatan hunting reserve is divided into six blocks for hunting management purposes. The region's elevation ranges from 1,500m (Burtibang) to more than 7,000m, providing excellent panoramic mountain views of the Dhaulagiri and Annapurna range. Dhorpatan is the prime habitats of blue sheep, a highly prized trophy animal, which is the main target of hunters. Other species are Ghoral, Serow, Himalayan Tahr, Black Bear Pheasant and Partridge.



- Khunga
- Bhimgithe
- Darling
- Taman
- Bobang
- Nisi
- Boharagaun
- Devasthan
- Burtibang
- Khungkhani
- Khunga

It is the junction area of three ways to Nisi, Bhuji and Dorpatan and therefore called as ‘Tinkchowke Thau’.



Figure 36 Burtibang and its Hinterlands

Main market area of the Burtibang is hugely crowded as all the service center of the major governmental offices and other institutions and organizations are established there. Almost all the houses are used for commercial purposes in the ground floor and used for official purpose at the first floor. Many of the houses have shop fronts in their ground floors. Almost all kinds of goods and services are available in the bazaar area. Both edible and non-edible goods have good market demand. Among the edible goods rice, dal, vegetables, dairy items, bakery items etc. are sold in the markets whereas among the non-edible goods clothes, furniture, ornaments, utensils, stationary items, hardware items etc. are sold. Butwal is the major center for importing all the goods for Burtibang area as it is expensive importing from Baglung and Kathmandu. But majority of the fancy materials are imported from Kathmandu. The customers of the market area are the people from the Burtibang area as well as people from different nearby villages. People involved in business are mainly from nearby VDCs and few from Baglung too. Very few number of people from other district are involved in business. Major of the fancy shops are run by people migrated from Argakhanchi, who are mostly Muslims.



Figure 38 Jewellery Shop

There are about 13 ornaments and jewelry shops in that area. Most of them are run by people from lower cast (Dalit), who were involved in this business since long time ago and were aborigines of that area. The customers of the jewelry are the people of the bazar area, nearby VDCs and even form Rukum and Rolpa. The business is high in festive seasons and in marital months. The raw metals are imported from Butwal at interval of around 15 days in average.

All the materials are imported from Butwal at an interval of 2 months. The demand for such goods is high in the bazaar area as the construction keeps on growing. Other people from different nearby VDCs come to the bazaar for buying the required materials. The business is low in rainy season which peak up with the increase in construction activities after the rainy season. The average transaction is about 8 lakhs per day.

There are about 7 hardware shops in that area.



Figure 37 Utensil Shop

The cost of delivering goods from Butwal is around Rs.3.5 per kg during normal seasons is high during rainy season. The travel time from Butwal to Burtibang is nearly about 48 hours for a fully loaded truck which also varies with climate and road condition. The delivery time during rainy season is nearly double that of normal season.

According to President of Hotels and Restaurant Association, there are 21 guest house and 34 restaurants in Burtibang bazaar. People involved in this business are majorly from nearby VDCs and few from Baglung. Very few number of people from other district are involved in this sector.



Figure 39 Guest House

Almost all restaurants are in rental buildings but in case of guest house the scenario is different. Only around 5 Guest houses are in rental building and remaining are operated by the house owners themselves. Before the road was constructed, the bazaar was small and concentrated around the upper old market area. The area lower towards the bus park was flat land used for cultivation. At that time, there were only 5-7 Guest house and 2-3 restaurants. After the construction of road, the flow of people and goods has increased, resulting in the increment in the numbers of hotels and restaurants. Few years back hotels were not so much facilitated. There used to be only facilities

of food and lodging. But now facilities like TV, Internet, hot water, attached bathroom etc. are available in big guest houses. Hotels with lodging facilities are one of the major source of income or market area for many people as people from nearby VDCs come for shopping and stay one night at Burtibang.

#### **4.2.5.2 Bank, Remittance and financial transaction**

As of most of the rural context of Nepal, Burtibang and near by VDCs are highly depended on the remittance brought in from gulf and Arabian countries. We've found that around 5 remittance offices (Money Transfer) are running at the moment with annual transaction of around 3 crores annually. Majority of the customers are from the nearby villages than from the bazaar areas. Huge portion of remit is used for land transaction whereas few amount is used for household purposes.

Already mentioned, banks and financial institutions are the indicators of development and especially economy. There are 2 commercial banks with 1 crore of daily transaction of each bank, 1 development bank of around 80 lakhs daily transaction and 5 co-operatives including one of the women, that includes the women of 6 VDCs, of whom majority are of the bazaar area. The customers of the bank are not limited to the bazaar area. People from nearby VDCs also were facilitated with the banking services. The commercial banks have their own remit services, which includes the considerable amount of transaction (about 25%). The commercial banks have not yet started investing in the infrastructures and other development activities. They provide loans under different headings such as home loans, agriculture loans, business loans etc. The demand for loan is increasing in that area. None of the banks have ATM services due to the lack of power supply and also due to d security issues.



Figure 40 Prabhu Bank

#### **4.2.5.3 Agriculture**

Illegal export of weed is one of the major source of income for some people in the Burtibang VDCs. Export of hemp is one of the important source of cash crops in difficult terrain for cultivation. Burtibang is also used as the market center for the export of apple and potato of the nearby higher terrain like Dhor from nearby VDCs like Bhobang, Adhikari chaur, Nissi, etc. Apart from that, Agriculture department is also investing some amounts on programs related with cash crops, herbs, corns, *bhatta*, large scale orange farming and others.

#### **4.2.5.4 Forestry**

Community forest is one of the most successful and common experiment in the case of Nepali's forestry. There are 12 community forest at the Baglung managed all with the community level expanding from ward 1 to ward 9, with around 500 hectares.

Following is the table showing data of community forest in the site.

*Table 6 List of Community forest at Burtibang*

Ward No:	Name of Community Forest	Area of Community Forest
1	Salleri	83.34 Ha
2	Bhalumare	23.18 Ha
3	Maade	75.5 Ha
3	Bajeni	22.25Ha
4	Saalghari	26.75
4	Chyan dada,simalchaur	25.65
5	Salleri pani	40.60
6	Pipal dada	2.61
6	Thuldada rani	12.33
7	Suseli	13.93
8	Raniban	49.66
9	Mauribhir	93.5

Apart from some basics wood like: Salla, sal, chiuri kalikat, khattu, there is not any Non timber product in these community forest. These community forest has been one of the successful chapter of community participation and development in case of Burtibang similar to micro hydro projects.



*Figure 41 Furniture Workshop at Burtibang*

#### 4.2.5.5 Industry/ small scale

Burtibang is newly developed small market center. There are some small scale and cottage industries in the area but very few of them are registered, as the registering process is quite lengthy and further there is no any monitoring mechanism as such. So, most of the industries starts its operation without registering their company.

Currently there are more than 10 furniture industries operating in the area of which only 4 are registered. The raw materials for furniture industry is wood. As most of the forest are community based, the wood from these forest cannot be used directly for commercial purpose. The customers have to make suitable arrangement for the required woods themselves. The private trees can be cut down after taking permission from the local authority. The surplus wood is taken by these industries as wages. The technical manpower required for the wood industries are mainly the Indian origins as local have no interest in and skills required for these industries.

Similarly, there are 4 bricks industries in operation but none of them are registered. The raw material for brick is clay. The clay available in that area is not suitable for good quality bricks. So it is customary to import bricks from other VDCs for good wall finishing. The transportation cost of bricks from Butwal is about Rs 2-3 per bricks.

There are 6 metal works industries, among them 4 are registered and 2 are recently opened with ongoing registration process. The raw materials is imported from Butwal. The finished goods are sold mainly in Burtibang bazaar and few demand in Adhikarichaur, Bongadovan, Devasthan, Rajkut etc.

There is one chowmin industry in that area, which does not produce the dry chowmin but sells the freshly prepared ready to fry chowmin. The market is limited within the Bazaar area only. Due to lack of manpower, they are not able to produce the dry chowmin. The raw material for this chowmin is also brought from Butwal.

Apart from some field survey and interiew with different owners at the ground, we had some organized data collection regardin the markets surveys with numbers and average daily transaction, which is as follows:

Table 7 Market Area and Average Transaction ( Burtibang)

S.No.	Types	Numbers of Stores	Average Transaction Daily	Remarks
1	Grocery store	140	NPR1,000,000.00	
2	Clothes	130	NPR780,000.00	
3	Utensils	30	NPR450,000.00	
4	Stationary	6	NPR30,000.00	
5	Electrical	30	NPR240,000.00	
6	Shoes	100	NPR250,000.00	
7	Fruits	30	NPR125,000.00	
8	Medical Clinics	7	NPR49,000.00	
9	Fancy store	12	NPR30,000.00	
10	Make up and cosmetics	-	-	
11	Tea shop	40	NPR10,000.00	
12	Hotels	20	NPR210,000.00	
13	Furnitures	8	NPR80,000.00	
14	Vegetables	40	NPR20,000.00	
15	Meat shops	50	NPR100,000.00	
16	Clothes./ cosmetics	-	-	
17	Harwares	12	NPR144,000.00	
18	Liquor shops	-	-	
19	Services Shops			
a	Watches	-	-	
b	Tailoring	30	NPR60,000.00	
c	Cycle	-	-	

d	Photocopy / computer	2	NPR5,000.00	
e	Telephone	-	-	
f	Legal	-		
g	Clinic		-	
h	Tv/ radio	18	NPR18,000.00	
i	computer	2	NPR3,000.00	
j	Jewellery	13	NPR50,000.00	
		719	NPR3,654,000.00	

There are two registered bread industry, among which only one is in operation. The raw materials are imported from Butwal. Main market is Burtibang Bazaar. People from nearby villages visit sometimes for buying breads.

There is a new recently opened blanket and mattress industries in that area which collects the old and torn clothes, process them and produce the mattress and blankets. There is a dairy industry where milk required for that industry is collected from the farmers of the nearby villages every morning. It produces various dairy product such as milk, curd, ghee, sweets, churpi etc. Market is limited to bazaar area only.

#### 4.2.6 Climate Change Adaptation

Climatic condition of Burtibang is fair with average temperature of 16-20 degree Celsius and below 5 degrees during winters. At the edge of mountains, Burtibang has good rainy season of average more than 120mm rainfall. Because of the the vegetation and good environment, we can experience the fogs in the morning. Highest temperature at the lowest elevation of Baglung rises up to about 37.5 degrees Celsius in summer and the lowest temperature at Dhorpatan falls up to about -15 degrees Celsius in winter. The elevation of Baglung varies from about 650 meters at Kharbang to about 4,300 meters in Dhorpatan<sup>1</sup>.

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<sup>1</sup> [https://en.wikipedia.org/wiki/Baglung\\_District#Geography\\_and\\_Climate](https://en.wikipedia.org/wiki/Baglung_District#Geography_and_Climate)

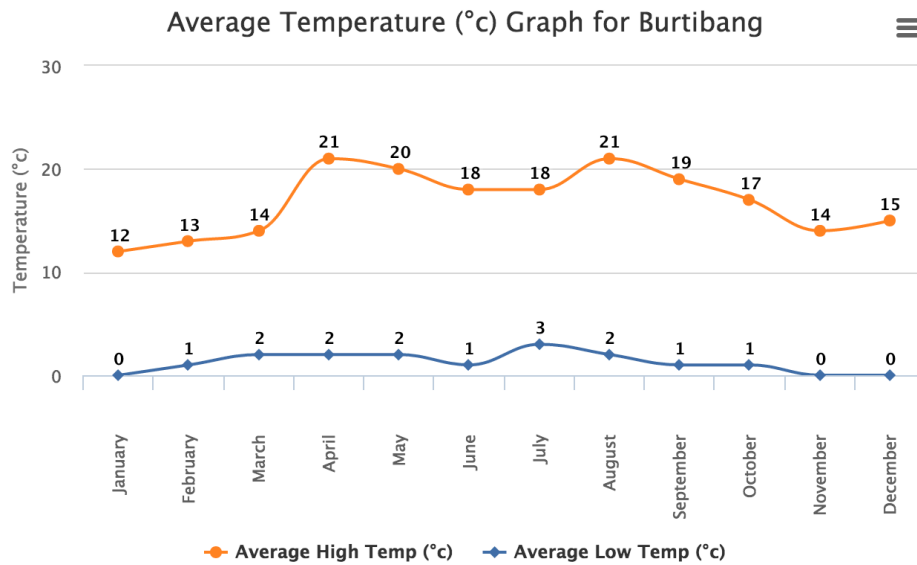


Figure 42 Average Temperature (Source: <http://www.worldweatheronline.com/burtibang-weather-averages/np.aspx>)

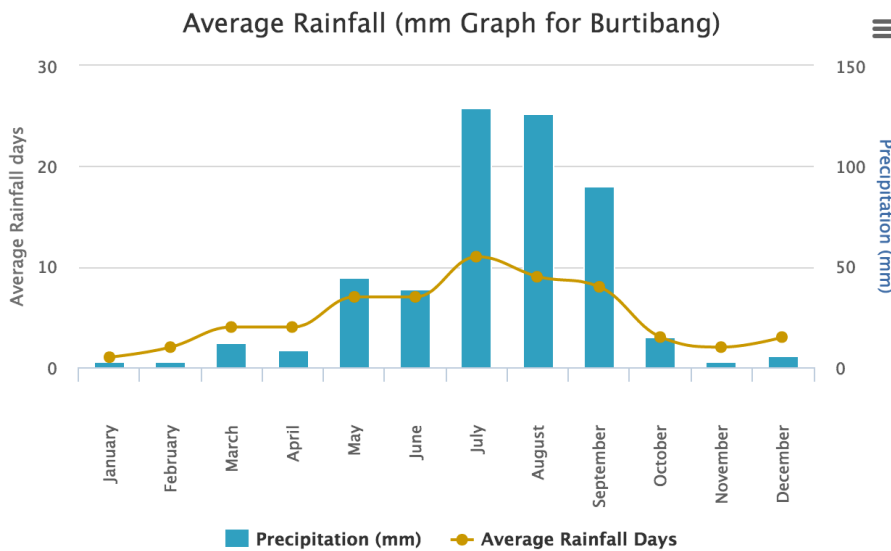


Figure 43 Average Rainfall (Source: <http://www.worldweatheronline.com/burtibang-weather-averages/np.aspx>)

Though the settlement lies in the base of steep slope and on other steep slopes, there is very rare case of landslides observed in the settlement. People in Burtibang have shown strong belief that the land of Burtibang is geographically stiff in case of landslide and earthquake. Some of the active landslide steep slopes are not inhabited by the people. Water supply is predominately depending upon the water sources from the high hill, which needs to be well conserved for longer term. Road development in the steep topography could induce some artificial landslides down the settlement, which needs to be addressed in adaptation plan. Conversion of few remained agriculture land into development plots especially near to the Badighat river is threat from flood. Such flood prone areas should be restricted for any further development.

#### 4.2.7 Disaster Risk Reduction

Event	Date	Location	Deaths	Injured	Houses Destroyed	Houses Damaged	Affected
LANDSLIDE	8/25/84	ward no 1, Ratamate	4		1		
EPIDEMIC	7/28/92	Burtibang, Devisthan, Adhikari chaur, Khunga, Nisee, Bohara	4				250
STRUCT.COLLAPSE	7/4/93	Bhthapla	1	3	1		
FLOOD	6/26/08	Ward No. 5			1	1	11
ACCIDENT	4/17/10		1				

*Table 8 Disaster Events at Burtibang*

No any significant disaster events have been recorded in past decade apart from some landslides and epidemics. With the visual observation, area lies in the landslide prone zone with high terrains surrounding the market area. Because of unhealthy construction practices as well, vulnerability might have increased. Recent earthquake didn't have any significant impact in the settlement, hence people in Burtibang consider the locality as more earthquake resilient land topography. But, detail assessment of disaster risk is matter of vast scope of research but with previous records, Burtibang seems to be more resilient to disaster.

#### 4.2.8 Institutional

Similar to case reference of national scenario, lack of local election has been one of the major blow towards the face of local government and is hindrance towards the implementation of participatory planning approach. With lack of accountable elected local body, TDC- Burtibang is assigned as the executive local body with close line agency of DUDBC. TDC, itself evolves with the culture of political nomination and further continues so, in a matter of expanding members. With the provision of NO obligatory/ mandatory political inclusion, one party leading the TDC has been nominating members as with the Unitarian decision making. With political exclusion and other different ground reasons, there is very less public participation in case of public hearing and others focused group discussions. Major administrative function is carried out by VDC office where issues related to new town is dealt with TDC and service center established by DUDBC division

Baglung. For the longer period of time, Burtibang is provided independent government facility where it doesn't have to depend on bureaucratic hassles of district headquarters. Integrated service center which is the representative body of CDO, Baglung is complete authoritative body for executive task. Napi office and Malpot offices were established during 2056 but later displaced due to Maoist insurgency and again relocated in 2071/72 for public services.

Led by the third class gazetted officer, Malpot and Napi are one of the busiest government organizations in the region serving around 16/17 VDCs around the Burtibang. As being the service center for people of nearby VDCs, Burtibang is an important service providing place. Youth groups, Chantyal Society, Thakali Society and similar other indigenous groups are important institutional aspects of the Burtibang. Town development issues are directly linked with some thematic departments like: department of water and drainage, Department of survey, Department of Land Reforms, district development office and others which are district level departments and are situated in Baglung Bazaar, district headquarter of Baglung.

Ward 1,2,3,4 and 5 are under the territory of new town as per the guidelines set for new town (As referred by TDC President), hence people from remaining wards 6 to 9 are really getting suspicious over the development agenda and coverage. It is significant to consider that development is never contained within any boundary, especially when it is the matter of small administrative demarcation. It is obvious to have trickle down effect amongst other wards as well.

With regard to the basic institutional framework for the new town development, there is no any of such one integrated high authority body endorsed by local people/ politics, which can address and make decision regarding the new town development issues. That is the reason why buying land for the new town takes months of bureaucratic process and sometime involves some hidden suspicion from another agitating group. Absence of some of the committee members during the decision making stage and during some important workshop also puts some serious doubt about the legitimate importance of TDC. While saying so, serious enthusiasm of TDC leader, woman community and other business society in developing their town as the modern town with availability of all kind of basic services is really appreciable.

### 4.3 EXISTING PROJECTS

Burtibang area doesn't have any specific project which could impact the development strategy of the new town. Apart from couple of KM of black topping road and few hundreds of meters of drainage, which is initiated by DUDBC in association with TDC, there are no any important existing projects to consider.

Some major steps initiated by TDC which might play important role in future is the land banking. TDC has already acquired around 50 Ropani of land at Bhabretta, Burtibang 1 and is in the process of acquiring 15 ropani of land at Kuthapla, Burtibang 2.

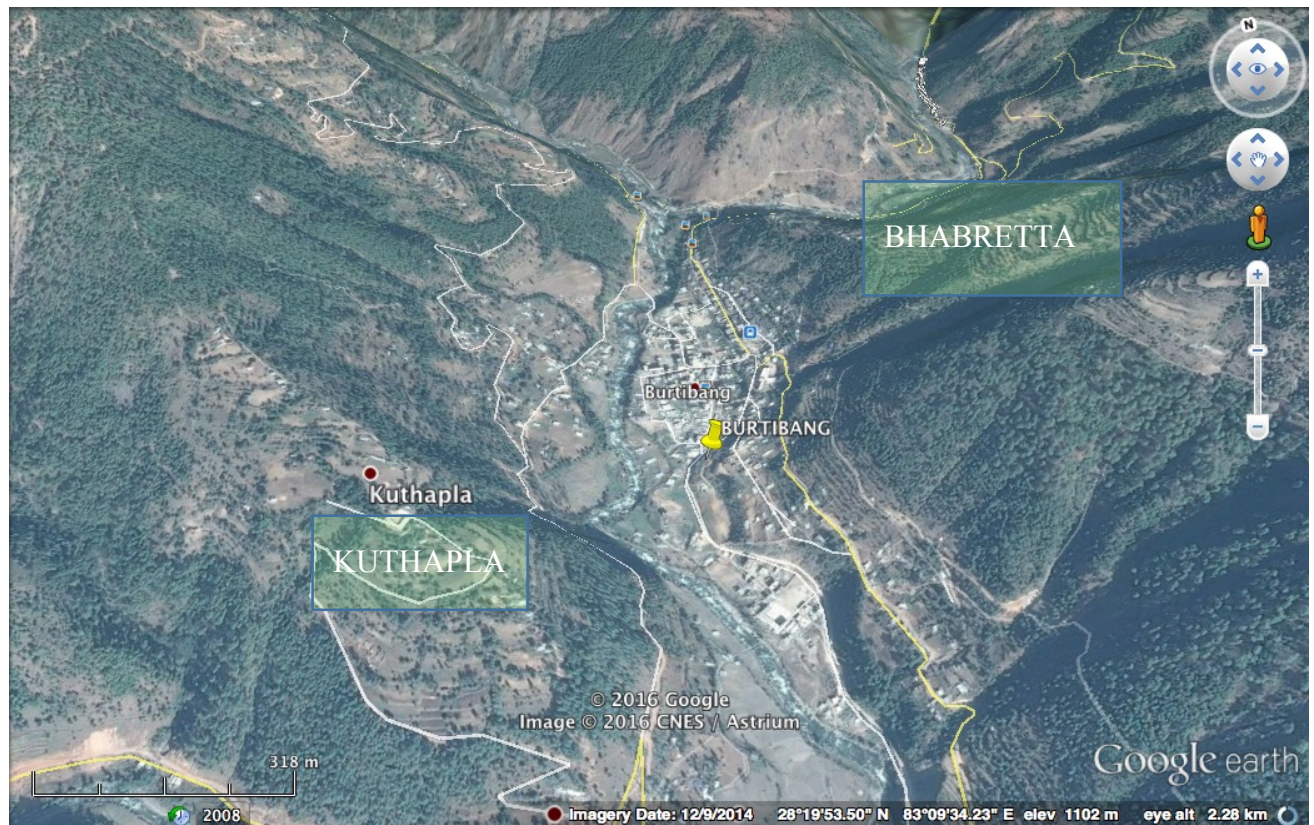


Figure 44 Land Banking

With no any public land around the market area, it has to be considered as an important step for town development. In the further stage, TDC plans to own around 30-40 Ropani of service plot acquired by land pooling project which is yet to be finalized between Tarikhet and Sera.

For the myopic solution to the solid waste management, TDC members are negotiating with the villagers from Purkot for the land fill site.

## 5 ANALYSIS

After the collection of different information from site, interaction with local people, key informants, observation, different meetings and workshops performed in the site, we've analyzed opportunities and weakness of the new town with different perspective. Starting with the SWOT analysis to explore the Strength, Weakness, Opportunity and Threat, we further moved to study the trend analysis of the site which includes the review of google earth and other information which gives historical development of the site. Some of the observed information and views collected from the local people or from different focused group discussion are placed in the field analysis. Finally, linkage of the town is studied with regard to the flow of people, services and goods. Linkage of the Burtibang is identified in two perspectives with inter regional (Amongst the district) and Intra Regional (Within District or amongst VDCs).

With the different dimension of analysis, it was important for us to explore the opportunities and discuss about the possible threats. It was important to analyze with all the information that we had and compare the basic advantages that we are offered and some challenges that we have to incur during the development process.

### 5.1 SWOT Analysis

SWOT Analysis is a useful technique for understanding Strengths and Weaknesses of town, and for identifying both the Opportunities open to town development and the Threats that it may face in future.

With some minor reframing of SWOT Matrix with different aspect, We've presented analysis as follows:

	PHYSICAL	SOCIAL-ECONOMIC	ENVIRONMENTAL, INSTITUTIONAL, TOURISM AND OTHERS
STRENGTH	<ul style="list-style-type: none"> <li>• Plenty of developable plots which are still untouched by urbanization</li> <li>• Good resources like forests and river surround the town, giving it as best</li> </ul>	<ul style="list-style-type: none"> <li>• Already developed old market</li> <li>• Service and market center for more than 15 VDCs</li> <li>• Economic dependency of nearby VDCs towards the Burtibang</li> </ul>	<ul style="list-style-type: none"> <li>• Touristic Destinations (Dhorpatan, Arnakot)</li> <li>• Natural scenic and flat terrain of Dhorpatan region</li> <li>• Base town for hiking at Dhorpatan</li> </ul>

	place to be eco residential city.	<ul style="list-style-type: none"> <li>• Good economic status of people</li> <li>• Communal and Ethnic Co-existence</li> <li>• Education center for nearby VDCs and Districts</li> </ul>	<ul style="list-style-type: none"> <li>• Rich cultural identity (Thakali, Chantyal)</li> </ul>
WEAKNESS	<ul style="list-style-type: none"> <li>• Very difficult land topography.</li> <li>• High infrastructure development cost.</li> <li>• Not a single government plot for development</li> </ul>	<ul style="list-style-type: none"> <li>• Very less political consensus</li> <li>• Uncontrolled speculation of land price.</li> <li>• Lack of enthusiastic participation from local people</li> <li>• Lack of awareness regarding project</li> </ul>	<ul style="list-style-type: none"> <li>• No building bye-law implementation</li> <li>• No Local government and Weak TDC</li> <li>• Ward 6-9 are not included in planning process</li> </ul>
OPPORTUNITY	<ul style="list-style-type: none"> <li>• Regional sub-center of the western region and Mid-Western region</li> <li>• High terrain land, futuristic touristic city.</li> <li>• Service center for nearby VDCs</li> <li>• Infrastructure Innovation* (cable car, car-free cities)</li> </ul>	<ul style="list-style-type: none"> <li>• In Close proximity of Butwal and Baglung</li> <li>• Education town for nearby districts: Rukum, Parvat, and nearby VDCs</li> <li>• Breaking the bulk / Economic centers for nearby VDCs.</li> <li>• Open acceptance from the local people</li> </ul>	<ul style="list-style-type: none"> <li>• Entry town for touristic destinations like: Dhorpatan, Baraha Lake, Arnakot.</li> <li>• Eco-residential city</li> <li>• Education or Knowledge city</li> </ul>
THREAT	<ul style="list-style-type: none"> <li>• High Infrastructure development cost</li> <li>• Land pooling site selection problem</li> </ul>	<ul style="list-style-type: none"> <li>• Shifting of market towards Kharbang, Hatiya or Dhorpatan</li> <li>• Lack of ownership of bigger projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Landslide risk at the region below the mountains</li> <li>• Unhealthy building construction practices.</li> <li>• Weak institutional framework</li> <li>• Lack of political consensus for development projects</li> </ul>

With all those topographical difficulties and high infrastructure cost for expanding the settlement, there are many positive features of Burtibang which could overcome its threat and weakness.

Enriched with the rich natural heritage of forest, water and mountains, the town is perfect to be developed as eco-residential city. Being oldest education center of the region (nearby VDCs and Districts), it can also serve as the knowledge city for the larger community. Some of the initiations could be study of natural science, energy studies or field related with mines and ores. Advantaged with natural beauty and challenging difficult land topography, it is equally important to consider the law of nature and go along with it as “development with nature”. Being at the base of Dhorpatan hunting reserve, the town could be strategically developed as the base camp/city for the Dhorpatan trekking route. With some many high mountains in close proximity, different hiking trails could be developed and promoted in touristic perspective.

Hence, with all those opportunities we forward for the vision setting and identifying the lead sectors for the development of the city.

## **5.2 Field Analysis**

As consultant, we’ve understood project as the task of setting out structures for future development with some strategic lead sectors and projects. We take this project as the guiding document for next 20-30 years with some strategic outlines on different thematic subjects, mentioned earlier. From the field visit and informal discussion with people from different sector, we’ve accumulated different sources of information which we considered during the project formulation and lead sector identification. We’ve analyzed different perception of people from different class and profession. As a planner and bearing accountability for the betterment of these cities, we had to convince and take some decisions which were not agreeable to all, but at the end of the day, we’ve all succeeded to come the point where we all wanted to see our city in next 20 years.

Being a small town of less than ten thousand populations, Burtibang bazaar is itself a small settlement developed on the cultivable land over the short period of time. From different focused group interview and key informant survey, we came to find that, for the longer period of time Burtibang has been a market and service center for nearby VDCs. People are aware about the government’s decision to make the town as an ideal city of one lakh population. Apart from the facts aside, there are different kinds of rumors and presumptions regarding the project. As some people think the project as merely as paper plans and never to be implemented and some people fear that demerits of urban character will ruin their livelihood. Most people at the Tarikhet and Sera don’t want to volunteer with their land for land pooling, as they are only conveyed about 40-50% of land for contribution, but not about the benefits they will get with land readjustment and facilities provided. What we realized that participation in the ground is still in the hand of few elites, as most of the working class people don’t want to participate in such public hearings, realizing that their voices won’t be heard. As on the process of data collection, we asked each individuals to attend the public hearings and workshops, they declined because lack of interest or some with political conflicts. Extension of road widths will make them lose their valuable land, which is why some people are still reluctant about the project. As some people don’t seem interested, some are over ambitious about the project. Some consider it as an annual budgetary

plan, hence ask to solve some micro level problems like: drainage pipe from their houses, road at the back of their house and others. Unlike the attitude of people from other stereotype urban areas, what we've observed is that people at Burtibang wanted to have balance living quality between urban and rural. They wish to have advantage of urban facilities and rural beauty.

### 5.2.1 Trend Analysis



Figure 46 Google Image; 2006



Figure 45 Google Image :2011



Figure 47 Google Image : 2015

For less than one decade, Burtibang has changed a lot on its urban morphology. After the easy access of road (Mid hill Highway) since 2010/2011, development of the town has accelerated. Since 2000, attempt had been made to develop the town with service centers (government), but with Maoist insurgency that couldn't last and market area was degrading. Since the peace process began at 2006, Burtibang has gained its pace of development and has never looked back. Lack of good guidance in development has certainly hindered the long-term development agenda and affected the resiliency of the city. Whole Burtibang area is developed as the market area. Since the market

area is already saturated with buildings and different types of markets in them, market is shifting towards Tarikhet and Shera, as there is easy accessibility and flat terrain. Increasing number of houses without healthy construction practice is one of the major threat for the Burtibang Bazaar.

From the above picture, we could easily observe the rapid growth of houses without any proper planning. Narrow roads with no open spaces make the urban morphology more vulnerable to any natural disaster. As most of the family have their son or husband abroad and with good remittance amount, number of concrete houses in narrow market area is ever increasing. It is important to contemplate that uncontrolled flow of money is also the reason behind uncontrolled speculation of land price. Market area which lies in ward 1 and 2 are the most developed and accessible wards where other wards are proportionately backward and are yet to get urban linkage. Because of less availability of flat land, people are forced to build their houses on only cultivable lands and import foods.

## 5.3 Linkage

For long period of time, Burtibang has been considered as the market town and service center for nearby VDCs and District as well. Some of the VDCs in the vicinity of Burtibang are as follows:

1. Adhikarichaur
2. Rajkut
3. Khunga
4. Bhimgithe
5. Darling
6. Taman
7. Bobang
8. Nisi
9. Boharagaun
10. Devasthan
11. Burtibang (all other wards)
12. Khungkhami
13. Khunga
14. Jaljala
15. Shis Khani
16. Pandav Khani
17. Gwali Chaur
18. Ransin Kitani
19. Daga Tumdada

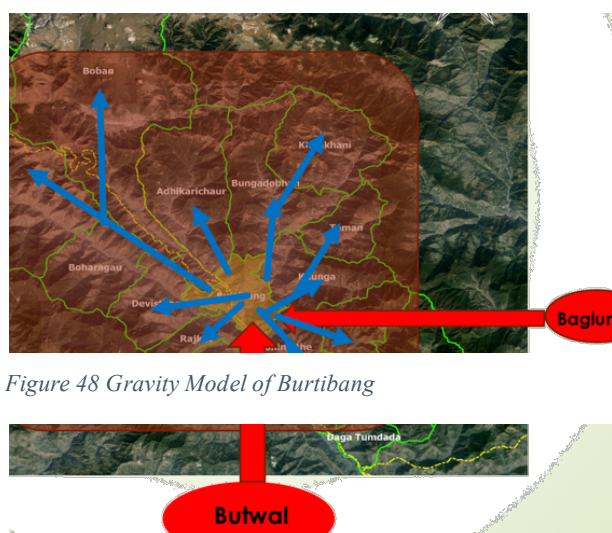
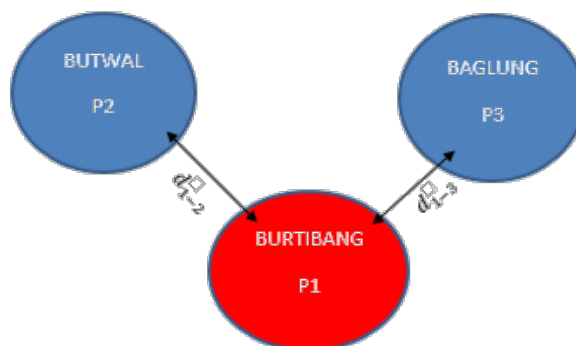


Figure 48 Gravity Model of Burtibang

Where as it is quite interdependent with the districts like: Rupendehi, Kapilvastu, Rukum, Parvat. Myagdi and Kathmandu for bigger market. Being in the similar time distance between district headquarter Baglung and Butwal, Burtibang is totally dependent on Butwal for its economic linkage. Because of the bigger market of Butwal, importing goods from Butwal is cheap and available. After importing goods from Butwal, it is considered as the “Break the bulk”, point and distributes goods to the nearby VDCs and wards. As for the region, Burtibang is the only market town, all kinds of items and services are available in the town and new scope of market is growing every time.

### 5.3.1 Intraregional:

From grocery to jewelry, medicines to makeups, most of the nearby VDCs have to completely rely on the market developed at Burtibang. Nearby VDCs such as Adhikarichaur, Rajkut, Khunga, Bhimgithe, Darling, Taman, Bobang, Nisi, Boharagaun, Devasthan have mutual relation with the

town. People at Bhimgithe and Gwalichaur have liberty for selecting their market in between Kharbang and Burtibang. While the construction is growing, people from different VDCs completely rely on the Hardware market of Burtibang which makes good Hardware market for Burtibang as well, closely associated with markets of electrical items and others. People from nearby VDCs come for buying clothes and fancy items as well.

It is not only that Burtibang is the sole exporter for the VDCs, Burtibang is also considered as the export market for potato and apple from Bhubang VDC. Apart from that, some other items like *dal*, oranges, herbs, gingers and vegetable products are brought to the market for selling. According to some people, Burtibang was also the market center for some metal items as there is iron ore in place called falaam khani (which means iron ore).

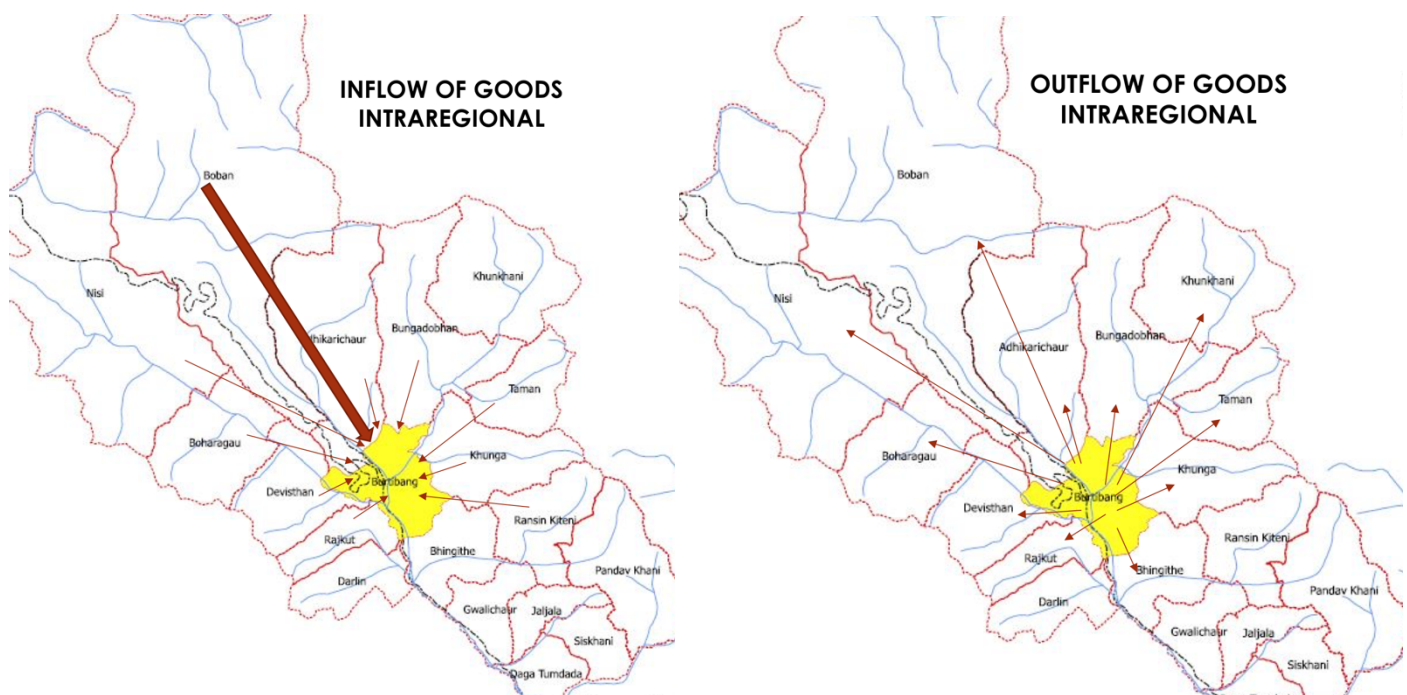


Figure 49 Flow of goods (Intraregional)

It is not only the goods that people from nearby VDC depend upon, but services as well. People come to Burtibang for establishing their business and some come to look for some small job opportunities. With the establishment of new hospital, people come to seek health services as well. For the longer period of time Burtibang has been considered as the education hub for the nearby VDCs and Districts, hence it is obvious that for higher level education or short term courses like: computer, Ielts, English training, people come to Burtibang to obtain these services. As being the center for constituency number 3, it is well equipped with all the government facilities as well and considered as the service center. People from different VDCs are obliged to visit the town for

bureaucratic purpose as well, if they couldn't reach Baglung. Napi office, Malpot and other government offices are located at Burtibang to provide integrated services to nearby VDCs.

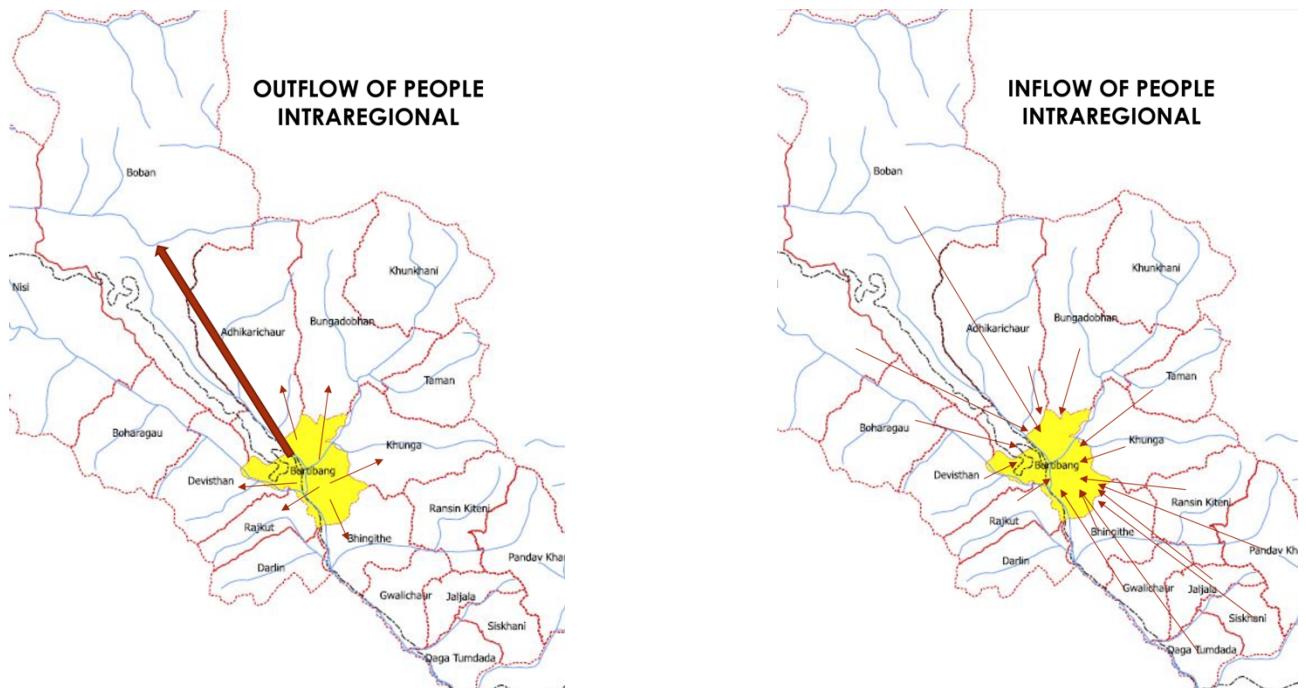


Figure 50 Flow of People (Intraregional)

### 5.3.2 Interregional:

For the longer period of time, Burtibang is dependent on Butwal for its market import and exporting to nearby regions. Though the time distance between Butwal to Burtibang and Baglung to Burtibang is similar, because of the bigger market of Butwal, Burtibang is totally dependent of all kinds of market products like: Clothes, Grocery, Jewelry, Medicine, Makeups, Fancy, Hardwares, Furniture, Stationary, Electrical items, shoes, etc. It is the gateway supply town for all nearby VDCs importing from

Butwal. Apart from other items, some fancy clothes items are imported from Kathmandu via Baglung.

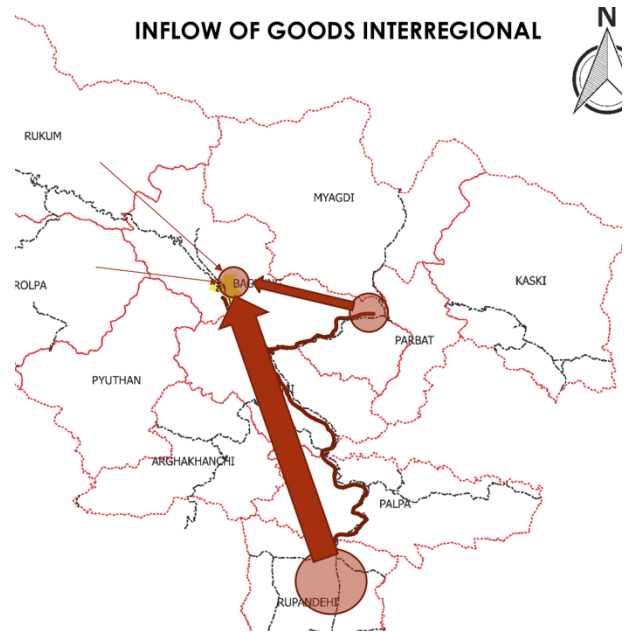
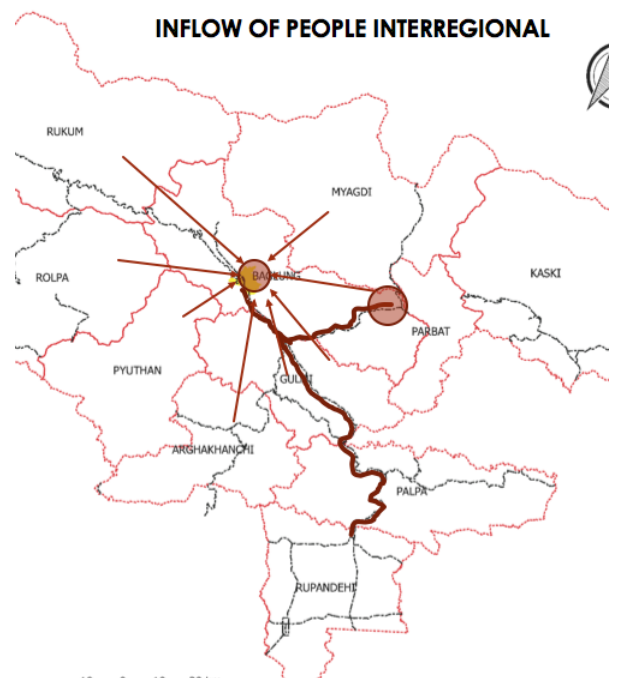
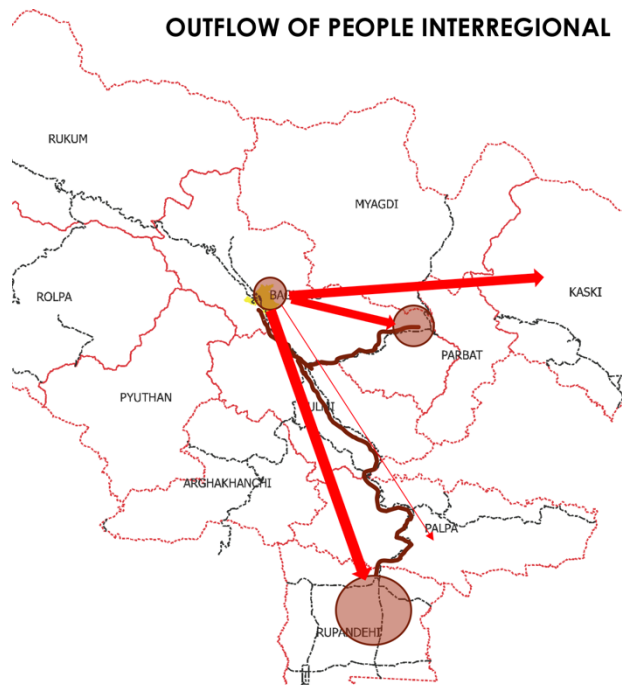


Figure 52 Flow of Goods ( Interregional)

Small amount of goods is exported to outer districts like apple, potato and *simiko daal*. Most of the apples collected from Dhor region are used to prepare (Marpha). Later on few amount of marpha are exported to Kathmandu or Pokhara.

Figure 51 Flow of people ( Interregional)



Significantly less number of people from other districts come to Birtibang. Few years back when there was no road connection for Rukum district, people from Rukum would come to Birtibang

for the education purpose. With the opening of access of Rukum to dang, they find it easier and convenient to link with bigger market. Still middle class family from some closer VDCs of Rukum bring their children for education purpose in Burtibang. With the bigger education services and health facilities in the region and easy accessibilities it is expected to have higher flow of people from nearby VDCs as well. People from Argakhachi and Gulmi have migrated to the town for good business opportunities have started their good business in the market

Unlike the in-migration, most people from Burtibang migrate to other district or to Baglung for some good job opportunities. Because of no availability of higher education and no good health facilities, they have to migrate to Baglung, Pokhara or Kathmandu for better quality services. Increasing number of adults to go to abroad for job opportunities and staying in Kathmandu or other bigger towns after earning good money, is one of the major problem for the town. For the sake of technical education, people from Burtibang migrate to Butwal. We can collectively say that, Burtibang has closer economic dependency on Butwal which makes the North South corridor, an important strategic road.



*Figure 53 Vision Setting workshop: Burtibang*

## 5.4 VISION SETTING:

One of the most important part of field visit after the data collection was the vision setting of the new town. As the planner, we've taken this task as the preparation of long term strategic vision planning, which will basically form the structural guide for the development of the town and provide guidelines to fill the pocket with neighborhood planning. It is expected that long term vision set during the project will be considered as the basic development strategy for next 20-30 years' development plan. Major strategic roads, width of road, size of development blocks and land use plan for major lots are some of the basics that will define the town's future. Some of the lead sectors are also identified with the local participation and with the planning workshop carried out in different stages of the time.

As we've already discussed about opportunity and threat that Burtibang offers for the future development, we had some analytical perspective towards the development of the town. As an urban planner, we had some preconceived idea about the way of planning that town needs to have. It is obvious that with present trend of developing, Burtibang can never attain its development goal and make population of one lakh. We all agree upon the point that the city needs some kind of intervention in development work. By evaluating its opportunity, we've made aware to the local people and agreed upon the future of the city that we all want to achieve.

Vision workshops for Burtibang new town development on "vision setting and lead sector identification" were carried on Magh 8 and 9 (January 22/23), on presence of representative from VDC, representative from integrated service center, representative from other development departments like water, survey, and land reforms members of TDC, local political leaders, representative from local media community, ethnic groups, women groups and youth groups.

We started with the presentation of the town profile documents which we had collected from the focused group survey, key informant survey and other different modes of data collection. We basically focused on the key opportunity that the town can explore on emerging as the model city and challenges that it would face on its way.

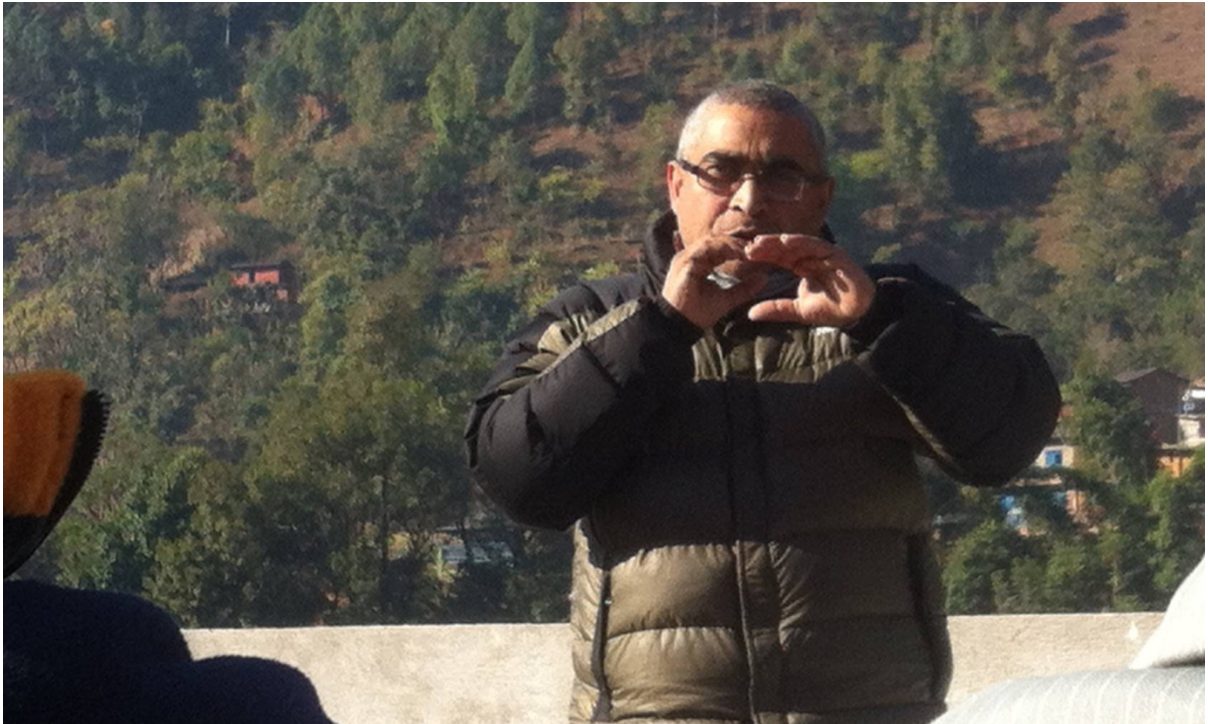
On the first day of the meeting, we made the participant in the workshop aware about the opportunity that the town can explore and weakness that it is facing like: haphazard urbanization and unsafe building practices. We also made the participant aware about the town profile and presented the relationship of Burtibang with other VDCs and districts. We also explained, how we can use the linkage as the advantage for the development of the town. We also listened to the voices from the local leaders, intellectual personality in the town, their expectations and their suggestions. It was an important run-through of public participation where we made them aware about the opportunities and involved them in identifying lead sectors for future development. There were still so many hidden agendas related with the development that we were made aware from the local people and leaders. We also came to know about the land encroachment in the bus park area which needs to be sorted out soon. It is important to consider the fact that the intense degree of enthusiasm from local people would certainly help to stimulate the consultant in identifying more opportunities and explore in the direction. We had some productive discussion regarding identifying the lead sectors and some of the projects that could have longer and significant impact on the development

of the town. Most of the people were skeptical about the workshop as most of them thought it to be another merely paper plans. Some of the comments that were raised were related to the road conflict from Ilaka Police Office and encroachment of public land by buildings at Buspark. During the presentation, TDC chief also briefed about the progress made by TDC in land acquisition with necessary reimbursement.

With all the information exchanged and brief presentation about the analysis of the site, we also had one interesting presentation about car free cities. It was basically presented regarding how cities like Burtibang could be planned as the Car-Free or using less number of cars. We had this kind of presentation at Dumre Bhansar as well for informing people about the importance of new approach in planning as well. (Annex: Car-free Cities)



Figure 54 Vision Setting workshop: Burtibang



*Figure 56 Team Leader A.C. Lal explaining on vision setting workshop*



*Figure 56 Questions asked by local at Vision Setting workshop: Burtibang*



Figure 58 Moderating Workshop by TDC chief Mr. Arjun Sherchan



Figure 58 Women participation in Vision Setting workshop: Burtibang



Figure 60 Informative Presentation on Car free cities



Figure 60 Workshop Day 1, Burtibang

Second day of the meeting was more focused on the projects and we basically transformed our vision and long term targets into more realistic projects with public approbation. Apart from the town development boundary which is primarily delineated as the new town area (Burtibang Ward No. 1 to 5), we had to address the demand of people from outside the region as well which is Burtibang (ward 6 to 9). It was equally significant to consider the fact these project or this program is not done in the secluded manner rather the integrated development effort of all nearby wards, VDCs and districts. Some projects were very smaller in scale which would not have impact on the strategic development, hence those were kindly disregarded with public endorsement. One of the most difficult task for vision setting was to make people aware that the projects that are to be considered must have some long term strategic impact. Some of the projects or programs were merely related with isolated manner like: individuals plot, road or drainage issue. With the wide support from all the public, we could finally come to an agreement and listed out some major projects which would be briefly explained with their strategic impact and their descriptive plan in details later. Out of some major 10 projects raised in the public, we agreed on 3 projects to be worked out in detail (written below in priority of “Detailed feasibility report”). We look forward for the suggestions or alternation of project for detailing out in “DFR” from the department.

One thing that was interesting during the vision setting of the Burtibang was the public participation apart of their political affiliation. Being small settlement, most of the people knew each other and participation of women in the workshop was really commendable. Most of the people in the Burtibang were aware about the negative aspects of cities as such pollution, congestions and social defragmentation. As an aware citizen, they also cautioned us to make their future city which is clean, green and full of rural essence. As such plans and projects have been identified in many sectors, they advised us to make more implementable plans with achievable investment plans.

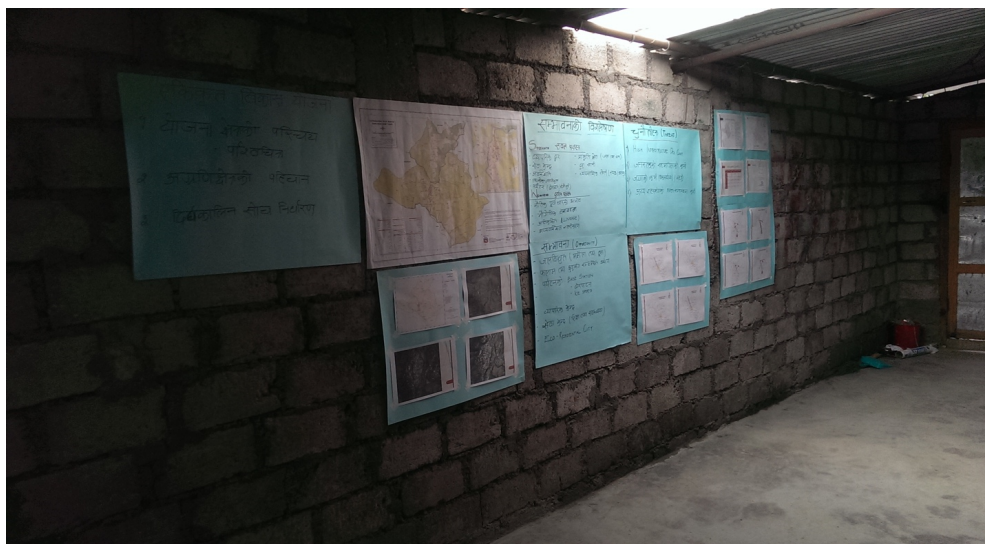


Figure 61 Vision Setting Workshop Burtiband ( Day 1)

### 5.4.1 Lead Sector Identification

From the diverse SWOT, Field and Trend analysis, we've explored different opportunities and possible threats for the Burtibang. In the broader perspective, we could say that, Burtibang, enriched with natural assets and energy resources, could be planned as an eco-residential city which is well facilitated with education, health and other service industry. With the concept of health city arising in nearby neighbor Indian cities, we could also infer and develop it as the health city. With the historical base as an education city, it could also be lead as a knowledge base city with infrastructural investment in the sector of education.

With all the advantages and challenges that the physical, economical and environmental characteristics of Burtibang has to offer, we've concluded the lead sectors for Burtibang as:

1. Education and Research
2. Health
3. Eco-Tourism and Eco-residential city
4. Integrated Service center

As for the longer period of time, Burtibang is considered as the market and service center for the nearby VDCs and other wards within. It is true that as in earlier time, Burtibang has served as an education city for people from Myagdi and Rukum district as well. With the import of market items from Butwal, it has acted as the gateway town for nearby 17 VDCs. Using the basic asset of the town we concluded above mentioned lead sectors and all these prominent sectors were raised by public and approved by public consensus.

We all are aware of the importance of information in modern economy, especially in 21<sup>st</sup> century. With the fact that research and development are the important dimensions of national development, many governments have their own research wing in different field. Ever since the rise of modern Nepal, we've always lacked the investment in research and development. Hence, as an center of academic environment and promoting to research & development aspect, Burtibang can be pioneer in the field. Understanding the geographical difficulties for high cost infrastructure and natural asset to preserve, we've all agreed upon developing the city as eco-residential knowledge city. With the through hands-on knowledge of hydropower, mines and natural science, the town could be easily projected as an international academic town.

If someone closely looks the sub-region, there is serious scarcity of health facilities. Some of the districts at vicinity like Myagdi, Rukum, Dolpa, Rolpa, Pythan and Gulmi could be taken as the influence zone for Burtibang if it is to be developed as city with best health facilities. As recently built, health post (sooner to be converted into 25 bed hospital) has already started to bring some larger group of population from nearby VDCs but facilities are still its premier stage. Till now people of the Burtibang have to go to other districts like Rupendehi or Kathmandu for better health services. It is obvious for a well facilitated town to have health facilities but it would be interesting if this intervention could attract more population to the town.

Tourism is the easiest selling business for the Nepalese planning culture. We've practiced different kind of approach from home stay to trekking to hiking. In case of Burtibang, it is obvious to develop

the town as the base city for Dhorpatan. Apart from some interesting touristic destination like Arnakot's *dada*, *Dhorjeko dhuri*, snow games at dhorapatan, Barahh taal at Bunga dovan VDC, Burtibang could be developed as the eco-tourism. For the tourists who want to stay for months or longer period, this place should serve as the eco-residential tourism. Infrastructural investment in the sector of hospitality is important to promote tourism industry. Unlike the international tourism, to start with Burtibang should basically focus on national tourism as well. With all potential of being knowledge city or health city already explained above, it could just be turned into the touristic aspect, I.e couple of month stay for the researcher or patient living for some few months experiencing the nature after the medical treatment.

As we know, the district headquarter Baglung is at the eastern edge of the district. with existing conflict of whether to change the administrative existence of Burtibang within Baglung or under Rukum, it is very necessary to address the demand. It is obvious that, people from the western VDCs as Bhubang, Nisi and others have to travel for around couple of days to reach district headquarter, It is important to develop Burtibang as the service center of the western Baglung. It is very important to practice the devolution of authority to Burtibang service center and addressing the demand of local people. While saying so, it is equally a great opportunity to develop the town as the town of integrated service center for all 17 VDCs with all the modern advanced facilities and new modality of governance by creating a integrated city hall which would provide a single window service.

### 5.4.2 Long Term Vision

As inferred from different analysis earlier and with the lead sector identification, during the workshop public came up with the development slogan of:

पर्यटन , शिक्षा तथा व्यवस्थित सेवा केन्द्रको विस्तार  
पर्यावरणिय बुर्तिबाङ्ग शहरको विकासको आधार

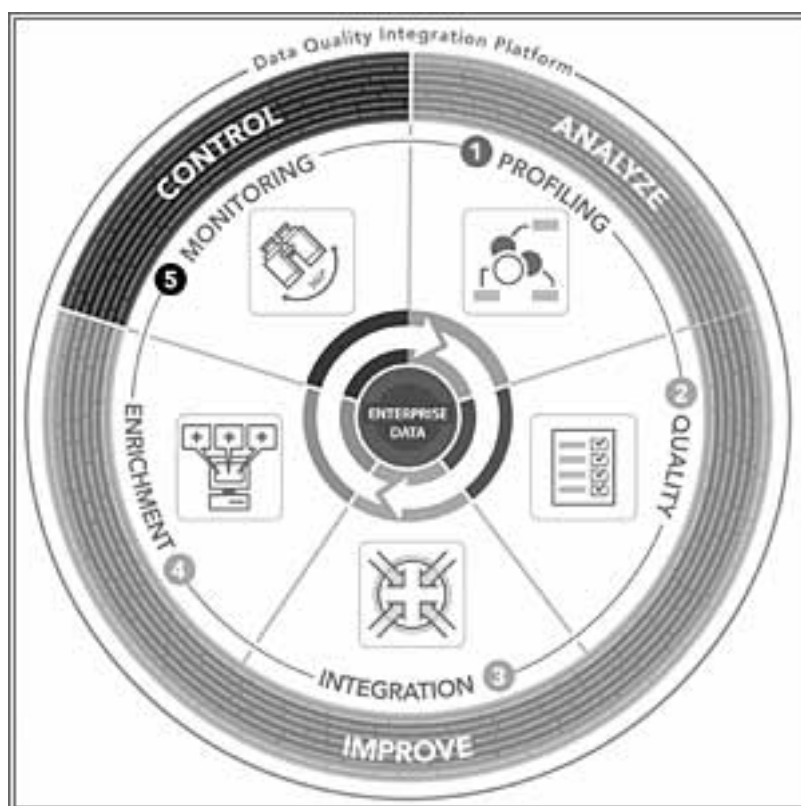


Figure 62 Model of Integrated Governance ( Author: Tony Fisher)

Source: [http://download.101com.com/pub/tdwi/images/i\\_v11n4/datamonitoringfig1.jpg](http://download.101com.com/pub/tdwi/images/i_v11n4/datamonitoringfig1.jpg)

As already stated in above explanations, people of Burtibang were made aware with their opportunity and challenges on the process of development. With the public hearings and

workshops, we discussed about the possible directions of the town and where they want to see Burtibang in next 20 years? With identifying different lead sectors as education, health and tourism, it was clear that Burtibang is going to be the service town with all the basic facilities. People of Burtibang want to see their town as the center of education, health and tourism. With the concept of eco-residential city, unlike other advanced industrial or commercial city, this city is going to have positive aspect of rural natural beauty with service facilities of urban areas. With some basic concept of Ebenezer Howard's Garden City Concept (Though not in spatial dimensions), Burtibang is expected to be developed as the city with natural beauty around it and with all the availability of necessary high quality services.

As mentioned in development slogan, it will be a well service providing city with qualitative education and well organized integrated service center, whose main development principle will be "development with nature".

With new land pooling projects at Tarikhet or Shera, it is obvious to develop the settlement around the bank of river, hence it is important aspect to understand the architectural and urban design aspect while planning, which would give more natural scenic view toward the settlement. Developing settlement in such mountainous context is itself a challenging task for planners as well as for implementers, but we can conceive the city as the futuristic natural city by taking some best examples from other cities developed in similar context like: Sikkim, Darjeeling, and some other mountain side cities at Chile or Switzerland. We could also explore other possibilities for the means of transportation unlike making wide roads through the difficult hilly terrains, but look for some cable mode of transportation.

Hence, it is interesting to understand the challenges offered by the difficult geo-terrain of Burtibang and similarly it is an opportunity to create the ideal town which represents the future of other mountain based city of Nepal. Understanding the importance of research and development, Burtibang tends to be ideal knowledge based city with wise implication of sustainable city planning and energy usage.

### **5.4.3 Strategic Projects:**

As in line with lead sectors and long term vision, we gathered in the second day of workshop to ask their projects demands. We made them aware about the fact that projects must have direct linkage with the identified lead sectors and for long term vision. In the different thematic categories and with different priority of lead sectors, projects were identified.

Lead Sectors/ Sectors	Physical	Social/ Economic	Cultural, Tourism
Education and Research	Research based University/ Institute Agro based research institutes (Purkot)	Hostels and market development Livestock research center (Ghosa)	Women Development Center.
Health	Hospitals at Burtibang	Paramedical College and developing health post to health academy	
Eco-Tourism and Eco-residential city	Walking trail up to Dorjeko Dhuri.	Agriculture zone ( Cold storage, Agriculture processing unit, Research Zone) at Purkot	<ul style="list-style-type: none"> <li>• Hospitality center for Dhorpatan</li> <li>• Conservation of indigenous housing</li> </ul>
Economy and others	Suspended Bridge Connection (Bhabretta to Salankot to Ghosa Khani) Road linkage with other VDCs Business fret house at Zero Kilometer	Integrated City service center for government offices ( more than 15 offices) in 30-40 Ropani from land pooling	

It is obvious to focus on academic and health sector as predefined by lead sectors and long term vision. Starting with the research academy at the Bhabretta, where there is land of around 40 Ropani acquired by TDC, it will serve as the focus of development. Research will be of diverse field ranging from health science, natural science, and others. To add on this, paramedical college in close association with the existing health post (sooner to be hospital) can be seen as important steps for health and education sector. For the promotion of agriculture, agriculture zone comprising of agriculture processing unit ( APU), cold storage and organic farming center would be stimulating the growth. It is important to prioritize the Arnakot airport for developing the tourism sector and to enhance the accessibility of the town. As for the eco tourism, good hospitality center at the market area would be invigorating. One of the major option to include and promote the town as service center is to develop a city hall, which would act as an integrated city service center. Land for the center has not been finalized but it is expected to use 40-50 Ropani of land acquired/ remaining from land pooling project.

Hence with all those project enlisted, Consultants intends to prepare 3 detailed feasibility report (design) for followings<sup>2</sup>:

1. Integrated Service center
2. Business fret house
3. Agriculture zone Or Research institution

Apart from the projects mentioned above, it is obvious to start with some strategic road connection of Burtibang with some other VDCs and other wards. Land use planning for the better urban forms and defining the settlement part will be one of the important aspect of the planning phase. Delineation of natural conservation zone and urban development zone, with regard to national urban policy, land use policy and urban guidelines, is one of the important task to start with. Hence some detailed designs and plans are presented on annexes.

Hence, most of the projects are to be developed in mountainous context or with new thought of planning. As for the moment, information and approval from the public for above mentioned projects was endorsed during vision setting and there are still other vital projects which have major strategic implications in the development of new town.

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<sup>2</sup> Refer to Annex for TOR of Projects



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PART THREE

## 6 DEVELOPMENT PLANS

### Directive Principles

Burtibang is an already developed town with limited availability of land for development. As at the base of mountains and no government land, Burtibang lacks the availability of developable flat as only around 400 hectare of land is available which is permissible developable area considering parameters of: No forest land or natural conservation area and No land greater than slope of 30 degrees.

*“The city is a state of mind, a body of customs and traditions, and of the organized attitudes and sentiments that inhere in these customs and are transmitted with this tradition. The city is not, in other words, merely a physical mechanism and an artificial construction. It is involved in the vital processes of the people who compose it; it is a product of nature, and particularly of human nature.”*

***Robert E. Park, The City (1925)***

In 21<sup>st</sup> century, we all have agreed that “city is the process” evolved within, unlike injected by some external interventions. While in another way, some of the important economic or social decision can decide the future of the city in next coming years. While in the case of Burtibang, a mountainous town along midhill highway is expected to cater at least 1 lakh population in next 20 years. In the mean time, we all are looking to develop Burtibang as a sustainable city, where, with the growing number of literatures and contextual approach in sustainable city development, we have identified some of the basic features of sustainable city like:

- People friendly city
- Inclusive city
- Resilient city
- Flexible city,
- Economically vibrant city

Hence, in order to achieve these targets of sustainable cities, we have categorically defined some of the strategies and directive principles of planning. Some of the basic principles are as follows:

#### **a) Develop people friendly human scale neighborhoods**

It is important to relate the existing environmental and social setting of Burtibang with the changes that is going to happen in coming years. No city should be utopian in its aspect. House should look and response like the house, so should a city must behave like that has evolved within. It is important to consider the scale of buildings (regarding their height), and width of the road, which should be humane in scale. One should feel the city with the sense of space and own the development of city in individual level. First step towards people friendly city and inclusive city

would be planning city in humane scale, either that be the height of building or width of roads or the distances between two important interconnected land uses.

#### **b) Walkability and Connectivity**

Being town in the high terrain, it is important to understand that we can't cut of the natural terrain and built new roads leading to each house. With the high tech engineering perspective, it might be possible but with our social status and economic feasibility, we tend to develop a city, which is more walkable and interconnected. Communities should be pedestrian-oriented, with daily needs situated within easy and enjoyable walking distance of each other. Important land uses within the perimeter of 2Km radius would make the ideal concept of walkable city, which is beneficial not only in terms of energy and easiness, but in broader social coherence. To promote this access, residential, commercial, recreational, and civic uses should be connected by both public and private transportation options. Promoting cycle tracks along the road and widening the pedestrians should be prioritized in the planning process, especially on the flat urban terrain.

#### **c) Sustainable water sources**

Supply of easy accessible potable water within affordable range is one of the challenge in every city building. The current and long-term availability of water should be treated as the vital starting point of any decision making in urban issues. Community planning must include the provision and protection of local water supply. One of the major problem in present cities is lack of water supply for daily purpose and for other city purpose. As we know, one of the consideration in selection of these 10 new cities along mid hill highway is availability of water resources, challenge lies on the conservation and protection of these sources. Good water recharge system and conservation of ground water is going to be another challenge in case of Burtibang, as in every city in Nepal, "boring" culture is booming. With increase in hard surfaces hindering the natural water recharge system, it might create problem in regional or sub-regional level, hence it is incorporated in earlier plans and policies of this design.

#### **d) Support high-quality transit**

As being the economic hub interconnected regionally and sub-regionally, it is necessary to make each town to be connected. No city can be complete with its infrastructure and high quality transit system will definitely help to increase the fringe of the city. With its linkage with Baglung city and Rupendehi, Butwal, it will definitely broaden its accessibility with the national or international market (Rupendehi Border). With growing economic possibility of Rupendehi, it is high possibility that Burtibang can take advantage of this linkage. Apart from that, it is important to consider the linkage of Burtibang with its nearby VDCs which are dependent on Burtibang for its administrative aspect as well as in economical aspect. High quality linkage needn't be of road connection, as with the increase in technological advancement, other rope ways, elevator system or cable car could be considered as other options. Within the city as well, high quality transit is must to stimulate the local economy.

#### **e) Sustainable land use zoning**

Sustainability requires the balancing of the needs for land for development with the amount of land available and conservation of natural resources. A good land use zoning is important reflection of the character of urban form and size. Sustainable land use zoning could be expressed in different issues starting with natural resource management, transportation and connectivity of the city. A land use zoning could guide the development of city within the principles of inclusiveness, resilience, flexibility, environmentally sensitive and economically vibrant.

Another important consideration to be provided in the city zoning would be the flexibility of the city. No one can predict the cities of 21<sup>st</sup> century, the best we can do is make near to perfect predictions. Burtibang proposed today as eco-residential town with knowledge based city could be turned into touristic destination or some other sort of primary city. Economic zones designated could be turned into residential plots or could be into recreational zone for the greater good. It is important to plan for flexible city as the exponential growth in technology has fostered the new city as changing dynamics every another year.

#### **f) Zone for mixed-use neighborhoods**

Isolated land use zonings have already created social exclusion in the city and had lacked the essence of “Sense of Place”. One of the most important consideration of Land use zoning, is defining mixed land use planning, reducing the travel distance and increasing the social cohesion. The planning of such neighborhoods should be balanced between the strict separation of disturbing land use with their usage and combining different land use as per their connectivity and relation to revive the location. As there should be clear demarcation amongst industrial and residential area, civic spaces could be intermixed with residential space along some small commercial area. The concept of mixed use neighborhood planning is widely praised in term of energy conservation and expounding the livability of spaces.

#### **g) Create compact regions with short commutes**

As already mentioned above, we all want to make walkable city which is inclusive in character. Major job centers and market area is to be created in the location where high volume transit services are available. Where in case of key employment areas, recreation, services and retails will be provided to provide the demand of daily needs within walking distance. A well compact neighborhood design is definitely going to save travel time by shortening trip distances and preserve large plot of arable land. High rise, high density planning in the commercial area and low rise high density in the residential area could be stimulating strategy to promote the compact city.

#### **h) Opportunistic city**

A town of merely 10 thousand scattered populations with decreasing population growth rate needs something reviving and some external development intervention to make it compact city of 100 thousand populations in next 20 years. Unlike other cities along MHH, it is important to understand that Burtibang lies in isolated location where has other cities merely have any dependency with it. In linkage with other VDCs, that are closer to Burtibang, we can consider it as a strategically important town which has its dependency from nearby VDCs and possible migration might happen from these VDCs, if not from other districts. We must understand the basic fact that city which is expected to cater population must have opportunity for people. Such opportunities are to be provided in terms of job opportunities, urban amenities, goods or any other urban services. To hold population of 1 lakh, we need to have, at least 20 thousand populations with direct job opportunities, which could be service based or industry based or entrepreneurship. It is obvious to create some secondary job opportunities in the longer run and expected to follow the trend of trickle down effect of economy. To hold the economy and keep the city moving, we must facilitate the economic booster and advance some of the important decision to make the city economically viable.

### **i) City for all**

One of the major guiding principle of our planning derives from the concept of “City for All”. Referring to the “Goal 11” of Sustainable Development Goals’ UN 2015, we’ve focused on inclusive and sustainable urbanization (11.3). We primarily focus on safe, inclusive, accessible and affordable city, with special attention provided to children, senior citizens and persons with disabilities. We have to understand the principle behind inclusive city that is not physical but has social and broader political meaning as well. Right to the city is well advocated term in western academia in recent years. For the developing nation like Nepal, we have ignored the importance of this aspect in many development projects. City for all is the concept which comprises different aspects such as right provided to pedestrians, opens spaces, emphasis given to public vehicles than private, disabled friendly urban design and all others aspect, which make city for all regardless of their gender, economic status, caste, age group and physical abilities.

With all those points mentioned above with the universal principles of sustainable city development principles, there are still some important strategies which needs to be embraced in the local context. People friendly city designing with sustainable ecosystem and economy is major need of Burtibang. It is important to consider the steep slope of the Burtibang which covers more than 90 percent of the total area. Some of the new strategies which is to be adopted for high steep are also incorporated in the planning strategies of physical infrastructure and land use zoning. With the concept of inclusive planning and environment friendly city planning, different approach of neighborhood development, transportation network and land use zoning is proposed. Considering the importance of shorter commuting distance and high quality transit, all settlements within city is interlinked with efficient transportation network and most possibly are proposed in walking distance. Finally, for a city being sustainable economic aspect is the most important. Hence, different economic activities are promoted through government intervention and through good corporate governance.

## Planning Strategies:

Before jumping to the sectorial plans, we had some basic guidelines and principles that we set as the baseline. All the guidelines explained as in earlier chapter will basically guide the soul of planning, but still there are some structural setting that needs to be addressed. For the next step, accordingly with the lead sectors and long term vision of the town, we set on developing projects and made the comprehensive planning framework. It was an important part to identify the spatial strategic intervention to start with in terms of strategic roads and land use zonings.

In case of strategic roads, it was well guided by the demand of social and economic context and as per guided by prevalent planning guidelines and standards. Roads were connected with each wards of VDC to its market center and connecting each important settlement. It was important task to identify the existing settlement pattern and need of intervention required in spatial dimension. For this, important economic pockets were identified and linkages were created to promote the services and economic activities. With the linkages of existing highways, further feeder and district roads were developed to promote the linkage.

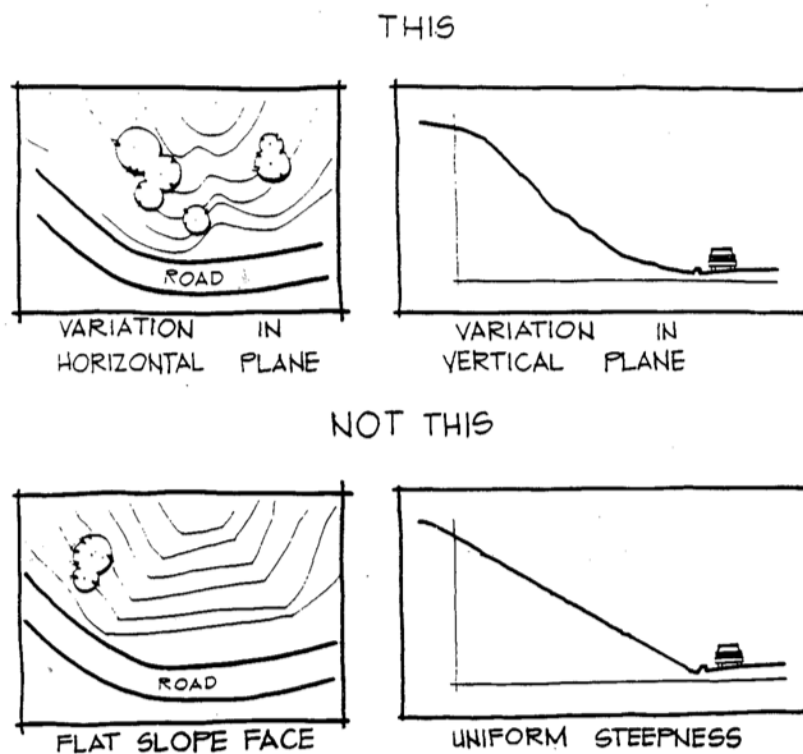


Figure 63 Terrain Friendly Planning. Source: (City of Glendale, CA, 2011)

As we already explained that roads were important aspect of planning not in the sense of transportation network only but also to guide the urban form and size. Developing a town in a very high terrain in a planned way is a new experiment is a new experiment in context of Nepal, apart from some self developed settlement. Terrain friendly road development along with the settlement development is proposed to have the visual look of mountainous settlement along with the ecofriendly city planning.

Another important aspect of planning was commenced with the land use zoning of the site. With the base of separation of land into conflicting and non-conflicting zone, we identified some of the major land use classifications as residential, institutional, commercial, CBD (Center business district), industrial zone and others. We were aware of conservation of natural resources which were strictly identified as conservation zone, i.e. forests and water resources. It was also important for agriculture field to be protected hence is promoted for agriculture and built up activities are discouraged. It also needs to be

embraced that only remaining developable plots are agriculture field at the moment. With the urbanization process, it is obvious to grow and turn into building plots, hence planning strategies is basically focusing on conservation the ecological footprint of these lands as much as possible. While identifying the built up and non-built up zones, in each built up zones, different bye-laws are proposed, which will serve as the development control tool in terms of height, built up area and others. Another important aspect of this strategy was consideration of mixed use land use planning. Mixed land use concept allows for compact settlement with reduction in commute and increase in social cohesion. It is equally considered about the conflicting land use while planning the mixed land use. Apart from that, new urban expansion zones are proposed along Shera, Tarikhet and other existing settlements, which are to be further developed after land-pooling and planned development.

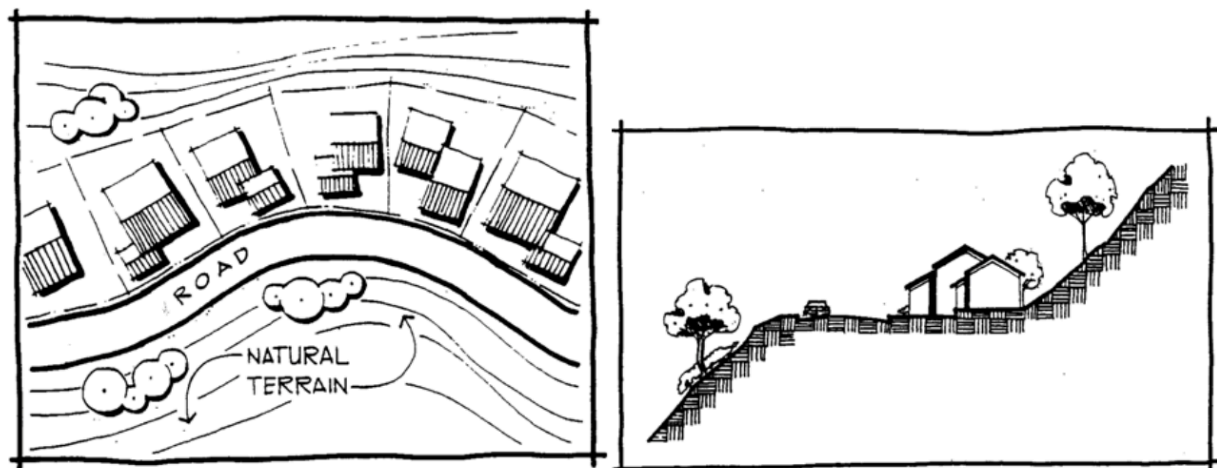


Figure 64 Retaining Natural Terrain, Source: (City of Glendale, CA, 2011)

The basic concept of high terrain settlements development is expressed in terms of road connections. Each settlement of around 500-1000 houses will have some sub-settlements of 50-100 houses which will have similar natural terrain. The proposed strategy is to have direct road accessibility to those settlements at one point along the road, which are to be interlinked with each household through walking pathways. Width of such walking pathways may vary with at least of



Figure 65 Clustering of lot, Source: (City of Glendale, CA, 2011)

8-10 feet allowing some emergency vehicles to enter.

Similarly regarding the road connection and proposing allowable built of area, it is important to consider the natural terrain and existing settlement area's vulnerability to natural disaster like landslides. Residential lots is to be clustered to minimize graded area and maximize natural open space. Clustering must be sensitive to surrounding development

and existing slope. It is important to retain smooth flow of ground form in both vertical and horizontal directions. Convex-shaped top of slopes and concave-shaped toe of slopes address vertical transition. Transitional slopes should not be covered up by building additions in the future. Horizontal transitions would generally be concave-shaped for fill slopes and convex-shaped for cut slopes. Transitions should use a minimum 25-foot radius curve. (City of Glendale, CA, 2011)

This integrated development plan of Burtibang recognizes that many of the remaining undeveloped lands in the town are on steep slopes and hillsides, where flat agriculture plots are already occupied/developed. These steep slope areas provide spectacular opportunities for home sites, but they also present special challenges in designing city development that is safe, economical, and maintains the qualities of hillsides that contribute to Burtibang's natural beauty.

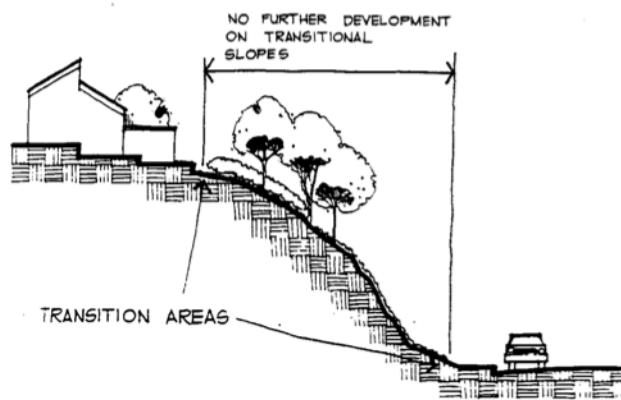


Figure 66 Transitional slope, Source: (City of Glendale, CA, 2011)

Hence, with some basic guidelines of steep slope topography, it was also important to come up with certain kind of innovation with building a city unlike other flat settlements. With the challenges coming from difficult land topography, we have considered the terrain friendly planning starting with some strategic location of settlements and connecting them with roads or some bridges. Those strategic spatial infrastructures like physical linkages and connections with inter and intra region, were the major planning strategies. we've further explored the land use potential as per the

analysis done in earlier stage, regarding their population status, linkage and land availability. . Accordingly, land use planning was proceeded and some potential interventions with some spatial strategic projects were proposed, which could have positive impact for development of town in longer run.

With the basic fact of difficult land topography and lesser linkage with outer city, it would certainly be difficult to develop Burtibang as the city of one lakh population, but with the infrastructure like livestock promotion zone and developing it as more of the research town, it is expected to welcome the large number of floating population of researchers, learners and travelers who would want to enjoy the serene natural environment, with all the urban infrastructures.

## Land-Use Plan:

We know land is scarce, with the case of Burtibang it is more justifiable. With no supply from nature and continuous consumption from the urbanization trend, it is very important to utilize the land use very wisely. The regulation of land use is a primary function of local governments but it is primarily guided by the land topography as well. These local planning departments oversee and shape much of the regulation related to land use as they address issues such as infill development, neighborhood master plans, transportation, housing, economic development, and zoning. To start with the basic framework of planning and set out the by-laws within the site, a land use plan for the Burtibang has been proposed, based on the existing characteristics of site, natural setting, potential and ownership, linkage with other cities and availability of developable land. Hence, to guide specific purpose of planning and promote the efficient utilization of land use, some basic zones like residential, commercial, Institutional, natural conservation, industrial and others, are proposed.

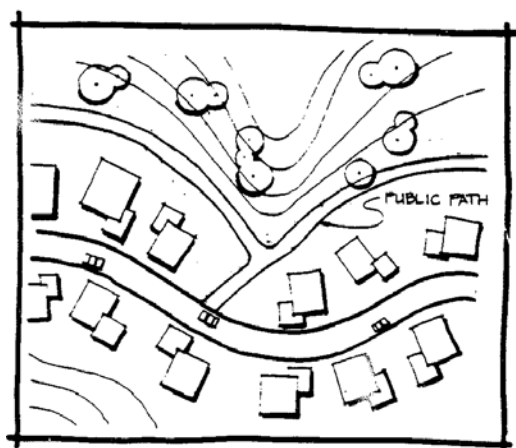


Figure 67 Accessibility of natural areas, Source: (City of Glendale, CA, 2011)

Land Use is the most visible of the sustainability topics. Cities with sustainable land use create an obvious balance of environmental preservation, commerce and livability. To promote the sustainability in land use development some of the basic aspects are followed which are briefed below:

**Open space:** ample supply of open green spaces designed to encourage consistent active and passive use. These open spaces could also be the restricted space which are unavailable for building construction. In case of Burtibang, availability of forest land also serves as the open spaces.

### Sustainable water sources

The current and long-term availability of water is treated as the vital starting point of any land use decision. Community planning will include the provision and protection of local water supply. In most of the case of Burtibang, water pump system is expected to be used, but with the use of solar power in pumping system it could be approached in more sustainable manner. Similarly, with the high terrain and difficult slope it is easier for drainage services as it is equally challenging as well.

### Walkability & connectivity

Communities are developed pedestrian-oriented, with daily needs situated within easy and enjoyable walking distance of each other. To promote this access, residential, commercial, recreational, and civic uses are connected by both public and private transportation options, if not in walkable distance. In most of the terrain of Burtibang, walking trail is proposed where at the old

market at the flat terrain, more walking is promoted by discouraging vehicles with the policy approach and infrastructure approach.

### **Strong sense of place**

The design of geographic spaces and structures should reflect and celebrate what is unique about a community's people, culture, heritage, and natural history. Increase in high density low rise residential or business hub will develop people friendly setting. It is also important aspect of the town like Burtibang which is not yet ready to accept the big city of one lakh population at once. We have to consider that the adaptive growth of the city needs to shape with its existing

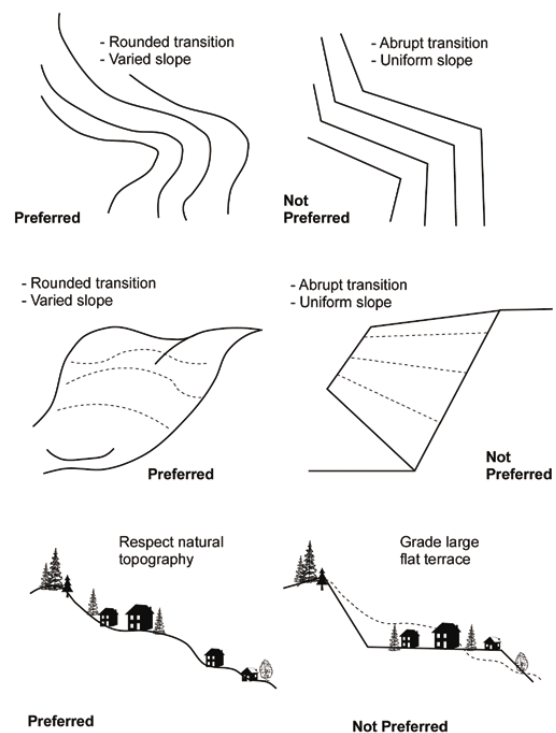
As already mentioned, land use plan is the function of local government. It completely depends upon local government for its implementation which is highly influenced by the different local political, social and economical aspect. With strict implementation of land use zoning, half of the planning implementation work will be done. It not only affects the land usage but overall affects the urban eco-system, in terms of transportation, natural resources, connectivity and economics. Hence, land use aspect is primarily considered as the important step of this planning process.

## 6.1 Physical Development Plan:

One of the important aspect of urban planning is its spatial dimension. Structural guidelines of any city with road, water supply and other networks could guide the urban form and shape of upcoming cities. With the guiding planning principle and strategies involved, the identification of the network and connectivity within the city has been done, which features the physical site planning of the site. Site planning involves a careful analysis of the opportunities and constraints of the site, including existing site features such as mature trees, topography, and drainage patterns. The components of site development extend beyond building placement and configuration, including topography, surrounding uses, retaining walls, landscape design, hardscape considerations, and parking.

Physical development plan comprises of transportation plan, water supply networks, drainage and sewerage networks, solid waste management and electricity and communication plan. Physical strategic plans are basically guided by the National urban development strategy and other existing guidelines and national goals, but in case Burtibang we had to consider its geographical terrain as well. It was complicated aspect of the planning to accept the demand of the local people as well as provide necessary physical infrastructure which would have longer impact without loss of any irreversible investment on infrastructure.

EXAMPLES OF PREFERRED/NOT PREFERRED GRADING TECHNIQUES



### 6.1.1 Road Network and Transportation Plan

Mountain roads are typically associated with difficult ground access, numerous slope instability problems and shortages of good construction material. These conditions require carefully designed off-site drainage, erosion protection measures and identification of the best locally available materials.

As a result, design and construction of roads in this terrain requires special expertise in relation to:

- geological and geotechnical factors
- route alignment
- geometric design
- design of slope protection and stabilization measures

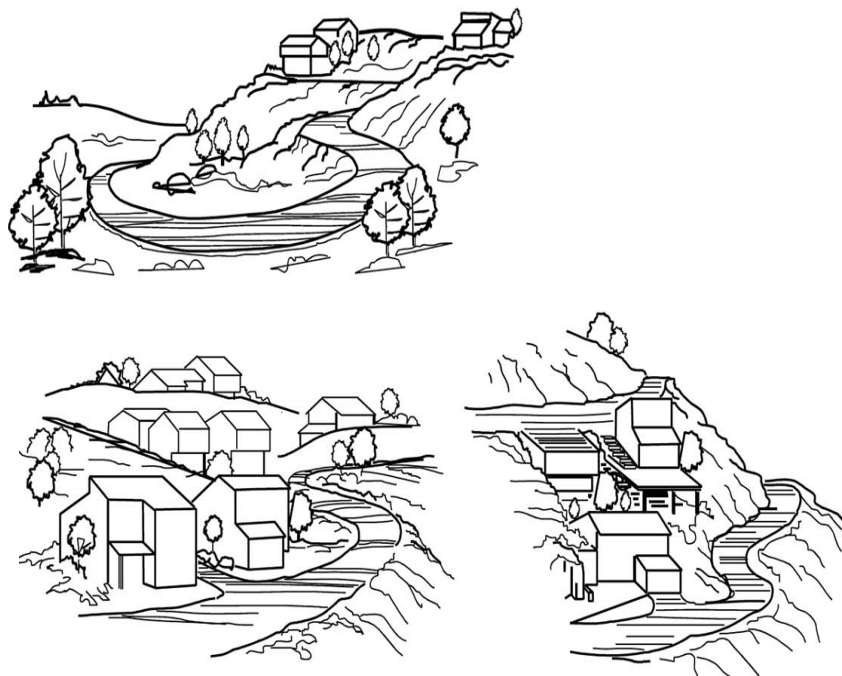


Figure 68 Conceptual Road Networks

Roadways should follow natural contours instead of being cut through landforms. Natural features, such as ridges, rock outcroppings, groves of trees, or riparian areas should be preserved (City of Glendale, CA, 2011).

With the basic goal of developing and maintaining multi-modal regional transportation system that meets the travel needs of residents, workers, and visitors, while improving regional mobility and city environment through expanded transportation

alternatives and transit-oriented development, sustainable transportation plan has been approached. Of course, in the longer run, independent city transportation master plan will be developed, but with the framework provided in these strategic plans. One of the important aspect to be considered in the strategic level is that it's difficult geographic terrain which hinders the transportation system as well as equally provides opportunity to explore the traditional clustering of high terrain. Right of way of roads usually ranges from 10-30 meters with local to arterial, but in case of such terrain in Burtibang, it doesn't seem feasible. Collector roads of 14m will basically act as the arterial road of the area, where as 10 meter road will serve as sub-arterial road instead of 22 meter. Hence, it is important to promote the walking friendly terrain with at least 3 meter (10feet) width, which could

be used for emergency vehicular entrance as well. Apart from some basic goals and planning principles, there are some other strategies which are mentioned as below:

**Objective (What to achieve):**

- Maintain and promote connectivity with each settlement of Burtibang VDC with major road of 14m (ROW).
- Promote regional linkage for trade and commerce, especially with Butwal and Baglung along with western district Rukum and Rolpa
- Reliable intra-city transportation system with pedestrian friendly movement enhancing terrain friendly walkways.
- Encouraging public transportation within the city.
- Exploring new possibilities in modes of transportation like ropeways or cable cars or lift system.

**Strategy (How to achieve):**

- Connecting city area with settlement area of each ward with arterial or sub-arterial road.
- Linkage with nearby districts/cities like Rukum, Parvat, Rupendehi, Gulmi, and Baglung.
- Ring road construction around the Burtibang market, connecting major settlements like Bhabretta, Bhyalkharka, Rinambesi, Khaptaribang to Burtibang.
- Connecting Burtibang market with major settlements: Purkot, Arnakot, Ghosa, Simalchaur and Rinambesi.
- Connecting 3 hillocks with suspended bridge. Connecting: Bhawareta, Salamkot and Ghosa.
- Connecting mid hill highway with Simalchaur by Bridge construction.
- Construction of Busparks near Tarikhet/ Salamkot and on the way to Bongadovan at the end of old market.
- Planned development within the new settlement (Shera and Tarikhet) with minimum width of 10-meter local road, especially in case of new urban expansion zones where there is flat terrain.
- Provision of GLD for existing roads of at least 6m of roads connecting to major road of 14m RoW.
- Construction of cycle-friendly road networks with minimum width of 2 meter.
- Construction of pedestrian pathways on each local, collector and sub-arterial road, width varying as per requirement but not less than 2 meter on each side.
- Plantation of trees along the road side to provide shading for foot-travelers.
- Investment in public transportation from government or community organization. (Ring road)
- Regular monitoring and evaluation by government bodies on privately owned/managed public transportation.

With above mentioned objective and activities, sustainable transportation system has been proposed which will serve as the planned city network for inter-city and intra city network.

It is important to invest on the road infrastructure but it should be long term and inclusive in manner. With the basic principle of each settlement to be connected with market center, the roads have been proposed. (Refer Map). It is important to consider that these roads are proposed for the longer run and as a strategic plan for 20 years accommodating more than one hundred thousand populations. Hence, phase wise development could be done as per the available budget and priority.

#### **Policy recommendations (Guiding Principle):**

- Primarily focus on connectivity with any modes of transportation, like pedestrian, ropeway, cable car, bridges and definitely road connection.
- The City will implement measures that will relieve pressures on the existing transportation infrastructure by approaches that include, but are not limited to:
  - Multi-modal transportation alternatives
  - Land use coordination
  - Prioritized improvements
- Consideration of engineering and planning guidelines from international cases in case of steep slope comprehensive guidelines for roads and transportation networks.
- Timely Design and improvement of its transportation system to accommodate not only existing conditions, but projected growth based on adopted City and its projections.
- Allow new development only when and where all transportation facilities are adequate at the time of development, or unless a financial commitment is in place to complete the necessary improvements or strategies.
- Encourage the location of bicycle racks at appropriate destination points, such as within the downtown, parks, schools, transit, and park and ride lots.
- Promote pedestrian walks as with the most priority followed by cycling and other motor vehicles.
- Regulatory mechanism for public transportation.

#### **Guidelines (Documents):**

- Minimum Basic guidelines for roadside infrastructures, bicycle tracks, pedestrian facilities, curbs, bus lay bays, lighting and drainage should be followed as per the guidelines set by Nepal Road Standard 2070. Especially in case of maximum slope and steep terrain road design.
- Furthermore, regarding the general design of urban roads: especially with pedestrian footpaths, cycle lane, bus stops, taxi stands and parking lanes, guidelines defined in “Urban Road Standards 2071: concept note” could be followed.
- If different guidelines are provisioned for same infrastructure, then the standard, which explains the pedestrian friendly transportation most, should be adopted.

- It is important to consider the limitation of availability of land and very steep slope in the town, hence road widths could be limited to two way in high terrain considering the safety aspect and social inclusion factor.

## Strategic Projects:

Roads are important structures to set the urban forms and shape. With the consideration that the existing market is already developed and needs to be planned in order to preserve the town, the old market is proposed as the center business district where pedestrian movement is encouraged, discouraging vehicular movement. With related to the existing market area some of the projects are proposed as:

- Reviving the existing Buspark as the community parks and parking along with developing the whole surrounding settlement as vehicular calm zone. Further 2 Bus parks are proposed at Tarikhet (on the way to Dhorpatan) and end of Burtibang old market (on the way to Bongadovan). Apart from that at the Zero Kilo, bus station is proposed.
- Ring-road (R1) surrounding the existing market area, running through the bank of river and surrounding through Bhabretta.
- Strategic Roads (SR1, SR2, SR3.... And so on as shown in Map) connecting different market center and settlements.
- Bridge connecting MHH to Simalchaur, Ghosa to Tarikhet to Burtibang.
- Suspended bridge connecting upper Ghosa to Salamkot to Bhabretta.
- Pedestrian footpaths and cycle tracks on the flat terrain along the roads of market, residential areas
- Pedestrian friendly route connecting houses at the terrain slope after primarily connecting with the strategic roads.

S.No	Projects	Cost Estimation				Phase-Wise Development			Investment Sector					Remarks
		Unit	Quantity	Rate (In Lakhs)	Amount/ Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/INGOs	Private Sectors	Others/Communi ty	
<b>PHYSICAL INFRASTRUCTURE DEVELOPMENT PLAN (1-5)</b>														
1		Ring Road	KM	9.43	500	4715.6215				100%	0%	0%	0%	0%
1.01		Public Transportation	Number	1	10000	10000				25%	25%	0%	50%	0%
1.02		Pedestrian Improvement	KM	30	30	900				50%	50%	0%	0%	0%
1.03		Bicycle Track	KM	30	30	900				25%	75%	0%	0%	0%
1.04		GLD /Landpooling	Number	1	5000	5000				0%	0%	0%	100%	0%
1.05		Buspark 1	Number	1	1000	1000				100%	0%	0%	0%	0%
1.06		Buspark 2	Number	1	1000	1000				100%	0%	0%	0%	0%
1.07		Existing Buspark Upgradatoin	Number	1	3000	3000				100%	0%	0%	0%	0%
1.08		Bridge 1	Number	1	1000	1000				100%	0%	0%	0%	0%
1.09		Bridge 2	Number	1	1000	1000				100%	0%	0%	0%	0%
1.10		Suspended Bridge Connection	Number	3	500	1500				100%	0%	0%	0%	0%
1.11	Road Network and Transportation Plan	Strategic Road 1	KM	4.11	300	1233.6708				50%	50%	0%	0%	0%
1.12		Strategic Road 2	KM	4.64	300	1392.4023				50%	50%	0%	0%	0%
1.13		Strategic Road 3	KM	6.21	300	1862.3253				50%	50%	0%	0%	0%
1.14		Strategic Road 4	KM	4.73	300	1418.1270				50%	50%	0%	0%	0%
1.15		Strategic Road 5	KM	5.23	300	1569.4368				50%	50%	0%	0%	0%
1.16		Strategic Road 6	KM	4.82	300	1447.2708				50%	50%	0%	0%	0%
1.17		Strategic Road 7	KM	6.92	300	2074.7031				50%	50%	0%	0%	0%
1.18		Strategic Road 8	KM	4.08	300	1224.7974				50%	50%	0%	0%	0%
1.19		Strategic Road 9	KM	1.31	300	393.2734				50%	50%	0%	0%	0%
1.20		Strategic Road 10	KM	3.07	300	919.6656				50%	50%	0%	0%	0%
1.21		Strategic Road 11	KM	3.39	300	1017.2631				50%	50%	0%	0%	0%
1.22		Strategic Road 12	KM	2.21	300	664.2168				50%	50%	0%	0%	0%
1.23		Strategic Road 13	KM	0.97	300	292.3725				50%	50%	0%	0%	0%
1.24		Strategic Road 14	KM	0.21	300	62.2872				50%	50%	0%	0%	0%
1.25		Strategic Road 15	KM	0.64	300	191.3331				50%	50%	0%	0%	0%
1.26		Strategic Road 16	KM	0.11	300	34.4196				50%	50%	0%	0%	0%
1.27														
					Total	45813.19								

The total investment for the road will be 45813.19 lakh. The major project involves the construction of ring road, bicycle track, Guided land development, Buspark, pedestrian improvement and 16 strategic roads. Most of the investment comes from the central government and local government. The complete GLD/ Landpooling project will be financed by the private company.

### **6.1.2 Water Supply Plan**

Guided by the target of delivering equitable access to safe, adequate, affordable and sustainable water supply and sanitation services. Water supply plan is another important physical plan which matters for the long term strategy of the town. One of the major criteria for the selection of these 10 towns were availability of water resources, which obviously makes the Burtibang good location with sufficient attributes of water supply resources. It is important to consider as present half of the houses are accessed with water supply facility but with intermittent water supply and not all households are facilitated as well. The water supply facility is also promoted by the community approach. Public water supply facilities and water supply for city purpose are often ignored in the planning. The source of the water at the moment is entirely depended upon tow water sources: Swo-khola, Chipleni at Ward no. 9 and from the Chharchhare at ward no. 1. For the longer run, as the town is only availed with the water source of Badi khola (Badi River), it is entirely depended on water pumping system, which is to be engineered in detail manner. With the following strategic frameworks, water supply plan is proposed for the long term strategy.

#### **Objective (What to achieve):**

- Equitable, safe, adequate and affordable water supply facility to each households and institutions and for municipal purpose
- Sustainable water supply measures

#### **Strategy (How to achieve):**

- Continues water supply system installed in each household.
- Construction of treatment plant for 3million liter water per day, with area of around 30-40 Ropani. Such treatment plant and storage tanks will be constructed at the high altitude to provide continuous supply of water. Running public utilities up a slope may require additional expense as pumping stations may be required to maintain adequate pressure in the system.
- Provision of water storage from rainwater harvesting in public spaces like Buspark, parks, roadside areas and other public spaces. Such water reservoirs could be used for city cleaning process.
- Promoting rainwater harvesting in household level by subsidizing on money and technical support.
- Regular monitoring of quality of water as defined by WHO guidelines, National water quality standards 2062 or any other, which one is more effective.
- Sustainable usage of water sources and conservation of water resources from illegal encroachment.
- Control in extraction of ground water which could affect the overall water table of the region.
- Provision of public water supply in crowded area or in every settlement.
- Provision of public drinking water in public areas
- Pricing the water cost in reasonable and scientific manner
- Provision of treatment plant that makes water more acceptable for a specific end-use.

- Proper network development for effective distribution of water

Hence, to attend these objectives and goals, proper necessary activities have been approached. The strategic vision of the water supply should be guided by safe, affordable and accessible water supply to all, as in the matter we should also be aware about the sustainable need of water supply plans and conservation of the water sources. Conservation of resources in sustainable manner and efficient use of water should be guiding principle in longer run. It is also important to have some policy guidelines to which could guide in longer run for water supply plan of 1 lakh population.

#### **Policy recommendations (Guiding Principle):**

- Development and management of water resources shall be undertaken in a holistic, systematic manner, relying on integrated water resources management.
- Water utilization shall be sustainable to ensure conservation of the resource and protection of the environment. Each river basin system shall be managed holistically.
- Private participation will be encouraged on development, implementation, operation and maintenance of water supply and sanitation service delivery systems by fully or partially outsourcing provision of bulk water, system maintenance, management and other components of service delivery, as feasible. (GoN, MoPPW, 2009). Delivery of water services shall be decentralized in a manner that involves autonomous and accountable agencies (e.g., public, private, community and user-based agencies).
- Users involvement will be promoted through enhanced role in decision making at all levels to inculcate community ownership with aims to achieve a long term financial sustainability and consumer responsiveness in system development, implementation, operation and maintenance and effective service delivery (GoN, MoPPW, 2009)
- Poor and the marginalized sections of the communities within the project areas will be mainstreamed as valid customers for service delivery through defining pro-poor strategies for connections and sustained use of services (GoN, MoPPW, 2009). Economic efficiency and social equity shall guide water resource development
- Promotion of rain water harvesting in households, institutions and other organization.

#### **Strategic Projects:**

With the above-mentioned framework, it is much clear regarding the strategy of water supply. Some of the important projects identified in the short terms are shown in the map. Water supply lines laid on the urban roads along with drainage pipe are some of the primary infrastructure required for the plan. These lines are mentioned in the map (figure: ) and are subject to change as per the road geometry, if new settlements are growing. Bottom-line of the strategy is that, the source, storage, treatment and distribution system must demonstrate the capacity to serve future populations within the water service area with expected population of one lakh.

- Storage tank of total (1 lakhX100lpd X 2 days) 20MLD with treatment plant of capacity of 25 percentages at least.
- Water supply network to be laid as per the detailed project report of the town.
- Conservation of the water resources.
- Pumping system implemented for water lifting from the Badighat khola.



### 6.1.3 Drainage and Sewerage Network Plan

Steep slope development has the potential to start a cycle of erosion and flooding. Water that falls on forests, grass and other natural areas has a relatively high infiltration rate into the soil. Roofs, concrete, pavement and other impervious surfaces increase the amount of rainwater that runs off the land surface. On a developed slope, this runoff is often

placed onto steep slopes below the house and driveway. Without appropriate measures to control the velocity or volume of the water, excessive soil erosion and increased flooding can potentially occur. The increased volume and velocity of runoff can result in erosion of stream banks as the stream begins to form a larger channel to dissipate the energy of the water. Sediment from eroding stream banks can be deposited or transported directly in the stream. Runoff from steep slopes moves at high velocity and reaches downstream areas quickly, which can result in increased flash flooding.

Sustainable sanitation for healthy, green and clean city is the goal of Burtibang City. As demanded by the people of Burtibang in many public hearings, they want the city to be free from urban pollutions. One of the major problems in the urban areas is unscientific drainage system along with unsanitary disposal of such drainage and sewerage. After development planning and construction of drainage networks in developed city is another hindrance for infrastructure development. With the goal of clean, safe and sustainable sanitation program within the reach of every citizen, some of the focus sector have been identified. In order to protect hillside houses from landslides and water damage, drainage devices are necessary to convey storm water quickly away from manufactured slopes and houses.

#### Objective (What to achieve):

- Sanitation facilities in each household and institutions.
- Efficient and effective sewer and drainage networks within the city.
- “Open Defecation free zone”

#### Strategy (How to achieve):

- Mandatory construction of toilet with septic tank/bio-gas in each household.
- Installation of drainage and sewerage pipe along the road side
- Installation of storm water drain

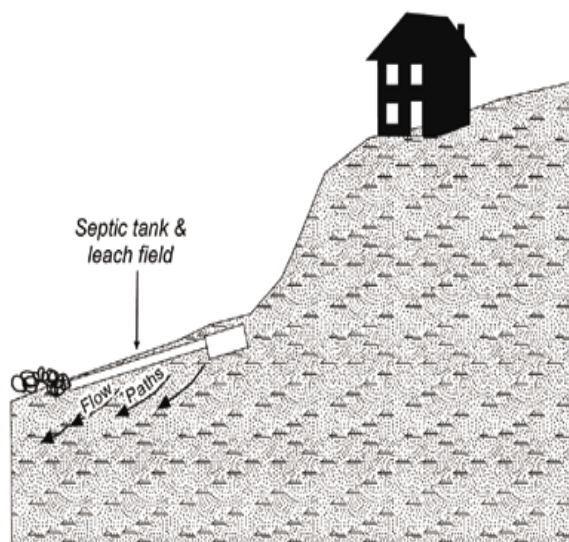


Figure 69 How steep slopes can affect an On-Lot septic system. Source: (Lehigh Valley Planning Commission, 2008)

- Installation of water treatment plant before discharging from the outlet. Such treatment plant should be designed in more sustainable and organic manner, within the area of 5-7 Ropani.
- Promotion of organic treatment plant in institutional level for drainage treatment- Reed Bed Treatment Plant

**Policy recommendations (Guiding Principle):**

Some of the important guidelines for drainage and sewerage networks is guided with national goal for sanitation and other action plans. (STEERING COMMITTEE FOR NATIONAL SANITATION ACTION, 2011)

- Enhance synergy among the actors in sanitation development, including municipal government agencies, the private sector, NGOs, and others.
- Encourage the development of community-based sanitation services, especially in areas where public and private services are difficult to establish.
- Create enabling institutional and regulatory frameworks to accelerate sanitation services development.
- **Strategic Projects:**

Drainage and sanitation is day to day process, hence needs to have some certain level of awareness in people. Apart from that there are some important large scale infrastructure required to control the drainage mechanism for the city including some required treatment plant. Some of the important projects are identified as:

- Design of the integrated drainage network and laying around the city considering the slope of Burtibang.
- Reed Bed Treatment plant in some identified location
- Proper waste water treatment plant at the outflow of the drainage system
- Construction of storm drain at the side of road.

S.No	Projects	Cost Estimation				Phase-Wise Development			Investment Sector					Remarks
		Unit	Quantity	Rate (In Lakhs)	Amount/Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/INGOs	Private Sectors	Others/Community	
<b>PHYSICAL INFRASTRUCTURE DEVELOPMENT PLAN (1-5)</b>														
3.01	Drainage Networks and Pipes	KM	40	900	36000				50%	40%	0%	10%	0%	
3.02	Treatment Plants	Number	6	200	1200				100%	0%	0%	0%	0%	
3.03	Storm Water Drain	KM	60	5	300				50%	50%	0%	0%	0%	
3.04	Organic Treatment Plant	Number	10	30	300				0%	50%	50%	0%	0%	
3.05	Public Toilets	Number	100	15	1500				0%	100%	0%	0%	0%	
3.06	Awareness and Training	Number	100	20	2000				50%	50%	0%	0%	0%	
3.07														
					41300.00									

The total investment for proper drainage and sewerage network plan is 41300 lakhs. Almost 87% of investment done will be on the laying of drainage pipes and networks. Other projects includes treatment plants, storm water drain, organic treatment plant, public toilets and awareness and training program. Except for drainage networks and pipes layout all other projects needs to be complete within 5years.

#### **6.1.4 Solid Waste Management Plan**

To attain the goal of systematic, effective and sustainable solid waste management, it is very important to proceed through the level of awareness of people in the town. In today's context the proper disposal of waste from household has been a major problem. So segregation of solid waste at household level is also emphasized. It is obvious that clean and dirt free Burtibang is envisioned by all the citizen of the city, the sustainable approach will keep city even after long run. Participatory approach of solid waste management is one of the most important aspect of implementation.

##### **Objective (What to achieve):**

- Extensive promotion reuse, reduce and recycle of solid waste (3R)
- Effective management of sanitary land fill site
- Strong institutional mechanism for solid waste management

##### **Strategies (How to achieve):**

- Promotion of 3R (Reduce, Reuse and Recycle) for solid waste management at household level
- Discouraging of roadside storage of solid waste by constructing a transfer station within the radius of 5 KM.
- Landfill site construction in valley in-between Bhawreta and Bismar
- Efficient use of landfill site and guiding with principle of zero waste to land fill site.
- Promotion of bio-gas installation to convert degradable waste to energy.
- Strict laws for the reuse and recycling with proper SWM unit in VDCs.
- Installation of solid waste bins along the road side and in public spaces.
- Segregation of waste in household level

##### **Policy recommendations (Guiding Principle):**

- Separate unit exclusively working in the field of sanitation and SWM, in local government.
- Participatory approach in SWM, so that people take it as asset to their personal level rather than the liability.
- Zero waste to land fill site. Reducing the % of waste generated to the site to as low as 20%.
- Strong institutional and legal mechanism to control the solid waste mechanism. For e.g. Random dumping of the waste in roadside, rivers or any other places except designated one should be severely punishable.

With above mentioned goals and objectives, it is all aware that the city we all want to develop is the green, clean and healthy one. Out of one of the observation, the disposal of solid waste is one of the problem. Hence, good awareness of people and strong institutional mechanism could be



### **6.1.5 Electricity and Communication Plan**

Shortage of electricity is one of the major problem in whole country. Places which are connected to the electricity line if National grid are even facing the problem of power shortage. Burtibang even lacks the privilege of connection to National grid. Baglung district, as a whole is popular for having most number of river streams and potential of good micro hydro-electricity. All together 76KW (22+34+40) of three micro-hydro projects are running at the community/private level. Bhugikhola Micro Hydro, Nishi Dovan Micro Hydro Power project are the few ones at the nearby site. In total, the Micro hydro powers are serving more than 800 households. more than 800 households. The projects are mostly serving the households from ward 1, 2, 3 and 4. At the market area, during the peak hour, electricity load is not sufficient with micro-hydro. Another important aspect of modern urban planning is development of Information and computer technology .With the primary goal or providing, electricity and communication service to each individual in the town, the electricity and community plan is basically focused on optimization of resources in distribution of electricity and facilitation of communication services. Target of affordable and accessible electricity and communication are to be backed up by some objectives as follows.

#### **Objective (What to achieve):**

- Access of universal and affordable electricity and communication services.
- Promotion of alternative energy resources: Solar and wind energy
- ICT friendly city development

#### **Strategies (How to achieve):**

- Connecting power line with National grid
- Provision of smart electricity grid in each settlement for exchange of surplus energy amongst alternative energy and national grid. The project could be initiated as the pilot project in some of the settlement before experimenting in the whole city.
- Laying of underground wires for electricity and communication purpose.
- Subsidizing on alternative sources of energy, i.e. solar and wind energy, waste to energy and so on
- Technological upgrading of power stations and transmissions.
- Encouraging private and public sector to provide and upgrade the quality of internet and communication services.
- Promotion of FM, radio stations and other communication services through private and community participation.
- Wi-Fi hotspots in the public spaces like bus parks, parks and other urban squares.
- Encouraging streetlights and other digital boards & devices connected with solar technology.

## Policy recommendations (Guiding Principle):

- Regulation and control mechanism for leakage of electricity.
- Promoting energy efficient household or institution devices
- Mandatory provision of installing alternative source of energy for at least 25% of total energy usage in the building. Especially in case of public, institutional and commercial building.

## Strategic Projects:

With those basic guidelines mentioned above promoting alternative energy and electrification of each household with NEA national grid, some of the important strategic projects identified are:

- Connecting the power line with National grid
- Separate substation for town as per the required electric load
- 3 Phase electricity for industrial and institutional zones as per the demand
- Working for the underground wiring for electric and communication networks
- Regular monitoring to control leakage of electricity
- Promotion from both private and public sector to convert waste to energy.

S.No	Projects	Cost Estimation			Phase-Wise Development			Investment Sector					Remarks
		Unit	Quantity	Rate (In Lakhs)	Amount/ Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/NGOs	Private Sectors	
<b>PHYSICAL INFRASTRUCTURE DEVELOPMENT PLAN (1-5)</b>													
5													
5.01	Connecting to National grid (electricity)	Number	1	5000	5000				100%	0%	0%	0%	0%
5.02	Promoting Microhydro	Number	1	10000	10000				80%	20%	0%	0%	0%
5.03	High Speed Internet	Number	1	5000	5000				20%	0%	0%	80%	0%
5.04	Alternative energy Promoting	Number	1	5000	5000				90%	10%	0%	0%	0%
5.05	Street Lights	Number	1000	2	2000				20%	80%	0%	0%	0%
5.06	Digital Information Boards	Number	100	1	100				0%	80%	0%	0%	20%
5.07	Underground Wiring	KM	60	30	1800				50%	50%	0%	0%	0%
5.08	Wifi Hotspots	Number	100	5	500				0%	20%	0%	80%	0%
5.09	Monitoring Quality and Leakage Control	Number	1	1000	1000				25%	50%	25%	0%	0%
					30400.00								

The gross investment for the electricity and communication for 20years in Burtibang is 30400lakhs. The major project includes electricity substation, 3-phase electric lines, provision of high speed internet, alternative energy promotion, street lights, digital information boards, underground wiring, Wi-Fi hotspots and monitoring and connecting the electricity line to national grid.

## **6.2 Social Development Plan:**

In order to enhance the quality of life of every citizen of city and to provide direction for future decision-making, strategic social development plan is prepared. Social development plan is important guideline to set the framework for social amenities. Qualitative social services attract population to the town, where it might be floating population, which in longer turn turns into trickle-down effect of economy. Some of the different social sectors are explained below with their strategic plans.

### **6.2.1 Education**

The goal of Burtibang in educational sector is to make it the educational hub for 17 nearby VDCs. It will so develop that it will provide good educational facility to cater the surrounding VDCs. In the current scenario, Burtibang caters more than 2000 students, which is around 20% of whole population. These students are mainly from nearby VDCs and even from another district, Rukum. In addition, focus should be made to control the out-migration for education purpose, especially for education higher than higher secondary level. Some of the strategic objectives for the education development plan are briefed below.

#### **Objective (What to achieve):**

- To achieve 100% literacy in the town.
- Increase in quality of education and easily accessibility of higher and technical education.
- Education for all: regardless of sex, caste and age group.

#### **Strategies (How to achieve):**

- Primary and secondary education in the easy accessibility of residential neighborhoods.
- Promotion of technical education from private and government sectors.
- Institutional zoning in Land use plan especially with non-conflicting land use zones.
- Promotion of digital educations.
- Encouraging education facility for backward society, gender equity and other economically deprived groups.
- Regular inspection, monitoring and evaluation of education quality.
- Promoting higher education facility, especially above SLC.
- Provision of primary schools within travel distance of 15minute
- Provision of secondary schools within travel distance of 30minute

#### **Policy recommendations (Guiding Principle):**

- Cross-subsidized promotion of higher education facility.
- Education facility for Backward society and deprived group, with cross subsidies.

- Provision of proper hostels for students from other district at reasonable rate. (Student hostels)
- Involvement of different actors and stakeholders in terms of establishing technical colleges, university and other institutions.
- Government initiatives in promoting digital education
- Ensuring the qualitative education.

As true in all the regions of Nepal, education sector is mainly driven by the private sectors. Very few cases have been successful where it was started with community approach. Some of the technical educations in higher level initiated by local government or that particular community have been successful in case of KHWOPA group. One of the major role of government policies and strategies will be to encourage private sectors to invest in the field of education and monitor & evaluate the quality of education. Albeit such paradigm of education sector, there are still some of major sectors where government could invest in education sector with some strategic projects. Some of which are identified as below.

### Strategic Projects:

- Upgrading the quality and physical infrastructure for primary and secondary schools operated by government
- Establishment of agricultural resource center at Purkot
- Establishment of livestock resource center around Ghosha area.
- Paramedical college associating with existing hospital at Bhawareta
- Accommodation facility (Housing) for students and other job seekers in the town regarding education facilities.

S.No	Projects	Cost Estimation				Phase-Wise Development			Investment Sector					Remarks
		Unit	Quantity	Rate (In Lakhs)	Amount/Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/INGOs	Private Sectors	Others/Community	
<b>SOCIAL INFRASTRUCTURE DEVELOPMENT PLAN (6-10)</b>														
6	Upgrading Quality and Physical infrastructure of public education institutions	Number	10	500	5000									
6.01	Agriculture Research center at Purkot	Number	1	10000	10000				80%	10%	10%	0%	0%	
6.02	Paramedical College at Bhabretta	Number	1	10000	10000				50%	30%	20%	0%	0%	
6.03	Livestock Research center at Ghosha	Number	1	5000	5000				80%	20%	0%	0%	0%	
6.04	ICT Involved in education	Number	1	5000	5000				0%	40%	10%	50%	0%	
6.05	Higher Education institutions from Government Sector	Number	1	5000	5000				80%	0%	20%	0%	0%	
6.06	Cross-Subsidies	Number	1	2000	2000				100%	0%	0%	0%	0%	
6.07		Number	1	2000	2000				50%	50%	0%	0%	0%	
Total					42000.00									

The total investment in the field of education in Burtibang is 42000 lakh for next 20 years. The major strategic project is building the agriculture research center at Purkot and paramedic college at Bhabretta which costs 10000lakh each. Others project include higher educational institutions, ICT involvement in education and livestock research center at Ghosha.

## **6.2.2 Health**

The goal is to provide affordable, accountable, qualitative and accessible universal health-care facility for every citizen. In current scenario there is one district hospital with 13 bed with only one permanent doctor. There are 20 health post running under this hospital administration. Apart from that, there are 2 other private hospitals with some health clinics and pharmacy. Lack of sufficient equipment and lack in power source has created major hurdle in health sector. The waste water connected to river can also lead to some epidemic disease.

### **Objective (What to achieve):**

- Reduce health service dependency towards Palpa, Pokhara and Kathmandu
- Qualitative and quantitative health facilities in the town for all.

### **Strategies (How to achieve):**

- Health facilities in the close distance from residential land use.
- Upgrading the current district hospital to 50 bed from 13 bed.
- Promoting private sectors in investing on health facilities.
- Awareness campaign regarding some of the common diseases like of STDS, and control of epidemics and other communicable disease.
- Health facilities subsidized for economically deprived people.
- At least one health care center for every 20,000 people within the accessible distance of 15-30 minutes.
- Monitoring and evaluating the health services provided by the private sectors.
- Investing in the field of research and development for health services.

### **Policy recommendations (Guiding Principle):**

- Encouraging private sectors to invest in health facilities with subsidized taxation or allocating land for the investors.
- Provision of health insurance in local level with some subsidized cost and employer's contributions.
- Establishing and regulating the quality of government hospitals and health posts.
- Medical camps within the town with regular periods and awareness raising campaigns.
- Focusing on cleanliness of town by making it open defecation free zone, availability of public toilets, good SWM and other sanitation programs in the town.
- Establishment of laws for proper disposal of waste that comes from hospital

As already stated, with the national policy guidelines in the health facilities, there is very less to do with the local level or in government level. Most of the health facilities are provided with the private sectors and moderated by the government sectors. Apart from such, few leading health institutions are from the government bodies. Some of the important strategic projects are listed below.

## Strategic Projects:

- Upgrading the existing 13 bed district hospital to 50 bed hospital
- Awareness campaign and monthly medical camps.
- Cross subsidies for deprived group
- Paramedical college associating with existing hospital at Bhawareta

S.No	Projects	Cost Estimation				Phase-Wise Development			Investment Sector					Remarks
		Unit	Quantity	Rate (In Lakhs)	Amount/ Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/INGOs	Private Sectors	Others/Communi nity	
<b>SOCIAL INFRASTRUCTURE DEVELOPMENT PLAN (6-10)</b>														
7														
7.01	50 Bed Hospital at Babretta	Number	1	10000	10000				80%	20%	0%	0%	0%	
7.02	50 Bed community hospital (Purkot)	Number	1	10000	10000				50%	25%	0%	25%	0%	
7.03	Health Posts in each Wards	Number	9	300	2700				100%	0%	0%	0%	0%	
7.04	Health Awareness and Campaigns	Number	1	2000	2000				50%	50%	0%	0%	0%	
7.05	Cross-Subsidies	Number	1	2000	2000				0%	100%	0%	0%	0%	
7.06	Health Insurance	Number	1	2000	2000				100%	0%	0%	0%	0%	
7.07	Monitoring and Evaluation of private health institutions	Number	1	4000	4000				25%	50%	25%	0%	0%	
Total					32700.00									

For providing affordable, accountable, qualitative and accessible universal health-care facility to all citizen, the total estimated investment is 32700lakh. The projects to meet the visions are hospital at Bhabretta and Purkot, health and insurance, monitoring and evaluation of private hospitals, cross subsidies and others.

### **6.2.3 Security**

The ultimate want of any citizen is to reside in safe and secure city. Keeping this in mind the goal of Burtibang is set as “Safe and secure Burtibang city environment”. Current status of crime shows that there is average number of 2-5 criminal cases recorded in the local police station with 30 police staffs. The station is located at the center of the local market. But in longer run as people migrate to this place, the security of city should be strong and it is important responsibility of the city to make the city safe, secure and comfortable for the resident of the town. To attain such need there are some of the policies that needs to be adopted in the longer run.

#### **Objective (What to achieve):**

- Safe and secure environment for the people
- To ensure tourist safety and security during stay in Burtibang
- Safety from the natural disaster and other uninvited incidents.
- Response team from community level and from city level in case of disaster incidents.

#### **Strategies (How to achieve):**

- Community and city policing for safety and secure local neighborhoods.
- Street lighting and CCTV cameras installed for safe cities and neighborhoods.
- Effective number of security personnel as per the ratio of population.
- Help desks and police post at the major junctions and important public locations. Especially with addressing population of 10000 there must be one police post with one police station in town.
- Make city friendly and safe to every new comers
- Tourist police to advise and assist tourist in safety and security during stay in Burtibang
- Adequate number of fire stations with skilled manpower

#### **Policy recommendations (Guiding Principle):**

- Integrated city surveillance with CCTV camera or other means.
- Citizen friendly policing and promoting healthy relation between police and public.
- Community participation in keeping city safe and secure.
- Making city livable and walkable 24 hours of the day.

## Strategic Projects:

- Street lighting and fixing of CCTV camera in every delicate positions.
- Digital board and marks installation in major junctions and public spaces.
- Community interaction program of police with the local people.
- Tourist police to advise and assist tourist in safety and security during traveling, trekking and hotel stay.

S.No	Projects	Cost Estimation				Phase-Wise Development			Investment Sector					Remarks
		Unit	Quantity	Rate (In Lakhs)	Amount/ Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/INGOs	Private Sectors	Others/Comm nity	
<b>SOCIAL INFRASTRUCTURE DEVELOPMENT PLAN (6-10)</b>														
8.01	CCTV Camera and Street Lights	Number	50	50	2500				50%	50%	0%	0%	0%	
8.02	Security Facilities	Number	1	500	500				100%	0%	0%	0%	0%	
8.03	Helpdesks/ Tourist police- mobile	Number	1	100	100				100%	0%	0%	0%	0%	
8.04	Community Policing	Number	1	1000	1000				50%	50%	0%	0%	0%	
8.05	Traffic Management Plan	Number	1	5000	5000				100%	0%	0%	0%	0%	Lights and Traffic Instruments
8.06	Institutional Capacity of Security personnel (Citizen Friendly)	Number	1	4000	4000				50%	50%	0%	0%	0%	
Total					13100.00									

The total investment for making Burtibang safe and secure city is estimated to be around 13100 lakhs. Projects are CCTV camera and street lights, security facilities, helpdesks/tourist police, community policing, traffic management plan and building institutional capacity of security personnel. All the investment is done by the coordination of central and local government.

#### **6.2.4 Recreation**

Recreation is an essential part of human life and finds many different forms which are shaped naturally by individual interests but also by the surrounding social construction. Recreational activities can be communal or solitary, active or passive, outdoors or indoors, healthy or harmful, and useful for society or detrimental. It is important to allocate spaces for recreational activities. They may come in form of open space, semi open or closed depending on its type. The major concern in Burtibang is, there is lack of public open spaces owned by government. Due to the slope constraint, many parts of Burtibang can't be used for built environment. So these spaces can be developed as parks and open spaces for recreational activity. The recreational zones developed may be private or public and should be accessible to all. The recreational activity may differ from age groups. Keeping this in mind, different policies and strategies are adopted to fulfill the goal of "Recreational facilities and program for all".

##### **Objective (What to achieve):**

- Equitable access to different recreational spaces regardless of physical ability and financial resources.
- Promote skills in sports and extra curriculum activities from school level
- Different recreational activities for different age groups

##### **Strategies (How to achieve):**

- Construction of parks and open spaces in walking distance from each neighborhood.
- At least 5 % of total city area Neighborhood park (Playing equipment). At least 1 for each 800 populations.
- Local Park (.4 ha. per site), Community park (1 ha. per site), and Parade ground (2 ha. per site), for each 10,000; 20,000; and 1 lakh population respectively.
- Promoting private sector to invest in the entertainment industry like movies, theatre or other fun theme parks.
- Promotion of water related adventures and promotion of adventure tourism.
- Encouraging Hiking and recreation retreat for all the adventurous activity in the town.
- Promote sports and extra curriculum activities from school level
- Promotion of non-built up areas for parks and recreational zones

##### **Policy recommendations (Guiding Principle):**

- People friendly city planning with parks, opens spaces and roadside vegetation.
- Tourism activity as to promote national tourism and to attract people to do business in such.
- Encouraging private sector as well as government sector in investing in recreation activity.

##### **Strategic Projects:**

- Neighborhood parks and local parks construction with at least 5-10% of city occupied area.
- Roadside vegetation and seating area in pedestrian areas.
- Proper trekking route to Dorje ko Dhuri
- Construction of training center for some sports like- football, cricket and other indoor games.



## **6.2.5 Urban Social Infrastructures**

With the above-mentioned social infrastructures with health, education, security and recreation, there are still many urban amenities that are important for a city to run. Some of the common urban social infrastructures could be identified as library, religious institutions, museums, gallery, old age home and orphanage center for differently abled people, exhibition center and many more. These infrastructures are not only important to run the city as a whole but are also important aspect to make the city complete in its own. Some of the important strategic moves for these aspects are pointed below.

### **Objective (What to achieve):**

- A city with abundant urban social infrastructure as per the standards
- Ownership of such infrastructure by citizen of the town and sustainable financing mechanism of such infrastructure.

### **Strategies (How to achieve):**

- Involvement of private sector and community level in achieving such infrastructure.
- Construction of library in community level promoted by local government. Such library should be provided with all necessary stationary along with digital information sharing system for its advancement.
- Old age home, orphanage and differently abled people to be treated and cared by local government.
- Promotion of events and other activities through multipurpose convention hall.
- Provision of community parking bay at difficult terrain
- Provision of local vegetable markets

### **Policy recommendations (Guiding Principle):**

- Encouragement of public and community sector for the investment in urban social infrastructure. Management of such infrastructure should be from local government or should be owned by local citizens.
- Economically sustainable and viable infrastructures should be promoted. Annual management of such infrastructure should be handled under single authority or as per the existing bye-laws.
- All such infrastructures should be accessible to every citizen irrespective of their caste, gender and other socio-economic status.



### **6.3 Cultural and Tourism Development Plan**

Burtibang itself does not have its typical language, culture, tradition or festivals. People here are heterogeneous and celebrate their own festivals. Burtibang lies on the highway that links to Dhorpatan. Dhorpatan is renowned tourist spot of Nepal. Burtibang has already developed itself as the base station for Dhorpatan. After the construction and well maintenance of the linked road there is a chance that Burtibang will no more have the privilege as the base station. But with good facilities and promotion of Burtibang with the goal of Eco-residential tourism, Burtibang holds the capacity to develop itself as touristic spot.

With some basic area of focus there are some strategies identified for the longer terms, which are briefed as:

#### **Objective (What to achieve):**

- To promote Burtibang as touristic destination or stay town for touristic purpose
- To make Burtibang hub for resource center for agriculture, livestock and micro hydropower stations

#### **Strategies (How to achieve):**

- Easy accessibility/ connectivity with nearby touristic destination.
- Good facility for hotels, hostels or other sorts of accommodations.
- Trainings regarding homestay for hospitality and other tourism related activities.
- Making infrastructure related to tourism activities.
- Separate monitoring and evaluation mechanism for qualitative services to be provided to tourism sector.
- Tourist police to advise and assist tourist in safety and security during traveling, trekking, rock-climbing and other adventurous sports and hotel stay in any part of Burtibang.
- Promotion of livelihood program linking with tourism by commercialization of rural products and providing training to them as of such.
- Proper marketing of the tourism related activities.
- Safety and security provided to the tourist visiting the area.
- Investment in the tourism sector by private sectors.
- Establishment of live museums for micro-hydro and resource center for livestock and agriculture

## Policy recommendations (Guiding Principle):

- Promoting the town as the stay-town for tourists from nearby destination.
- Strong monitoring and evaluation body for the tourism activity in the town.
- Promotion and maintenance of micro hydropower as museums.

## Strategic Projects:

- Establishment and promotion of agricultural resource center at Purkot
- Establishment and promotion of areas around Ghosha as resource center for livestock
- Develop proper trekking trail to Dorje ko Dhuri
- Tourism information desk at the convenient location along with digital information boards.
- Maintenance of existing micro hydropower and develop some as live working museum.

S.No	Projects	Cost Estimation				Phase-Wise Development			Investment Sector					Remarks
		Unit	Quantity	Rate (In Lakhs)	Amount/ Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/INGOs	Private Sectors	Others/Comm nity	
11														
11.01	Cultural and Tourism Development Plan	Campaigning/Marketing of tourism scope	Number	1	5000	5000				0%	50%	0%	50%	0%
11.02		Cultural Musuem	Number	1	500	500				0%	50%	0%	50%	50%
11.03		Walking trail (Burtibang to Dorjeko Dhuri)	Number	1	500	500				0%	100%	0%	0%	0%
11.04		Upgrading link with Dhorpatan	Number	1	5000	5000				100%	0%	0%	0%	0%
11.05		Tourism Action Plan	Number	1	2000	2000				0%	80%	0%	0%	20%
11.06		Museum regarding Microhydro plants	Number	1	500	500				50%	50%	0%	0%	0%
		Total			13500.00									

The total investment for the promotion of cultural and tourism is 13500 lakh. The major project are campaigning and marketing of tourist scope, cultural museums, walking trail (Burtibang to Dorjeko Dhuri), upgrading link with Dhorpatan, Tourism action plan and museums regarding microhydro plants.

## 6.4 Economic Development Plan

The prime goal is to develop Burtibang as economically sustained sub region and economic center for nearby VDCs. Burtibang can be developed to promote the trade linkage with Pokhara, Palpa, Kathmandu and Baglung. Burtibang is the junction area of the three ways to Nisi, Bhujji and Dorpatan and therefore called as 'Tinkchowke Thau'. Primarily focusing on some commerce and industry, we have identified some of the major sectors that could boost the economy of the town and are presented with some strategic plans below.

### Objective (What to achieve):

- Promoting sustainable economic development along with equitable and just economic growth.
- Job opportunity for more than 20,000 populations.
- Abolition of absolute poverty
- Promotion in export based economy by increasing linkage with Nisi, Bhujji. And Dhorpatan

### Strategies (How to achieve):

- Establishing production based industries resulting in job opportunities and export based economy.
- Promoting small-scale industries and micro enterprises with some local level subsidies.
- Separate Land use zones for: Central Business District (CBD), Industrial zones, and other commercial zones.
- Promoting local goods and local industries.
- Promotion of high value crops in agriculture lands and commercialization of agriculture products.
- Promotion of Non-Timber Forest Product (NTFP), if available. Like herbs, shrubs and others.
- Promotion of tourism industry by subsidizing and investing in such sector.
- Promotion of agricultural and livestock by establishing resource centers in Purkot and areas around Ghosha respectively.
- Maintenance and promotion of micro hydropower and converting some to live museum to attract tourist
- Ease in banking and financing facilities.

It is well known that most of the economic activities are promoted by the private sector with facilitation provided by government sector. Government has major responsibility for making the environment, which could bring the investment in the town. Government should primarily focus on facilitating the investors and assuring the safety of their investment. In the meantime, being a service oriented government, it is responsibility to maintain the equity and justice in the market as well. It is very important to control the illegal market or monopoly in the market, which obviously

is to be guided by central government but needs to be monitored in local level as well. Hence, there are some policy recommendations, which could guide the economic development of the town.

### Policy recommendations (Guiding Principle):

- Subsidizing economically backward group and small enterprises.
- Subsidizing agriculture activity and NTFP.
- Investing on the tourism sector.
- Abolition of absolute poverty
- Strict implementation of bylaws regarding the zonings with punishments and awards.
- Promoting export based industries creating job opportunities for local people.

### Strategic Projects:

- Freight house for collection, storage and transfer of commercial products.
- Special economic zone for industrial and commercial activities.
- Vegetable market or collection center in each settlement.
- Agriculture and livestock resource center at Purkot and Ghosha respectively.
- Urban service center.

S.No	Projects	Cost Estimation				Phase-Wise Development			Investment Sector					Remarks	
		Unit	Quantity	Rate (In Lakhs)	Amount/Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government/NTP	Local Government	NGOs/INGOs	Private Sectors	Others/Community		
12															
12.01	Industrial Zone at Simalchaur	Number	1	10000	10000				100%	0%	0%	0%	0%		
12.02	Agriculture Zone at Purkot and Ghosha	Number	1	5000	5000				50%	50%	0%	0%	0%		
12.03	Freight House at Rinam Besi/Zero Kilo	Number	1	2000	2000				0%	50%	0%	50%	0%		
12.04	Markets center at Arnakot, Rinambesi, and other settlements	Number	5	50	250				0%	50%	0%	50%	0%		
12.05	Urban Market Center	Number	5	100	500				0%	50%	0%	50%	0%		
12.06	Promoting CBD	Number	1	1000	1000				0%	50%	0%	50%	0%		
12.07	Developing old market's infrastructures	Number	1	5000	5000				80%	20%	0%	0%	0%		
Total					23750.00										

The total investment for the economic development of the region is calculated to be 23750lakhs. Around 42% of total investment is done for the industrial zone which will be base for providing the employment to the people. Other projects are agricultural zone at Purkot and Ghosha, freight house at Rinam Besi/Zero kilo, market center at Arnakot, Rinambesi, promotion of CBD and developing old markets infrastructure. All the project should complete within the midterm duration, 5 years except for building market center at Arnakot, Rinambesi and others settlements.

## 6.5 Financial Plan

As the world continues to rapidly urbanize, investment in good urbanization holds the key to sustainability. Global challenges like combating poverty, reversing rising inequality, and mitigating climate change will be increasingly won or lost in cities. Financing sustainable urbanization is therefore an investment in our present and future. Local government capacity must be expanded to harness private sector participation, leverage local assets through value capture, and partner with central governments to invest in urbanization. Since financing for infrastructure is insufficient, the path to long-term finance is to diversify sources. One source is more private participation and expanding the territory of taxation for local government.

While quality urbanization demands huge investment, with the right planning and institutional support, it also finances itself. Cities need the ability to access an increasing share of national wealth and revenue, borrow, increase and utilize local revenues, leverage land values, and apply complex financial products.

The implementation of plans for compact, connected, mixed and integrated cities can be made possible by a three-legged approach that joins planning with legal and financial support. Therefore, finance supports good planning, and good planning supports finance through its economic benefits. By linking finance, planning, economic activity and value capture, a virtuous cycle of investment and growth can be created. Building future cities by linking good urban design, effective financing, and good institutions can create growth, jobs and wealth; where it also promises the solution to the challenges of climate change and social inequity in broader term. Well-planned urban finance and investment can unleash a broader base of economic activities, allowing a wider range of participation in the urban economy and stimulating bottom-up prosperity. With the goal of setting a sustainable and stable financial institution as in the form of local government or development institution, major objectives and strategies are identified as follows:

### **Objective (What to achieve):**

- Increase taxation base by broadening the territory of tax paying stakeholders
- Introduce innovative and effective measures of resource mobilization and asset management.
- Introduction of transparent and participatory model of financing.

### **Strategies (How to achieve):**

- Introduction of innovative land and property taxation with proper land reforms.
- Increasing territory of taxation by broadening the extent of taxation, for larger collection of tax.
- Collecting impact fee from big polluting industries and subsidize for non polluting industries, as means of cross subsidies.
- Provision of E-taxation in close collaboration with E-Governance
- Strict monitoring and implementation of financial plan to meet the target of city development.

- Initiation and promotion of private sector friendly economy.
- Encouraging public private partnership (PPP) modality of financing in larger infrastructure projects.

### Policy recommendations (Guiding Principle):

- Improved financial systems, like better budgeting and accounting system.
- Improvement of the planning capacity, resulting in the preparation of Municipal financial action plan for poverty alleviation and infrastructure development. Population needs to be consulted and involved in the formulation and execution stage of the project (Participatory planning and execution).
- Introduction of the financial sector infrastructure necessary to support financial market activities and improve outreach to the rural poor,
- Improved personnel management and human resource development cooperation with the program to achieve human resource development at municipal level.
- Improved cost recovery of services delivered.

### Strategic Projects:

- Development of human resources and specialized knowledge, with expertise intervention in local government.
- Mobilization of the domestic financial resources needed to meet the demands of a fast-growing economy.
- Awareness, preparedness, and close coordination among all key stakeholders
- Effectively implementing of new regulations intended to improve data quality, transparency, corporate governance, business ethics, market disclosures, and achieve fair competition across the financial sector;
- Integration of E-Financing as the tool of good governance.

S.No	Projects	Cost Estimation				Phase-Wise Development			Investment Sector					Remarks		
		Unit	Quantity	Rate (In Lakhs)	Amount/ Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/INGOs	Private Sectors	Others/Community			
13	Financial Development Plan	Financial Action Plan	Number	1	1000	1000										
13.01		Capacity Building	Number	1	1000	1000				80%	20%	0%	0%	0%		
13.02		E-financing	Number	1	5000	5000				20%	50%	30%	0%	0%		
13.03		Strict Implementation Strategy	Number	1	3000	3000				50%	50%	0%	0%	0%		
13.04										0%	100%	0%	0%	0%		
13.05																
						Total										

The total investment for the financial development of Burtibang is calculated 10000lakhs. The major projects are financial action plan (1000lakhs), capacity building (1000lakhs), E-financing (5000lakhs) and strict implementation strategy (3000lakhs).

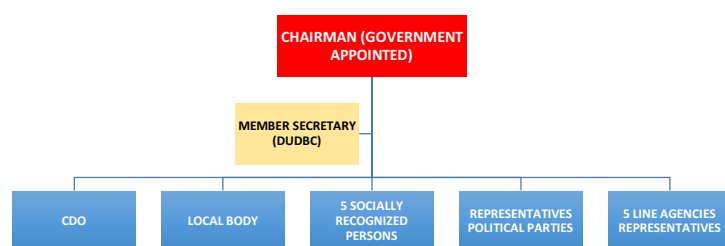
## 6.6 Institutional Development Plan

A good plan is only half work done but to execute any good plan, we need good institutional mechanism that could help to execute the project. Institutional development plan comprises of making strong institutional mechanism for the implementation, monitoring and evaluation of the project. With the goal of strengthening the existing institutional structure, upgrading the weak ones and formation of strong autonomous body, institutional plan aims to strengthen the institutional capacity of different government and non-government bodies for efficient mobilization of resources. After the decentralization act, “Local Self Governance Act-1999”, legal provisions have been provided to municipality to act in autonomous manner. Two tier of governance, (Central and Local) was considered during LSGA, which is subject to change in its principle after the effective implementation of federal character of nation. It is important to consider that nothing much of the institutional features have been discussed in public forum regarding the decentralization. Especially, devolution of authority, power and responsibility is never enough until the devolution of resources are done, which has been proved repeatedly. Some of major practices in the field of autonomous instructions in case of Nepal has been Authority, Council and Committee, which are from the decision of Council of ministers. As autonomous, they seem, in most of the cases they lack the resources if not technical input in the body.



With some examples like Kathmandu Valley Development Authority (KVDA) and other development councils formed for specific thematic programs, we could have some special planning and implementation agency in the form of TDC with technical support from DUDBC.

With two of the major local planning implementing agencies: VDC (Burtibang VDC) and Town development committee (Burtibang TDC), there is always conflict in implementation of bigger project. The case is more complicated when the institutions are not equipped with the resources and are unable to execute the plan of billion rupees. It is also important for the institution to have



its own resources (Human resources and physical resources) to execute the plans. With the present modality of TDC to be appointed by cabinet including some government officials and political leaders is very inefficient and ineffective to implement the technical project of such huge budget and ambition.

Figure 70 Formation of TDC (Existing Model)

With some major inefficiency of TDC and municipality like some pointed below:

- Excessive political influence

- Weak institutional capacity
  - *Technical human resources*
  - *Financial resources*
  - *Physical resources*
- Limited to physical development plan, i.e. Land management (for TDC) Excluded: social, environmental and economic concerns of city

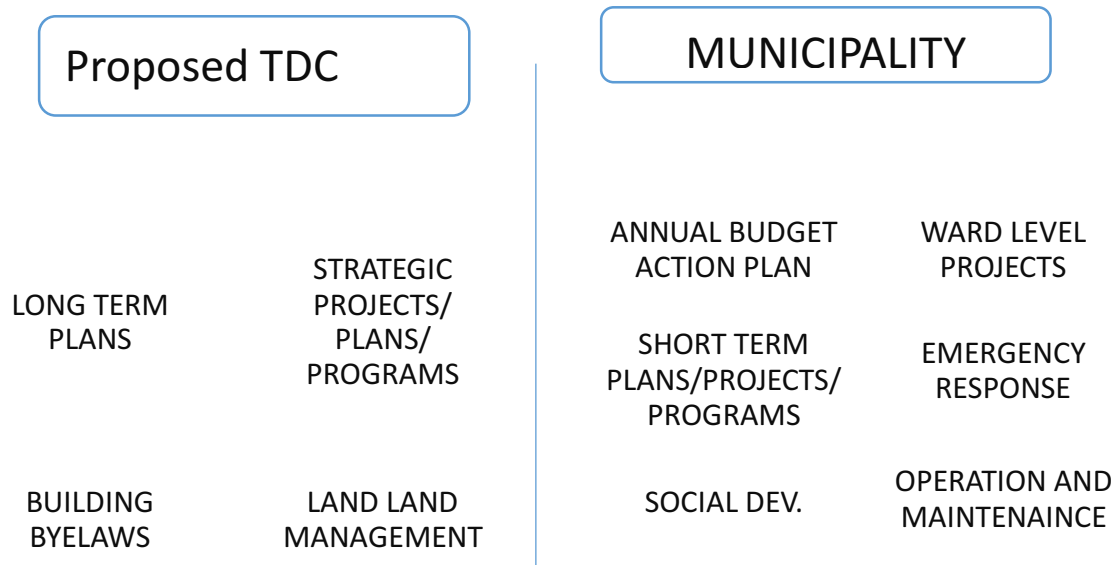
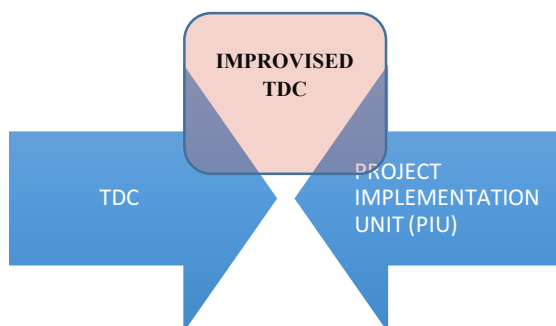


Figure 71 Distribution of task amongst 2 institution

With two institutions led by political leader: one locally elected (Considering case of local election) and appointed by central government, there is some chance of misunderstanding in planning implementation, as there is no clear territory in their work jurisdictions. Municipality being more resourceful than TDC seems to be more dominant but TDC must be strengthened to improve its institutional capacity and execute long term goals. Below is the proposed work jurisdiction amongst two institutions in future, where if there are still some grey areas, they need to be addressed keeping intentions for greater good of the city.



As the existing legal provision of TDC is very complicated to change in the quick time period, it is proposed to have best option in the form of improvised TDC where as TDC will be backed up by the team of technical experts provided by DUDBC through its district unit or from central department. Such team of technical experts should be given high position in the whole planning process where it could be termed as the project implementation unit (or any acceptable terms) comprising of all necessary resources. While in

the formation of TDC, it is also necessary to incorporate the involvement of private sectors which could be represented through FNCCI, which missing in existing Town Development Act.

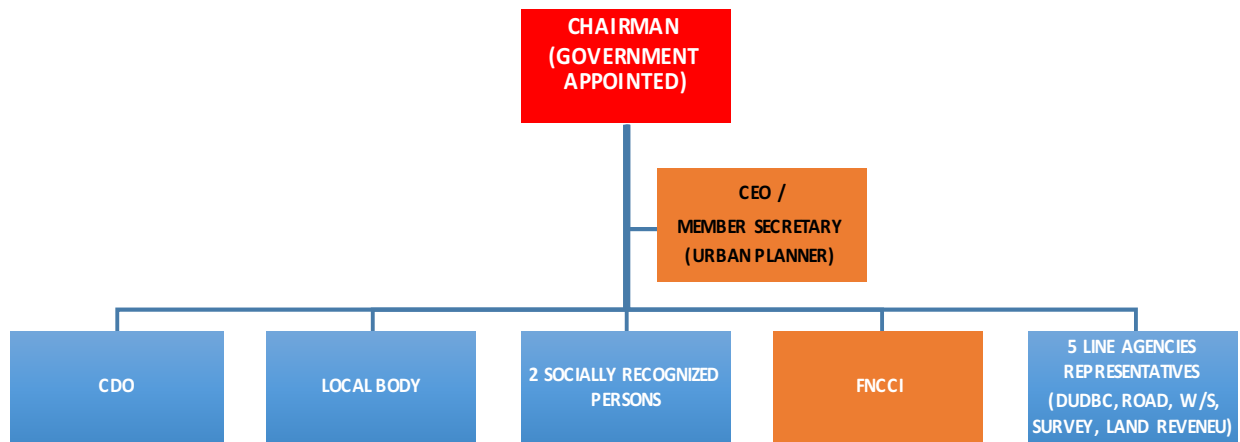


Figure 73 Revised TDC

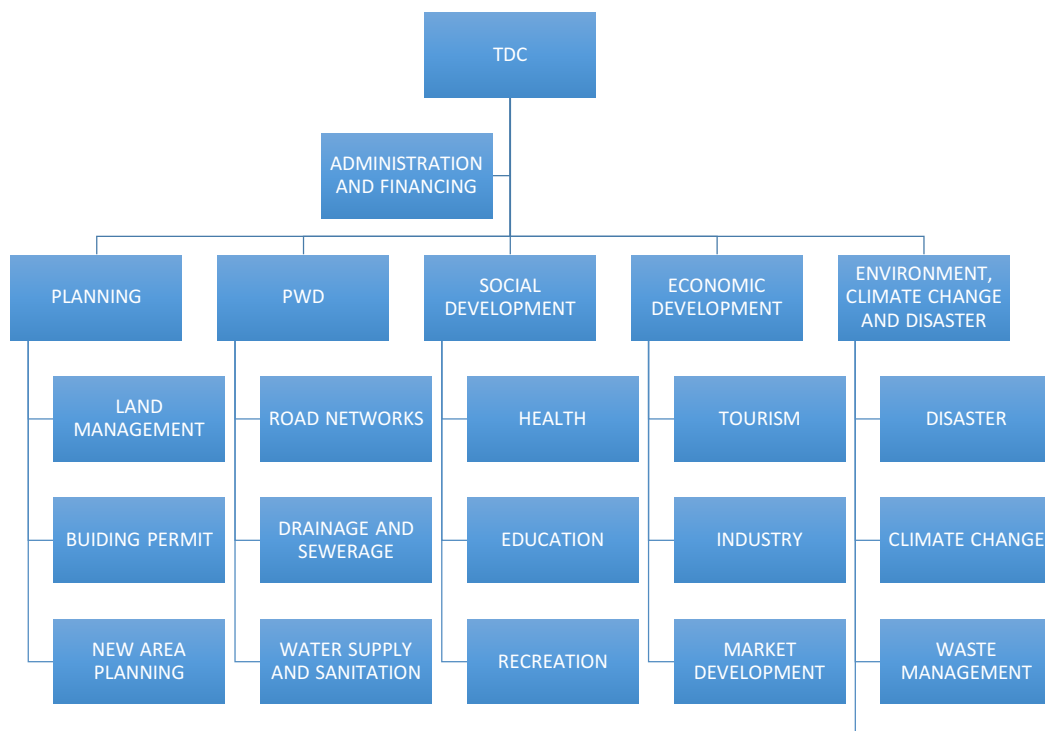


Figure 73 Improved TDC (Extending Territory of TDC)

Apart from this, there are some basic strategies, which could strengthen the existing structure of TDC and municipality as well.

**Objective (What to achieve):**

- Good governance (Accountable, Responsible, transparent and efficient local government)
- Integrated governing bodies
- E-Governance
- Close monitoring and collaboration with all actors involved. (Private, Non-Governmental and Governmental organizations)

**Strategies (How to achieve):**

- Strong implementation and effective execution of comprehensive planning documents.
- Increasing performance and capacity building of the government employees with regular trainings and exchange of knowledge within the department
- Devolution of resources along with the authority
- Separate authority for monitoring and evaluation of government activities for quality and timely completion.
- Integrated service through single window system: Formation of integrated service center (City Center) could be interesting steps towards it. The integrated service center could be elaborated with further detailed institutional plan, but it needs to have one single data entry system which would ease the costumer for any government service rather than running for every single department for single task.

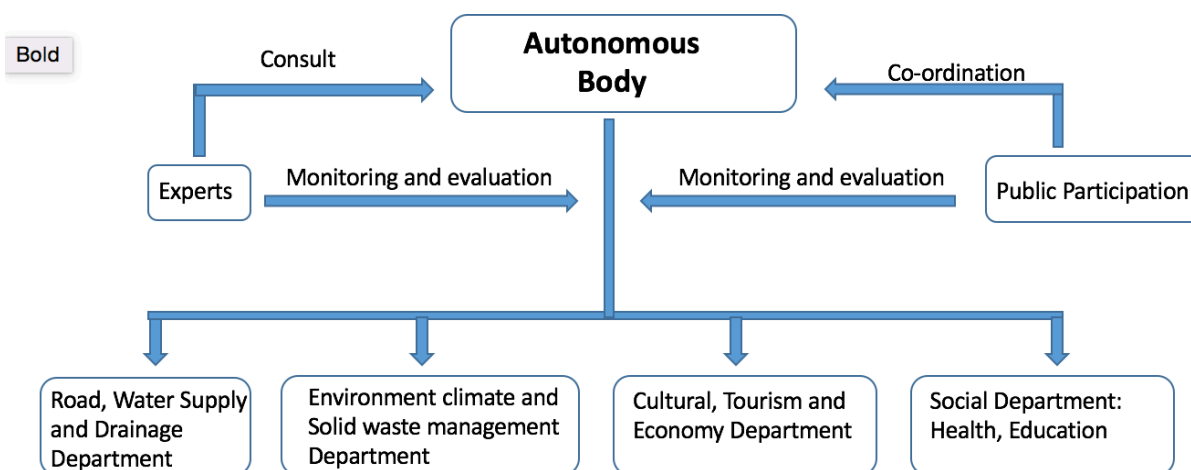


Figure 74 Participatory and Expertise model of TDC



## 6.7 Environment Management Plan

One of the major evolving topic of new urban planning is environment management plan. With reference to Ebenezer Howard's Garden city concept of 3 Magnets, all citizen want is greenery and beauty of rural setting and facilities of urban areas. Burtibang is situated at the bank of Badighat river. Burtibang settlement is surrounded by green forest and agriculture terrains all around. Most of the land is gradient and respecting the contours, organic development is focused. Without compromising the serene green environment, urban area is developed. Ghosha area is rich in iron and copper ore. Special care should be taken while extracting the ores. Detail assessment of EIA and IAA should be done during the process of extraction. With the goal of environment friendly city planning, Burtibang has set some basic green and sustainable planning features. Some of them are drafted as below.

### Objective (What to achieve):

- Environment friendly and sustainable development trends.
- Low carbon emission and preventing ecological footprints.
- Protect water, land, forest and air from possible pollutions and destructions.
- Green and healthy city environment.

### Strategies (How to achieve):

- Provision of EIA and IAA for bigger influencing project with third party evaluation criteria.
- Strict laws or bylaws for protection of water bodies and forest areas.
- Promotion of 3R concept in Solid waste management and segregation of organic and non-organic waste at HH level.
- Promotion of environment friendly materials to use in households and in commercial purpose.
- Provision of treatment of wastewater/ waste product from industries or hospitals.
- Promotion of electric or low carbon emission vehicles.
- Preservation of agriculture land and clear delineation of conservation zone for natural resources.
- Roadside plantation.
- Identification of green pockets within the different areas of town.
- Formation of artificial water bodies to address the microclimate and manage rainwater.
- Cycle friendly and pedestrian friendly mobility plan
- Separate industrial zone and buffer zone identified from water bodies.

### Policy recommendations (Guiding Principle):

- Effective implementation of land use plan.
- Strict bye-laws for protection of water resources, agriculture lands and forest areas
- Developing city with roadside plantation, green parks and water bodies.
- Reduction of carbon footprints and increase in green pockets within the city.

- Subsidies in electric vehicles and bicycle.

### Strategic Projects/ Programs:

- Roadside vegetation
- Urban Parks and water bodies
- Campaign regarding environmental protection
- Environment conservation action plan

S.No	Projects	Cost Estimation				Phase-Wise Development			Investment Sector					Remarks
		Unit	Quantity	Rate (In Lakhs)	Amount/ Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/INGOs	Private Sectors	Others/Comm nity	
15														
15.01	Plantation	Number	1	1000	1000									
15.02	Subsidies in Electric Vehicles	Number	1	1000	1000				50%	50%	0%	0%	0%	
15.03	Awareness Campaign	Number	1	1000	1000				0%	50%	0%	0%	50%	
15.04	Resource Conservations	Number	1	5000	5000				50%	25%	25%	0%	0%	
15.05	Urban Parks	Number	1	5000	5000				50%	50%	0%	0%	0%	
15.06	Water Bodies	Number	1	2000	2000				0%	50%	0%	0%	50%	
					15000.00									

The total investment on the environment sector is 15000lakhs. The major projects are plantation, subsidizing electrical vehicles, water bodies preservation, awareness campaign, resource conservation and urban parks.

## 6.8 Disaster Risk Management Plan

With basic guidelines and strategies secured in National Strategy for Disaster Risk Management (NSDRM), DRM plan focuses on institutional capacity to strengthen regarding Disaster risk and promote participatory resilience of disaster risk management. With 5 priority actions from institutional mechanism, identifying and assessment of risks, knowledge building regarding disaster, reducing risk factors and enhance preparedness of risk factor, NSDRM highlights all the strategy that could be done in national level and local level to strengthen the capacity building of local people against disaster. The disaster management plan is guided by national strategy but it is important for local government for implementation while coordinating other different stakeholders like: Civil society, including NGOs, volunteer groups, the academia and private sector; the UN system; and other external development partners. Burtibang area has slope land. The care has been taken during the process of policy making for development. The area greater than 30 degree has been classified as land not suitable for construction. The roads are developed as per the contour. With basic goal of disaster resilient Burtibang City, there are some of the basic strategies identified, which are briefly mentioned below.

### Objective (What to achieve):

- Enhance preparedness and adaptive capacity of local government, community and local groups.
- Participatory approach of disaster risk reduction.
- Disaster responsive urban design features.
- Implementation of disaster resilient building bye-laws.

### Strategies (How to achieve):

- Preparation of Risk Sensitive Land Use Plan (RSLUP) and strict implementation.
- Implementation of bye-laws and building codes.
- Enhance human resource and institutional capacity of local government by regular trainings and safety drills.
- Participatory approach in community level and local level for disaster risk management program.
- Regular awareness campaign regarding pre-disaster and post-disaster events.
- Identification of high-risk areas with hazard mapping and resettlement of such, if necessary.
- Identification and delineation of disaster evacuation zone.
- No built up development in land which is greater than 30 degree.

### Policy recommendations (Guiding Principle):

- Effective implementation of RSLUP
- Effective implementation of building byelaws and building codes.
- Awareness regarding the pre and post disaster management by incorporating in the daily newspapers, academics (curriculum), or any other means of interaction methods.
- Policy Guiding documents:
  - Local Disaster Risk Management Planning Guideline-LDRMP, 2068

- National Strategy for Disaster Risk Management in Nepal, 2008

### Strategic Projects/Programs:

- Fire stations within the 5-7 km radius of the city or 1 fire engine for 50000 population.
- Evacuation Zone located at every community with the escapable distance.
- Awareness campaign regarding the pre and post disaster incidents.
- No development in landslide prone area.

S.No	Projects	Cost Estimation			Phase-Wise Development			Investment Sector					Remarks	
		Unit	Quantity	Rate (In Lakhs)	Amount/ Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/INGOs	Private Sectors		Others/Comm nity
16														
16.01	Disaster Risk Reduction Plan	RSLUP Preparation and Implementation	Number	1	2000	2000				50%	50%	0%	0%	0%
16.02		Disaster Response team	Number	1	2000	2000				0%	50%	0%	0%	50%
16.03		Awareness and Training	Number	1	2000	2000				50%	50%	0%	0%	0%
16.04		Strict Building Code Implementation	Number	1	1000	1000				0%	100%	0%	0%	0%
16.05		Capacity Building	Number	1	2000	2000				0%	50%	25%	0%	25%
16.06		Fire Station at Shera	Number	1	2000	2000				50%	50%	0%	0%	0%
16.07		Disaster Evacuation Zone	Number	1	2000	2000				50%	50%	0%	0%	0%
				Total		13000.00								

For the disaster risk reduction of Burtibang, the total allocated budget is 13000lakhs. The projects are RSLUP (2000lakhs), disaster response team (2000lakhs), Awareness and training (2000lakhs), building code implementation (1000lakhs), capacity building (2000lakhs), fire stations (2000lakhs) and identification and establishment of disaster evacuation zone (2000lakhs).

## 6.9 Climate Change Adaptation Plan

The global climate is changing and the impacts of this change are being felt across the world, and it's challenging for the country like Nepal, which holds the Himalayan regions, and depends on it for water sources. Significantly, climate change is the national issue, but it could be addressed with the local actions as well. Conservation of agriculture land and forest land, protection of water resources could overall summarize for climate responsive action. There are some of the adverse effect of global climate change in local level as well; some of them are change in temperature, flash floods, climatic change and many more. Adaptation plan to climate change also responds to such changes in global level and tries to cope with the changes in local level.

Burtibang, like other new cities comprises of population less than 10000. With the infrastructure existing, there is not any threat regarding climate change adaptation. Especially in case of settlement in high terrain, it is quite possible that prolonged raining could cause the land to slide. Since, not any cases of such are recorded, we simply can't make the predictions without detail analysis of the geographical status. It is important to address the vulnerability of the settlement. Since the climate change issues is not an isolated event rather involves different cross-cutting issues, it is well addressed in case of disaster risk management and environmental management plan. Broadly in case of climate changes, some strategies identified in the strategic level which are briefly penned down below:

### **Objective (What to achieve):**

- Creating resiliency and reducing the carbon footprint of urban development
- To conserve and enhance the health of natural systems (including climate) and areas of environmental significance.

### **Strategies (How to achieve):**

- Promoting community based participation in protection of forest, agriculture land and water bodies, learning case of community forest management.
- Identification of green parks, if not, delineation of green pockets as the lungs to the city.
- Pedestrian friendly city planning and designing of road network addressing the difficult terrain of the site.
- Provision of environmental friendly building material in building construction.
- Climate responsive urban design
  - Pervious Pavement (Pervious asphalt, Pervious concrete, open-celled pavers, etc.)
  - Urban forestry
  - Bio-swale/ Vegetated swale
- Strong implementation of environment protection laws: especially regarding boring of water, encroachment of urban open spaces, water bodies and others.
- Implementation of sustainable building design guidelines, restricting in high steep slope and flood prone zone.
- Preservation of terrain land with proper plantation strategy.

- Gender sensitive and culturally appropriate labour saving green technologies, water harvesting, storage, irrigation systems should be ensured, to address the issues of water scarcity.
- Identification of safer evacuation site in case of vulnerable area.

### Policy recommendations (Guiding Principle):

- Strong implementation of environment protection laws and building bye-laws.
- Awareness regarding the impact of climate change in longer run.
- Promoting ground water recharge system and conservation of urban forestry.
- Land use zoning in response to climate change impact and restricting settlement for steep slope more than 30 degrees.
- Restricting settlement near the Badighat river or any other flood prone zone.

### Strategic Projects:

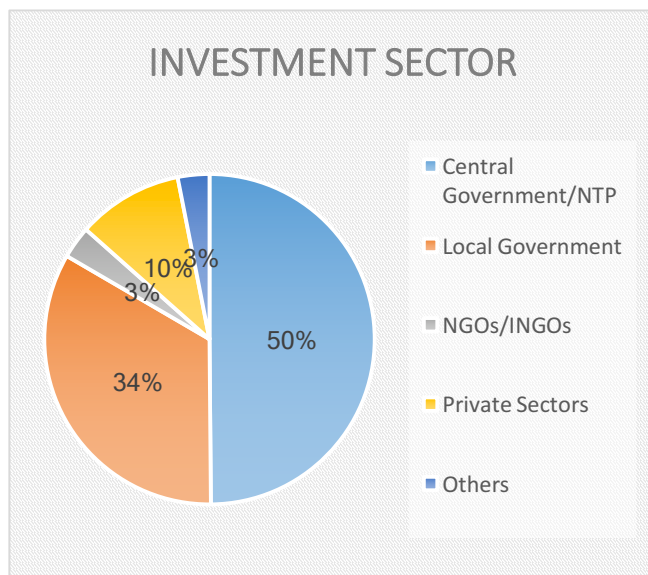
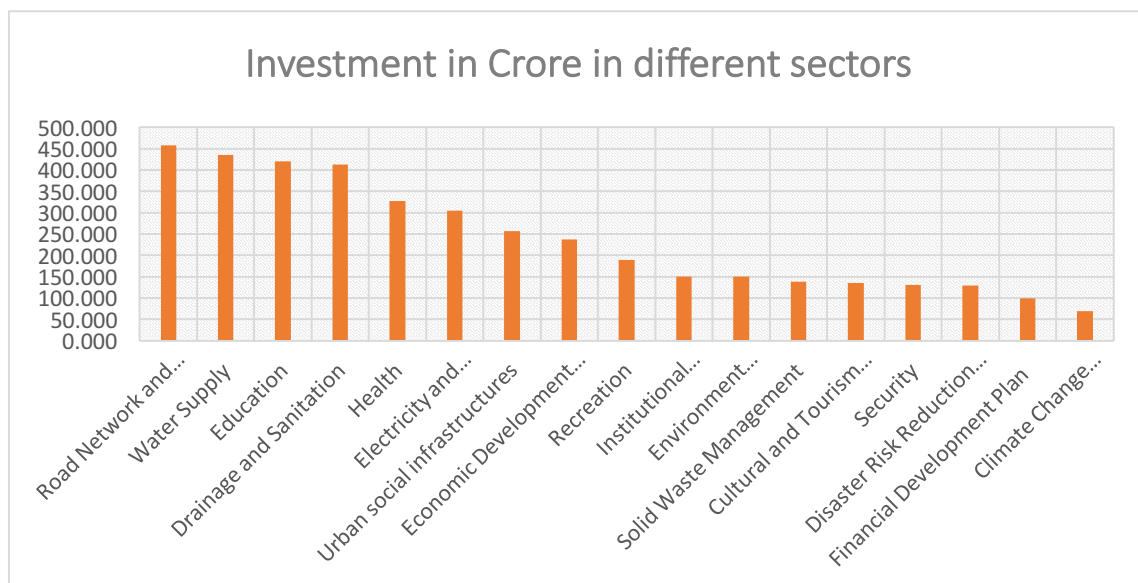
- Construction of parks
- Plantation of road side vegetation and trees.
- EIA and IAA before implementation of big projects
- Proper design and implementation of safe drainage and water-supply system of the city.

S.No	Projects	Cost Estimation			Phase-Wise Development			Investment Sector					Remarks	
		Unit	Quantity	Rate (In Lakhs)	Amount/ Budget (In Lakhs)	Short Term (0-3 Years)	Mid Term (3-5 Years)	Long Term (5-20Years)	Central Government /NTP	Local Government	NGOs/INGOs	Private Sectors		Others/Comm nity
17	Climate Change Adaptation Plan	Awareness and Training	Number	1	1000	1000				25%	50%	25%	0%	0%
17.01		Plantation and Conservation of resources	Number	1	1000	1000				50%	25%	25%	0%	0%
17.02		Pervious Pavement	Number	1	2000	2000				25%	75%	0%	0%	0%
17.03		Promoting Building friendly technology and materials	Number	1	2000	2000				0%	100%	0%	0%	0%
17.04		Strengthening and Implementation of Environment Protection law	Number	1	1000	1000				50%	50%	0%	0%	0%
17.05														
		Total			7000.00									

For the climate change adaptation, the total allocated budget is 70000lakhs. The project involves awareness and training (1000lakhs), Plantation and conservation of resources (1000lakhs), pervious pavement (2000lakhs), promotion of building friendly technology and materials (2000lakhs) and strengthening and implementation of protection law implementation (1000lakhs).

## 6.10 Multi-sector Investment Plan (MSIP):

As we've already discussed in earlier sections of financial plan and economic development plan, a city development of 20-year plan with ambition of one lakh population needs lots of investment. As these investments could be in the form of annual budget, loans, grants/aid or some international projects. With model of public private partnership modality of infrastructural investment, it is also expected to have investment of private sector in city infrastructure projects. Apart from security and major strategic roads, in most of the sector we can expect the investment from private sectors and from other donor agencies. We have to understand that all these budget should be funneled down through the single channel of local project implementation body, which could be TDC or any other new autonomous body. For this projects are identified under different sections, which could be new construction, upgrading existing scenario or upgrading the existing quality or capacity. With some standard rate of similar contemporary projects, under different headings, cost estimation is allocated. As we know that these development plans have target period of 20 years, we've divide into 3 major milestones, short term, mid term and long term projects. Depending upon the priority of the project and possible budget required, different projects are put under different time frame. Some longer term projects may fall under different time period and some of the projects are continuous process through out the development, like: training and updating the institutional capacity.



With total estimated budget of around 4046 crores for 20 years' plan, around 50 percent is expected to be spent from central government with different department sections along with new town development office. Around 34 percent of the total budget is to be spent from the local government over the range of 20 years. Remaining investments are to be expected from private

sectors followed by NGO/INGOs and other community sectors. It is expected that around more than 200 crores are to be spent every year where in earlier year more investment is to be done in short term goals (0-3 years) where in longer goal are to be spent on improving quality and standards of the town.

Highest investment is done under infrastructures like road and sanitations and others. Apart from the road, health and education are the most prioritized sector under social development plan to increase the dependency of the town within VDC and between the cities. In yearly basis, budget will be spent on training and awareness campaigns on various issues on longer term. It is also important to consider that large amount of investment are put under the recreation, where as that will be spent on buying chunk of lands on urban areas, as the city is already grown or cost is very high. Good investment is allocated on improving the institutional capacity of the different service oriented institutions in the form of institutional development plan, financial plan or in terms of security as well by making citizen friendly city. Large investment is expected from private sectors as well, especially in the field of housing, job opportunities, entertainments, recreations and others. Private sectors are obvious to focus on profit oriented investment such as in industries, economic field along with some well-known field like education and health. In the field of solid waste management, disaster risk mitigation plan, environment conservation plan or in the field of climate change, non-governmental organizations are expected to be in good part. Such national and international organizations will help to improve the institutional capacity as well as promote the awareness regarding the topic. Finally, it is expected that more participatory model of investment is promoted which not only eases the investment burden of central government but also helps to build the ownership among the resident of that city.

Basic summary of the MSIP is shown below:

S. NO.	SUBJECT	TOTAL BUDGET (in Lakh)	Phase-Wise Development			INVESTMENT SECTOR					Remarks
			(0-3 YEARS)	(3-5 YEARS)	(5-20 YEARS)	Central Government/NTP	Local Government	NGOs/INGOs	Private Sectors	Others	
1	<b>PHYSICAL INFRASTRUCTURE DEVELOPMENT PLAN</b>										1749 13.1 9
1. A	Road Network and Transportation Plan	4581 3.19	20%	20%	60%	53.00%	25.00%	0.00%	22.00%	0.00%	
1. B	Water Supply	4350 0.00	20%	20%	60%	44.83%	33.38%	2.57%	9.89%	3.59%	
1. C	Drainage and Sanitation	4130 0.00	20%	20%	60%	49.27%	41.65%	0.36%	8.72%	0.00%	
1. D	Solid Waste Management	1390 0.00	30%	30%	40%	20.86%	46.76%	23.38%	8.99%	0.00%	
1. E	Electricity and Communications	3040 0.00	40%	60%	20%	65.95%	18.68%	0.82%	14.47%	0.07%	

2	<b>SOCIAL INFRASTRUCTURE DEVELOPMENT PLAN</b>										1325 00.0 0
2. A	Education	4200 0.00	20%	30%	50%	64.29%	20.24 %	9.52%	5.9 5%	0.0 0%	
2. B	Health	3270 0.00	20%	30%	50%	60.24%	29.05 %	3.06%	7.6 5%	0.0 0%	
2. C	Security	1310 0.00	30%	40%	30%	71.37%	28.63 %	0.00%	0.0 0%	0.0 0%	
2. D	Recreation	1900 0.00	20%	30%	50%	0.00%	34.21 %	2.63%	44. 74 %	18. 42 %	
2. E	Urban social infrastructures	2570 0.00	20%	20%	60%	48.64%	44.36 %	1.17%	0.7 8%	5.0 6%	
3	Cultural and Tourism Development Plan	1350 0.00	20%	30%	50%	38.89%	37.78 %	0.00%	18. 52 %	4.8 1%	
4	Economic Development Plan	2375 0.00	30%	30%	40%	69.47%	22.63 %	0.00%	7.8 9%	0.0 0%	
5	Financial Development Plan	1000 0.00	40%	30%	30%	35.00%	62.00 %	3.00%	0.0 0%	0.0 0%	
6	Institutional Development Plan	1500 0.00	40%	40%	20%	72.67%	24.67 %	2.67%	0.0 0%	0.0 0%	
7	Environment Management Plan	1500 0.00	30%	30%	40%	23.33%	48.33 %	1.67%	0.0 0%	26. 67 %	
8	Disaster Risk Reduction Plan	1300 0.00	40%	30%	30%	30.77%	53.85 %	3.85%	0.0 0%	11. 54 %	
9	Climate Change Adaptation Plan	7000 .00	40%	30%	30%	25.00%	67.86 %	7.14%	0.0 0%	0.0 0%	
						201789. 4039	13569 8.782 4	12770	418 75	125 30	4046 63.1 9
	Total	4046 63.1 9				49.87%	33.53 %	3.16%	10. 35 %	3.1 0%	100. 00%

## 7 CONCLUSION

With more than 4000 crore investment for two decades, it is expected that new institutional set up of Burtibang will be able to invest in different sectorial plans and strategic projects. It is obvious that with the growing infrastructure features in the area, private sectors will come and change the dynamics of investment. As comprehensive as possible, this report tends to cover different nooks and corner of the development aspects, but it is quite possible that new scope of development or other aspects are missing. The basic idea of this document is to present the long term strategic guidelines of the development and identifying the important plans and programs in different sectors. The report strictly the guides the development of site in consideration of new development guidelines like in consideration of disaster risk reduction and climate change. The document also comprises the institutional aspect of the implementation of the project, but with the changing

institutional set up and new local government in authority, new approach of implementation strategy is to be adopted. It is necessary to comprehend that the investment mentioned in this document are present in the status quo situation which is very exposed to the real-time market and governance, hence those numbers or distribution may vary as per the changing scenario. The major target of this document is to give the strategic guidelines for the development of the Burtibang Town as the home for more than 50 thousand people along the mid hill highway. Hence it is very important to consider the planning principles and guiding strategies as the important lead in the development process. Aspects of environment friendly urban design and people centric planning should be the key of the implementation. It is equally challenging to implement the whole project with existing legal frameworks; hence the implementation body should also proceed towards simplifying the implementation process. With the existing challenges and guidelines/ strategies forwarded in this report, it is very much comprehensible to achieve the long-term vision and goal of making sustainable Burtibang town focusing on tourism, education and service sector.

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