Government of Nepal
Ministry of Urban Development
Department of Urban Development and Building Construction
Regional Urban Development Project (RUDP)
Project Coordination Office
Babarmahal, Kathmandu

FINAL REPORT

LONG TERM URBAN DEVELOPMENT PLAN (2022-2043)
Of

Shuklaphanta Municipality,
Kanchanpur

Sudurpashchim Province (P-7)

Regional Urban Development Project (RUDP)

November 2022

Prepared By

BUILDING DESIGN AUTHORITY (P) LTD.
ITECO Nepal (P) Ltd, Soil Test (P) Ltd and Udaya Consultancy (P) Ltd
P.O.Box 2882, Kamaladi, Kathmandu, Nepal
Telephone Nos. 4227393, 4248200, 4247939
Fax: 977-01-4223536, email: bda@info.com.np

Final Urban Development Plan (Shuklaphanta Municipality, Kanchanpur)

This Final Urban Development Plan of Shuklaphanta Municipality mainly consists of

(a) REGIONAL PLANNING CONTEXT FOR SHUKLAPHANTA MUNICIPALITY
(b) Situation Analysis
(c) Development Planning Framework
(d) Physical Development Plan proposals
(e) Multi-Sector Investment Program
(f) Plan Implementation, monitoring proposals and recommendations.

Project Name:	**Regional Urban Development Project (RUDP)** **Province-7 Project Municipalities**
Component	**Urban Planning**
Project Number:	**RUDP-DSC 1**
Report for:	**R-PIU,** **Dhangadhi and** **Project Coordination Office (PCO) ,** **Babarmahal, Kathmandu**

PREPARATION, REVIEW AND AUTHORIZATION #

(A) Draft Report

Revision #	Date	Prepared by	Reviewed by	Approved for Issue by
1.	17th April 2018	Mr. Narayan Prasad Khanal Mr. Indra Kumar Paudyal	Mr. Indra Kumar Paudyal	Mr. Indra Kumar Paudyal

(B) Draft Final Report

Revision #	Date	Prepared by	Reviewed by	Approved for Issue by
1.	13th June 2021	Mr. Prakash Bahadur Raghubanshi Mr. Anatta Shresthacharya	Er. Giresh Chand	Er. Giresh Chand

(C) Final Report

Revision #	Date	Prepared by	Reviewed by	Approved for Issue by
1.	3rd November 2022	Mr. Prakash Bahadur Raghubanshi Mr. Anatta Shresthacharya	Er. Giresh Chand	Er. Giresh Chand

COMPANY DETAILS

Building Design Authority Pvt. Ltd in joint venture with ITECO Nepal, Soil Test and Udaya Consultancy P. Ltd., Kamaladi, Kathmandu, Nepal				
Tel:	+977 014248200			
Email:	bda@info.com.np			

Name list of professional staffs involved in preparation of this report.

(A) During Draft Report

S.N	Expert /Position	Name of Experts	Signature
1	Team Leader	Mr. Indra Kumar Poudyal	
2	Urban Planners	Mr. Narayan Prasad Khanal	

(B) During Draft Final Report

S.N	Expert /Position	Name of Experts	Signature
1	Team Leader	Er. Giresh Chand	
2	Urban Planner	Mr. Prakash Bahadur Raghubanshi Mr. Anatta Shresthacharya	

(C) During Final Report

S.N	Expert /Position	Name of Experts	Signature
1	Team Leader	Er. Giresh Chand	
2	Urban Planner	Mr. Prakash Bahadur Raghubanshi Mr. Anatta Shresthacharya	

ACKNOWLEDGEMENT

We, Building Design Authority Pvt. Ltd. In JV with ITECO Nepal, Soil Test (Pvt) Ltd and Udaya Consultancy (P.) Ltd express our sincere thanks to Honorable Mayor of Shuklaphanta Municipality, Kanchanpur, Mr. Rana Bahadur Mahara and Deputy Mayor Mrs. Kalpana Joshi Panta for providing their valuable guidance and sparing times in spite of his busy schedule. We also like to extent our cordial thanks to former Mayor Mr. Dil Bahadur Ayer and former Deputy Mayor, Mrs. Tulasi Devi Hamal for sparing times, taking interest and providing various valuable suggestions while visiting and discussing about the projects.

We also like to express our sincere thanks to the Project Coordination Office, RUDP/DUDBC/MoUD/GON and ADB for entrusting us to carry out Feasibility Study, Detailed Engineering Design; Construction Supervision of Province -7 Project Municipalities of this project. We would also like to thank Mr. Surendra Mohan Shrestha, Project Director for his kind help in providing valuable guidance and information. We further like to express our sincere thanks to Mr. Ganga Prasad Yadav and Mr. Chandra Kaji Gurung, Deputy Project Directors, RUDP for their valuable suggestions and co - operations. We are also indebted Project Manager and Deputy Project Manager, Regional – Project Implementation Unit (R-PIU), Dhangadhi for their valuable suggestions and co-operations in connection to the field visits and preparing this report.

We should extend our special thanks to Mr. Ravi Shah Team Leader Project Management Consultant (PMC) for his kind suggestion and precious cooperation. We also would like to extend our thanks to Umesh B. Malla, Strategic Urban Planner for his valuable inputs to Shuklaphanta Long Term Urban Development Plan (Final Report). We are also indebted to Engineers and other staffs of R- PIU for their great cooperation during field studies.

Er. Giresh Chand

Team Leader/ Associate Director, BDA
DSC - RUDP (P7)

EXECUTIVE SUMMARY

Chapter 1: Introduction

The Long Term Urban Development Plan (LTUDP) of the Shuklaphanta Municipality is a part of the Regional Urban Development Project (RUDP), executed by the DUDBC/MoUD/GoN with assistance from Asian Development Bank (ADB), which aims to develop urban infrastructure and to strengthen urban sector institutions in four municipalities of Sudurpaschim Pradesh (P7) along Dhangadhi - Bheemdatta Growth Corridor.

The LTUDP is prepared with the main objective of guiding the municipality's urban growth and to execute development plans/programs over the next twenty years period (2043 AD). The specific objectives of the Shuklaphanta LTUDP are:

- To complement sub-regional development vision (Dhangadhi- Bheemdatta Growth Corridor) using the concept development plan of Shuklaphanta developed under the PPTA Study Proposals on the basis of extensive discussion with stakeholders;
- To set out the long term Vision, Goals, Objectives and Strategies, Plans and Programs, funding requirements and institutional roles and responsibilities for Shuklaphanta Municipality.
- To come up with the institutional mechanism for the plan implementation.

The scope of the work for LTUDP of Shuklaphanta Municipality is outlined below:

I. Preparation of Base maps
II. Preparation of Risk Sensitive Land Use Plan (RSLUP)
III. Preparation of Long Term Urban Development Plan (LTUDP)

The planning process adopted for the preparation of LTUDP is being conceptualized as consisting of the following steps/ phases.

I. Survey & Assessments leading to the town profile;

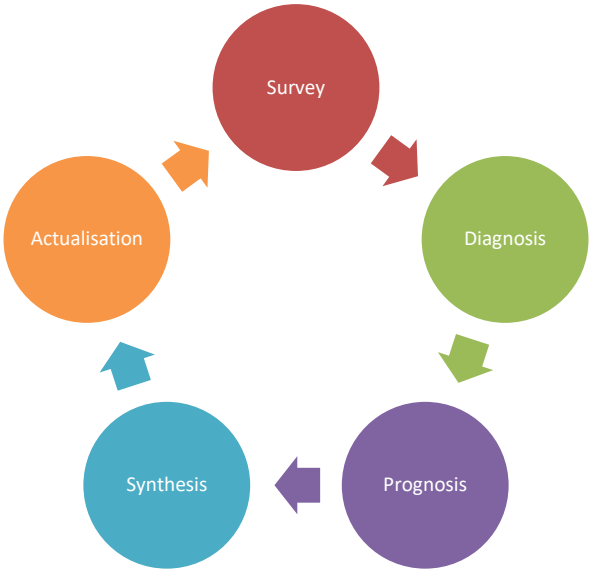
II. Diagnosis leading to the identification of issues, opportunities and challenges faced by the city;

III. Prognosis resulting into the forecast of population and urban expansion needs related to the various land use components;

IV. Synthesis leading to vision setting and goal formulation, spatial development strategies. and priority plans/programs;

V. Actualization resulting into the plan implementation proposals related to the resources (financial and human) and institutional roles.

Figure 1: Steps / Phases of the Planning Process



Chapter 2: Regional Context

2.1 Regional Setting

Shuklaphanta Municipality (SM) is located in Kanchanpur district of Sudurpaschim Province, which is one of the seven provinces and covers three ecological regions – Mountain, Hill and Terai. It borders Karnali Province and Province 5 to the east, India to the south and Karnali Province (Humla district) and Tibet Autonomous Region of China to the north. The Province spreads over an area of 19,539 sq.km (13.27%) and the population size is 2,552,527 (9.63% of national, CBS 2011). The urban population of the province is 1,504,279 (58.9%). Godawari is being declared as the capital (formerly Dhagadhi as the interim Capital) of the province.

The SM is also one of the four urban centers covered by the Regional Urban Development Project (RUDP) as the project municipalities within the Dhangadhi – Bheemdatta growth corridor, the others being Dhangadhi Sub-Metropolitan City, Godawari and Bheemdatta municipalities.

Figure 2.1 shows the regional setting at provincial, district and municipal level. Shuklaphanta National Park and its buffer zones are given in **Figure 2.2**. Delineation of municipal boundary of Shuklaphanta at ward level is given in **Figure 2.3** (Place name and ward boundary map of Shuklaphanta).

2.2 Broader Regional Planning Context

The whole Sudurpaschim Province consisting of nine districts including Kanchanpur District can be considered as a broader planning region, and being the most virgin and unexplored territories, has both the challenges and opportunities for development while retaining its beautiful and un-spoilt nature.

To enhance economic development of the region, regional planning study (NPC/ADB, Regional Development Strategy, RDS, 2007) forwarded the following the Regional Development Concept (RDC) proposals:

a. Agriculture, tourism, manufacturing, trade and services as the lead sectors followed by the supportive sectors – infrastructure, communications, social services, education and governance.
b. Energy as both the supportive sector as well as a sector having the export potential in its own right.
c. The quality of transportation access between the two neighboring countries having bearing on the economic prosperity of this region.

The RDC proposals also recommended the following three strategic initiatives (i) research and extension support to increase agricultural productivity in the Terai; (ii) Construction of cold storage along the Dhangadhi-Godawari growth corridor; (iii) cross border facilities and processes for exporting agricultural commodities to India; and (iv) river training and flood control works in the Far West Terai plains.

The above deliberations and findings would provide a conceptual basis towards formulation of urban development plans/programs in Shuklaphanta and other RUDP municipalities.

2.3 Dhangadhi – Bheemdatta Growth Corridor as a Sub-region within the Sudurpaschim Province

The PPTA Report 2017, prepared for launching ADB assisted IUDP2 - termed as the RUDP, came up with the growth corridor concept involving the four urban centers –Dhangadhi, Godawari, Shuklaphanta and Bheemdatta (Mahendra Nagar) accessed by the East West Highway and the areas covered by those urban centers, as a geographic focus of the RUDP. It could be considered as a planning sub-region or city region within the Far West Terai Region (FWTR) and the Sudurpaschim Province. The proposed economic and urban development vision for reducing poverty and enhancing economic growth within the sub-region are briefly dealt with below.

The Sub-Regional Economic Development Vision (EDV) very much focused on tourism, agriculture and forestry having important bearing on sustainable economic development of the FWTR, and did articulate the strategies and actions to be undertaken in those sectors with the emphasis on ‘agro-tourism’ and agro-forestry.

The EDV needs to be complemented by the Sub - Regional Urban Development Vision (UDV) articulated as follows:

a) Planned development of Dhangadhi – Godawari – Shuklaphanta - Bheemdatta axis and the adjoining areas as an **urban growth corridor**.
b) Implications on: land use planning, investments in greater urban hinterland connectivity, effective and high-quality public transport service, urban infrastructure, tourism facilities, and eco-friendly development regulations.

c) To capitalize upon the benefits of urbanization to support economic growth envisaged by the EDV, implying that sustainable urban development cannot be achieved without sustained economic development and vice versa.

However, within urban development vision each town could still have its own identity and functional role to play in the region's development listed below:

a) Godawari- Designated as the Capital of Sudurpaschim Province and logistical head quarter for the region, and a hub for transportation and whole sale market being located at the intersection of East-West and Mahakali highway (North-South highway),

b) Dhangadhi – Potential regional service centre and tourism hub- town due to the airport location and good quality hospitality infrastructure including tourist amenities, holds good potential for development of sports, especially cricket.

c) Bheemdatta - It is the Gateway to India, and it can be developed as a commercial center of the region. It also holds a potential being linked to China through North South Corridor - the Mahakali Corridor - as trade and transit route.

d) Shuklaphanta – Being still rural in character. It is endowed with the following characteristics and potentials: Agricultural centre and potential University town with many innovations in agriculture; pilot experimentation with 'Agro-forestry' & other forms of commercial & sustainable agriculture/ forestry.

2.4 The Sub-Regional Urban Development Vision (UDV) and Implications for Shuklaphanta LTUDP

a) **Development vision for Shuklaphanta town** as the agro-forestry hub and the potential university town in the fields of agriculture and forestry,

It implies that the town could be an important vehicle for integrating tourism, agriculture and forestry sectors activities at the municipal level as well as for realizing regional aspirations as articulated by the EDV above.

b) **Implications for land use planning** with emphasis on conserving the agricultural areas in the urban areas and its peripheries.

It promotes a dense town centre for commercial activities, and developing a green and spread out urban settlements at the periphery that merges with the rural agricultural areas.

c) **Investments in greater urban hinterland connectivity.**

It implies that construction of a hierarchy of roads facilitates not only urban hinterland connectivity, but also provides for efficient public transport system within the municipality.

d) **Implications for urban infrastructure**

Provision of various infrastructure components e.g. Water supply, waste water, solid waste, energy (bio-gas plants) drainage, could be undertaken on centralized or decentralized basis depending on the varying densities of land use zones.

e) **Public Amenities & Services including Tourist Facilities**

- Provision of the 'tourist friendly facilities within the municipality, as an emerging market town, in the tourist spots – places to relax, toilets, information boards, signage, etc. along with the Home stays.
- Provision of basic urban amenities (public open spaces, bus terminal, city hall, etc,).
- Proposal for a small market centre of about 300ha along the E-W Highway, through land pooling.

f) **Planning and Building Regulations**

Provision for the laws that limit the minimum size of a land parcel to allow sufficient front and back yard space for ecosystem services and green patches along with the Bicycle and walking tracks promotes the idea of Shuklaphanta as the 'farmer friendly city'.

The above suggestion could be incorporated in land use plan and regulations to be drafted for Shuklaphanta.

2.5Regional Urban Development Issues: Implications for Shuklaphanta LTUDP Formulation and implementation.

The regional urban development issues in the far western Terai region in general and sub-regional level in particular, with repercussions for formulation of development plan for Shuklaphanta may be described as follows

- Competing and conflicting interests of the project municipalities located within a 60 km corridor in the Terai plain bordering India.
- A need for a coordinated approach to avoid the future social, economic, political and environmental problems due to the pressure of in-migrants.
- A need for a sub-regional articulation of planning goals, objectives and strategies for a coordinated intervention in those project municipalities.
- A lack of easy accessibility to India from both border towns; Dhangadhi and Bheemdatta being seen as constraints to development.
- A lack of single apex authority to plan, coordinate and oversee economic and urban development at the sub-regional level.
- A need for inter ministry, inter department and inter district coordination in order to realize the broader regional vision.
- A lack of clarity about the role and functions of the provincial government related to the project execution.

Chapter 3: Situation Analysis

3.1 Location and Physical Characteristics

Shuklaphanta Municipality, located in Kanchanpur district of Sudurpaschim Province, derives its name from the famous National Wildlife Reserve Area (Suklaphanta National Park).It was established as Jhalari Pipladi Municipality in Dec 2014 by merging two Village Development Committees (VDCs) namely Jhalari and Pipaladi. In Feb 2017, Shuklaphanta Municipality was established by merging wards 4 & 6 of Dekhatbhuli VDC with former Jhalari Pipladi Municipality. Shuklaphanta Municipality consists of 12 wards covers an area of 162.574 sq.km (16,257.354 ha.).

3.2 Demographic Analysis

The census figures of the years 1991, 2001 and 2011 did record the municipal population to be 22,094, 32,993 and 46,834 respectively.

The population distribution figures by age group states that the children below 14 years comprise of 38.24%, working age group (15-59) comprise of 54.48% and elderly age group (above 60) comprise of 7.28%. The average sex ratio of the municipality is 87.02, which is lower than the national average (94.2). The sex ratio among children (0 – 14), economically active age group (15 – 59) and among elderly (above 60) is 105.42, 75.15 and 94.04 respectively. The lower sex ratio (75.15%) in the economically active age group indicates a selective outbound migration of males in the municipality. More than half of the population (62.21%) in Shuklaphanta is Brahman / Chhetri – Hill, followed by Janajati – Terai (21.41%), Dalit – Hill (13.59%), Janajati Hill excluding Newars (2.31%) and other caste /ethnic groups comprises of less than 1% each.

The population density of Shuklaphanta is 2.88 pph (person per hectare), The ward wise population density of Shuklaphanta shows that none of the wards have densities above 10 pph, however 5 out of 12 wards have density more than 5 pph. Density varies ranging from 0.95 pph (ward 8) to 8.85 pph (ward 5). It indicates that the wards 3, 4, 5, 6 & 10 are urbanizing and the remaining wards are rural.

3.3 Spatial Analysis: Urban Growth Trends and Existing Land Use

The settlement in Shuklaphanta is mostly sparse with dense urban cluster limited to Jhalari Chowk (ward 10). The study of satellite imageries from 2003 to 2017 shows that cluster settlements at Jhalari chowk (ward 10), Pipladi (ward 3), Asaina (ward 4) and Kalagaudi (ward 12) have developed over time. Besides, the settlements developed by Nepal Government in around 2006 at Simalphanta (ward 6, 7) and Pariphanta (ward 8, 9) became more prominent by 2011. The building permit record demonstrates most number of building construction in wards 10 & 11 which indicates urbanizing trends in these wards. The current settlement pattern does not reflect desirable form and densities hence it would call for planned intervention in the emerging urban areas to obtain desirable urban settlement pattern, form and density.

The existing land use of Shuklaphanta (2018) is dominated by forest with 56.04% coverage of municipal area, followed by agricultural area with 33.34%. The built up area only covers 4.15%

indicating that settlement in the municipality are mostly of rural character, however the built up area is increasing which is a clear indication of growing urbanization.

3.4 Disaster Risks and the Risk Sensitive Land Use Plan (RSLUP)

As per the ToR of the study, the Risk Sensitive Land Use Plan (RSLUP) needs to be prepared based on urban growth trend and multi-hazard assessment which identifies the areas to be protected, controlled and promoted. This calls for a study of various disaster risk aspects within the municipality. A concentration of population in risk prone areas further aggravates those risks. People from the marginalized communities and having poor economic status are more vulnerable to disasters because they lack resources to cope with disaster.

The disaster risks are:

- **i.** Disaster risks seem severe in Shuklaphanta being located at the Terai Plains affected by increasing flood and inundation caused by the rivers. Flooding in Shuklaphantais usually due to the flash flood in monsoon season and the over flow in the major rivers. Settlements lying near Sunbara, Banara and Syali River in various wards are affected by flooding.
- **ii.** Landslides in Shuklaphanta is observed on the foothills of Churia region; Kalapani, Santipur (ward 7), Bhamarbhoj, Pariphanta, Beldadi (ward 8).
- **iii.** The traditional settlements in Khajuwa, Baishakha (ward 5), Asaina (ward 4), Kalakaudi (ward 12) are susceptible to fire disaster due to use of locally available materials like timber, bamboos, straws etc.
- **iv.** Shuklaphanta also faces a risk of earthquake as the region falls in high earthquake hazard zone. The level of risk has been increased further due to haphazard urbanization and a lack of preparedness.

The Planning Principles governing the RSULP Proposals:

The RSLUP focuses on identification of different land uses that need to be protected, controlled and promoted. These are:

I. Areas of historical, religious and cultural importance, forests, lakes, prime agricultural lands etc are the areas to be protected. In Shuklaphanta, agriculture and forest areas in wards 1, 2, 3, 7, 8 & 12 are to be protected.

II. The areas at greater risk of natural hazards such as flood, landslide, soil erosion etc are the areas to be controlled. The areas on the foothills of Churiarange the green belts for major rivers (Syali, Sunbora and Banara) and for other rivers are to be controlled. The Areas which are not likely to be urbanized in near future could also fall within the controlled area.

III. The Areas with high prospects for future urbanization and with a low risk of natural hazards are to be promoted. The areas of wards 4, 5, 6, 9, 10 & 11 which are adjacent to or at near proximity of East west highway would fall under the promoted zone.

3.5 Access to Physical Infrastructure

Analysis of existing infrastructure is essential in order to find the infrastructure gap and demand analysis.

Road and Drainage

The total road network of Shuklaphanta Municipality comprises 188.95 km. including SRN, DRCN and Urban road.Most of the road is earthen (91%), followed by black top (8.14%) and gravel (0.80%). The munipal road requires significant improvement with adequate drainage.

The road density of the municipality is 1.16 km/sq.km (3.21 km/1000 population). According to National Urban Strategy, 2017 the standard urban road density is 7.5 km per sq.km. This indicates a very little road coverage within the municipality,

The Municipality lacks a proper drainage system. Department of Roads has constructed few kilometers of road with side drainage along the highways. Except this, no other drainage system exists within the Municipality.

Water Supply,

The major source of water for drinking and other purposes in Shuklaphanta Municipality is groundwater either from shallow or deep aquifers. A piped drinking water scheme exist only in the core area (ward 10 & 11) and covers 25% population in the municipality.

Sanitation and Waste water

The country was declared Open Defecation Free (ODF) on 30th September, 2019. This implies that all the households in Shuklaphanta Municipality also have full toilet coverage. The Techinical Assistance Consultants Report states that former Jhalari - Pipaladi municipality had 55% open pit, 17% private toilets and 28% VIP toilet citing municipality data of 2015. There are two public toilets, one at Jhalari Bazar (ward 10) and another one at Kaluwapur Bazar (ward 11).The Municipality does not have a water-borne sewerage system.

Solid Waste

The average Municipal Solid Waste (MSW) generation in the municipality is 0.217 kg/capita/day. Taking effective population as 58,923 in 2017 total HH waste generated in the municipality is 9.6 tons/day and total municipal solid waste generation is 12.78 tons/day. Solid waste collection services service is limited to the main roads and side roads of the core areas (wards 5, 6, 10 & 11) while rural wards are managing their wastes themselves.

Electricity

A per the municipal report 2015 in Shuklaphanta, 85% of the HHs in the municipality is connected to national grid and 1% to solar power, while 14% do not have access to electricity. Renewable energies such as solar and biogas are encouraged at the local level.

3.6 Access to Social Infrastructure

As regards the provision of social infrastructure, there are 26 child development centers, and 38 educational institutions of the various levels currently operating in the municipality. Three health posts are currently operational in Shuklaphanta municipality, one each in wards 4, 7 & 10. There are two playgrounds in the municipality, one at ward 10 and other at ward 1. There are no sport complexes like stadium, covered hall etc.

3.7 Urban Economy

Being relatively a new settlement created after the resettlement of the displaced families from Shuklaphanta National Park 25 years back, Shuklaphanta municipality exhibits rural economy dominated by agriculture and animal husbandry. 71.5% of the working population is engaged in agriculture, 7.3% in services, 6.2% in daily wages and 10% are in foreign employment mostly in India.

Shuklaphanta could be developed as a demonstration center for community initiatives for the production and promotion of agro-forestry products as most part of the municipality is covered by agriculture land and forests.

3.8 Key Overall Findings

1. The urban growth rates of Shuklaphanta as per the Census 2001 & 2011 are 4.09% & 3.57% respectively. The national UGR of 3.43% is slightly less than the Shuklaphanta UGR as per the 2011 Census. Growth during 1991 to 2001 in P7 municipalities-3.6%.
2. The economically active population falling within the age group (15-59) forms the higher proportion of municipal population up to almost 55% with the elderly and younger segments occupying approximately 7% and 38% respectively.
3. The sex ratio in children (0 – 14), economically active age group (15 – 59) and elderly (above 60) is 105.42, 75.15 and 94.04 respectively. The lower sex ratio (75.15%) in the economically active age group indicates a selective outbound migration of males in the municipality.
4. The caste/ethnic distribution in the municipality indicates 67.04% of HHs occupied by Brahman/Chhetri - Hill followed by other ethnic groups.
5. Ward wise population density of Shuklaphanta shows that wards 3, 4, 5, 6 & 10 are urbanizing with densities between 5 – 10 ppha while remaining wards incorporate rural character with densities below 5 ppha.
6. While assessing Land use change from the year 2011 up to 2017 in Shuklaphanta, it has been found that most of the agriculture and forest area have remained intact, whereas the built up area have increased from 0.5% to 4.15% within the same time period.
7. The dominant land use is forest with 56.04% coverage of municipal area followed by agriculture area with 33.34% in 2017 indicating the availability of a plenty of space for urbanization.
8. Ward 10 and 11 can be considered as urban core wards with more construction activity in future as indicated from the building permit data (Table 3.10). Most of the commercial activities are also taking place in ward 10 and 11 along the highway.
9. Disaster risk analysis indicates, the potential areas of disaster risk in Shuklaphanta municipality owing to the various factors: land slide, flood, rive bank erosion, fire, electric high tension line, wild life intervention in the buffer zone at the proximity of Sukhlaphanta National Park.(dealt with in detail in Sub-Section 3.4.2)

10. The Risk Sensitive Land Use Plan (RSLUP) needs: to incorporate all the potential areas of disaster risk as stated above; and to be guided by the broad principles as put forward by the National Land Use Policy 2015 (Details in Sub-Section 3.4.4).
11. The Risk Sensitive Land Use Map as an important component of RSLUP, would be based on urban growth trend and multi-hazard assessment, and does indicate the areas to be protected, controlled and promoted.
12. The RSLUP needs to be integrated with the final physical development plans and proposals for Shuklaphanta municipality.
13. The total road network of Shuklaphanta Municipality which comprises of SRN, DRCN and Urban road totaling 188.95 km is mostly earthen up to 91%, followed by gravel top (0.80%) and black topped (8.14%).
14. Except few kilometers of road side drainage along the highways, no other drainage system exists within the municipality.
15. Technical Assistance Consultant's Report states that former Jhalari-Pipaladi municipality had 55% open pit, 17% private toilets and 28% private VIP toilet citing municipality data 2015. There are to public toilets one at Jhalari Bazar (ward 10) and another one at Kaluwapur Bazar (ward 11).
16. Piped water supply is limited to Bazar area (ward 10 & 11) covering about 25% of the population while majority of population is depended on tube well / hand pump.
17. Average MSW generation in the municipality is 0.217 kg/capita/day. There by, the total MSW generated in the municipality is 12.78 tons/day in 2017.

3.9 SWOT Analysis

The **SWOT** analysis is an analytic framework to identify internal factors (micro environment) - strength and weakness; and external factors (macro environment) - opportunity and threat affecting the growth and development of a town. It is being carried out on a basis of the various activities e.g. the desk study, the stakeholders consultation/workshops, field visits, and consultation with the key informants etc.

Table 1 Strength, Weakness, Opportunities and Threats Analysis

Internal environment	
Strength	**Weakness**
• Proximity of Shuklaphanta National Park. • Good connectivity – East West highway, Kaluwapur road. • Enough land resources for urban development. • Diversified ethnic and cultural community. • Restructuring of the state – stable and empowered local government.	• Existing settlements are dispersed. • Lack of basic urban infrastructures even in urban core. • Municipal roads need to be upgraded into all weather roads. • Drainage only limited to certain section of highway, no sewerage network. • Concept of planned urbanization has not been introduced yet. • Lack of integrated development approach. • Weak institutional capacity of the municipal government.
Opportunity	**Threats**
• Potential for green tourism through provision of tourist friendly facilities. • Potential to develop as agro-forestry hub for the sub-region and the potential university town in the fields of agriculture and forestry, • Potential for promotion of community driven establishment of agro and forest based cottage and small scale industries. • Potential for planned urban development as it is a new municipality. • Potential for greater urban hinterland connectivity through road construction contributing to efficient public transport system within the municipality.	• Haphazard urbanization and urban sprawl triggered by land speculation. • Encroachment of forest and Chure areas. • Prone to disaster risks further aggravated by climate change. • Might not be able to compete with already established market centers nearby (Bheemdatta and Attaria) in terms of commercial activities. • Lack of investment in agriculture and forestry sector.
External Environment	

Chapter 4: Development Planning Framework for the Municipality

4.1 Prognosis

Population Growth Trend

The population of the area now covered by Shuklaphanta municipality experienced significant growth in population as migration from nearby hilly districts took place. The population of municipality was 22,094 in 1991 and increased with a growth rate of 4.09% per annum and reached 32,993 in 2001, the growth rate for next decade was comparatively lower at 3.57% and population reached 46,834 in 2011. The average population density increased from 1.36 in

1991 to 2.88 in 2011. An attempt is made to project population till 2043 AD. Geometric growth rate formula is used to project population for all wards using different growth rates considering various factors. The realistic growth rate of the municipality as a whole has been determined as 3.90% per annum. The total population of the municipality is being projected to increase up to **74,406** and **166,421** by the years 2023 and 2043 from the year 2017 estimated population of **58,923**.

Increasing population and urbanization results in conversion of agriculture land into built up area, which depends upon the extent of urbanization process and development activities within the municipality. Based on present ward wise population, current net density, adopted density and projected population, attempts being made to project future land requirements for the next 20 years. On the higher side net density of 150 PPH is assumed for **ward 10** (urban core) and **ward 11**. Medium density of 100 PPH is assumed for **wards 2, 3, 4, 5, 6 & 9** as these wards are close to urban core and has potential for growth in future. A very low density of 50 PPH is assumed for rural **wards 1, 7, 8 & 12**. The net residential plot requirement for accommodation of the projected population is estimated to be **2225 ha** and the gross land requirement (including road, walkways, buffer space, open space/parks, institutions etc. is estimated to be **2870 ha** by the year 2043.

4.2 Demand Analysis for Urban Infrastructure

Demand analysis of urban infrastructure related to social, economic and physical components up to the year 2043 AD is done as per Planning Norms and Standard 2015 (PNS 2015). As for the physical infrastructure, up gradation of 208.01 km of urban roads, construction of 463.32 km of urban drainage, initiation of land pooling projects and construction of Bus Park have been identified as required infrastructure. In case of social infrastructure; hospital, open space & recreational areas, fire brigade station, cremation / ghat, old age house and police post has been identified as required infrastructure. While for economic infrastructure; vegetable market and cold storage has been identified as required infrastructure.

4.3 Development Vision, Planning Goals and Objectives

4.3.1 Framing up of Development Vision

Efforts were also made to set up long term development vision for the Shuklaphanta municipality. One day planning workshop organized on the month of May 2019 at Shuklaphanta, widely participated by the stake holders from the various fields, did revisit and discuss the already set development vision, and did finalize the following vision statement:

> ***Agriculture, Tourism, Culture and Nature Conservation:***
>
> ***A Basis for Green and Prosperous Jhallari- Pipaladi***

In Nepali, it could be presented as given below:

कृषि, पर्यतन, सांस्कृतिक विकासएवं हरियाली प्रवर्धन,

शुक्लाफाँटा नगरको मुल आधार

4.3.2 Planning Goals and Objectives

(A) Planning Goals

a) To contribute to development of Shuklaphanta as an 'Agro-forestry research & development hub' with innovations and commercialization in agriculture and forestry sectors.

b) To serve as a guide for the orderly physical development of the city in the short, medium and long term plan periods.

c) To accommodate total projected population of 166,421 by the year 2043 with provision of basic urban services and facilities so as to uplift their living standard and bring about qualitative improvement in their lives.

(B) The objectives of the plan are outlined below:

a) To serve as a guide for planned urban expansion and development on a phased manner.

b) To provide a planning framework for phased infrastructures development related to the roads, drainage, sanitation and waste disposal.

c) To provide a planning framework for local plans in terms of the location and development of the land pooling schemes, urban amenities and services, and places of tourist attractions.

d) To come up with the concrete proposals for the investment programs and projects based on the study findings and the stakeholders consultations.

e) To provide a guiding framework for development control in terms of the framing up of the effective land use regulations including the zoning and building by-laws for application in the areas to be controlled, protected and promoted as depicted in the proposed land use/zoning plan.

f) To serve as a planning instrument for protection of the environmentally sensitive and risk prone areas within the municipal boundary.

g) To strive for the optimal utilization of the agriculture land as a main economic base of the city accompanied by the controlling measures.

Chapter 5: Physical Development Plan Proposals

5.1 Plan Determinants: A Basis for Physical Development Plan for Shuklaphanta

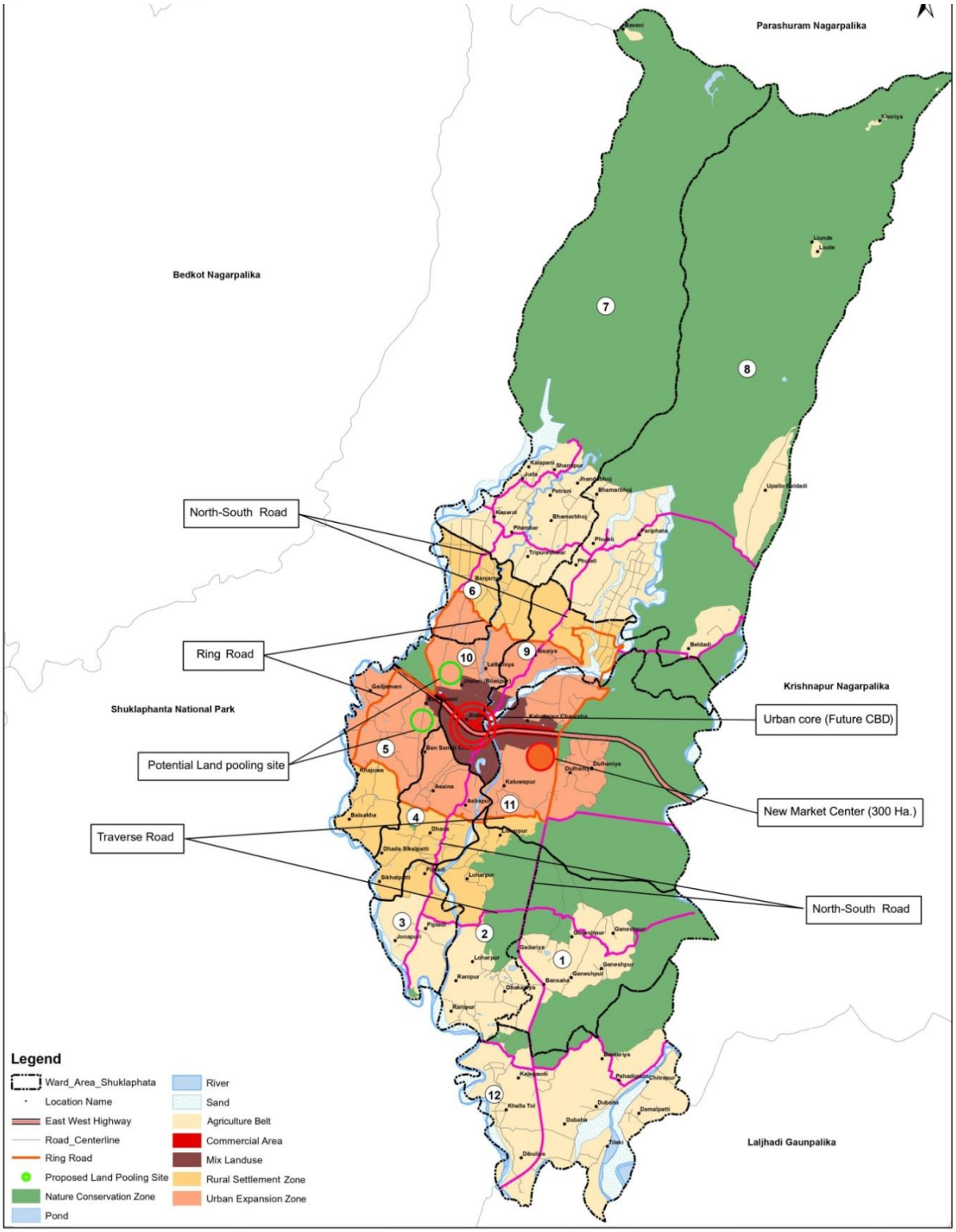
After detailed study of basic planning parameters such as population growth by the year 2043, a review of the past development plans and the PPTA report (2017), urban infrastructure needs and the basic planning principles (development vision, planning goals and objectives), a realistic spatial (or physical) development framework is prepared. The various physical aspects, existing settlement pattern and growth trends, envisaged planning and development initiatives as stated in the PPTA, are also taken into account as the determining factors for conceiving and formulating the physical development strategies (development concept/pattern, phasing of urban expansion, land use policy and zoning proposals) for the city.

5.2 Spatial Development Strategy: Proposed Concept and Key Proposals

Building upon the Concept Development Plan developed by the Far Western RUDP, PPTA, DRF (Vol.2), a realistic spatial development strategy is being proposed for Shuklaphanta in the form of the Mono-centric Development Model which implies consolidation and peripheral expansion of the urban core with main economic, services and administrative functions to serve the population of the municipality. The key attributes of the updated spatial development concept are as follows.

a) Shuklaphanta would be developed as an emerging urban centre with a total population of **166,421** by the year 2043 (additional population increase of **107,498** by year 2043 from the year 2017 estimated population of **58,923**).
b) 100m strip on either side of the East West highway from Kaluwapur chowk to Ban samiti chowk is proposed as a commercial zone and proposed gross density is 150 pph.
c) The parts of **Wards 5, 9, 10 & 11** which are adjacent to the commercial zone would be the areas for urban expansion. The proposed gross density would be 150 pph for Ward 10, 11 and 100 pph for wards 5, 9.
d) **Ring Road** is being proposed linking **wards 4, 5 & 11**south of EW highway and **wards 6, 9, 10 & 11** north of EW highway.
e) Area between the Mixed used zone and Ring Road on either side of the EW highway would be designated as a low density residential zone. This would include portions of w**ards 4, 5, 6, 9, 10 & 11**. The proposed gross density for this zone would be 100 pph.
f) Potential sites for land pooling have been identified in **wards 5, 9, 10 & 11**.
g) Two north-south roads on either side of the East West Highway are proposed with transverse linkage at every 2km.
h) Southern portion of **ward 7 & 8**;**wards 1, 3 &12** and portion of **ward 2** would be declared as Agriculture zone. The proposed gross density would be 50 pph.
i) Northern part of **ward 7**, northern and eastern part of ward 8 along with portions of **ward 1, 2 & 11** are proposed to be declared as the protected Nature Conservation Zone.

Figure 2 Updated Spatial Development Concept of Shuklaphanta



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Updated Conceptual Development Map**	DRG NO: **10**

5.3 Phase wise Urban Expansion Proposals

Within a framework of the various factors as Plan determinants and the Concept Development Plan a Phase wise Urban Expansion is being proposed in order to achieve rational and planned development which is based on growth trend, provision of infrastructure and settlement pattern.

- **Phase I (2023-28):** Areas which are already being converted into urban use, very close to urban settlements and infrastructure available are identified as primary urban expansion area. Phase I includes portions of **ward 10 & 11** which are adjacent to the EW highway.
- **Phase II (2028-33):** Areas where infrastructure is partially available, but the locations are close to the established urban area and have potential for urban expansion being categorized as Phase II. It includes portion of ward 5 adjacent to the EW highway and portion of **wards 4, 6, 9, 10 & 11** which are close to the established urban area.
- **Phase III (2033-38):** Areas where available infrastructure is limited but there is the possibility of extending infrastructure services from adjacent expansion area, settlement is sprawl and of rural character but the pace of urbanization is gradually increasing is categorized as Phase III urban expansion area. It includes southern portion of **wards 4, 5& 11** and northern portion of **wards 6, 9 & 10.**
- **Phase IV (2038-43):** Areas where infrastructure is limited but can be extended, settlement is sprawl and of rural character, with very less built up area is categorized as Phase IV. It includes **ward 2** (western part), **ward 3** (northern part) and **wards 4 & 5** (southern part).

5.4 Phase wise Urban Expansion Proposals

Based on the key proposals of Spatial Development Strategy, the Land Use Zoning for Shuklaphanta municipality is proposed as follows:

Built Up Zones

In Built-up Zones, usages developments, and structures are permitted as prescribed. Land shall only be developed and used in accordance with the permitted use(s) prescribed for each Built-up Zone in the following sections.

1. **Highway Commercial Zone (Zone C)**
   Land plots adjoining the EW highwayand within the 100m depth beyond ROW on either side of the EW highway from Kaluwapur chowk to Ban samiti chowk is proposed as Commercial zone. It includes small portions of wards 5, 10 & 11.
2. **Mix Use Zone (Zone MC)**
   Residential and Commercial mix Zone has been proposed for areas adjoining the Commercial zone which includes portions of wards 5, 9, 10 & 11.
3. **Urban Expansion Zone / Residential Zone (Zone UR)**
   The area beyond Mix-use Zone and bounded by the proposed Ring Road in north and south as shown in Figure 5.4 is proposed as Residential zone. Residential zones include Asaina & Ashapur in ward 4, Gadjamani in ward 5, southern portion of ward 6, Sisaiya in ward 9, Jhalari (Bilashpur) & Lalbaniya in ward 10, Kaluwapur in ward 11.

4. **Rural Settlement Zone (Zone RS)**
   Rural Settlement Zone include Loharpur in ward 2, Pipaladi in ward 3, Dhada & Sikalpatti in ward 4, Khajuwa & Baisakha in ward 5 which lie south of the Residential zone upto Traverse road and Banjariya in ward 6 and portion of ward 9 & 10 north of the Residential Zone. These areas bear rural character and are not likely to urbanize in near future.

5. Institutional Zone (Zone IZ)

Although there is no significant area designated for government office, most of the government offices including municipality office, telecommunication officeand police postare located in Jhalari Bilashpur in ward 10. Ban samiti office is located in ward 5 adjacent to highway. Thus these areas are proposed as Institutional Zone (Zone I).

Non-Built Up Zones

Non Built-up Zones are reserved to protect nature; any usage is restricted as prescribed. Developments and structures are limited accordingly.

6. Agriculture Zone (Zone AZ)

Agriculture Zone includes plain areas like Tripureshwar, Pitambar, Kasarol, Bhamarbhoj, Patrani, Shantipur, Juda, Kalapani in ward 7 and Phuleli, Pariphanta, Upallo Beldadi in ward 8 upto the Churia hill in the northern side of the municipality. Agriculture zone also includes southern portion of the municipality like Bansaha, Ganeshpur & Gadariya in ward 1, Ranipur, Dhakaniya, Ranipur & Loharpur ward 2, Jonapuri & Pipaladi in ward 3, Dibuliya, Tilaki, Dubaha, Khalla Tol, Kalagaudi, Pahadigaun, Chitrapur & Bantariya in ward 12. Infrastructure development projects under RUDP are proposed for the later phase which will control the construction activities and help preserve agriculture land.

7. **Open Space / Green Zone (Zone GZ)**
   Large playground is adjacent to municipality office located in ward 10 and Shuklaphanta Local Park is located in ward 9 near the Sunbora River. Thus these areas are proposed as green space for public use as shown in map. Green buffer space is also proposed for 30m & 50m setback for major rivers and 20m & 30m setback for other rivers from the edge of the river for hill and terai (plain) areas respectively.

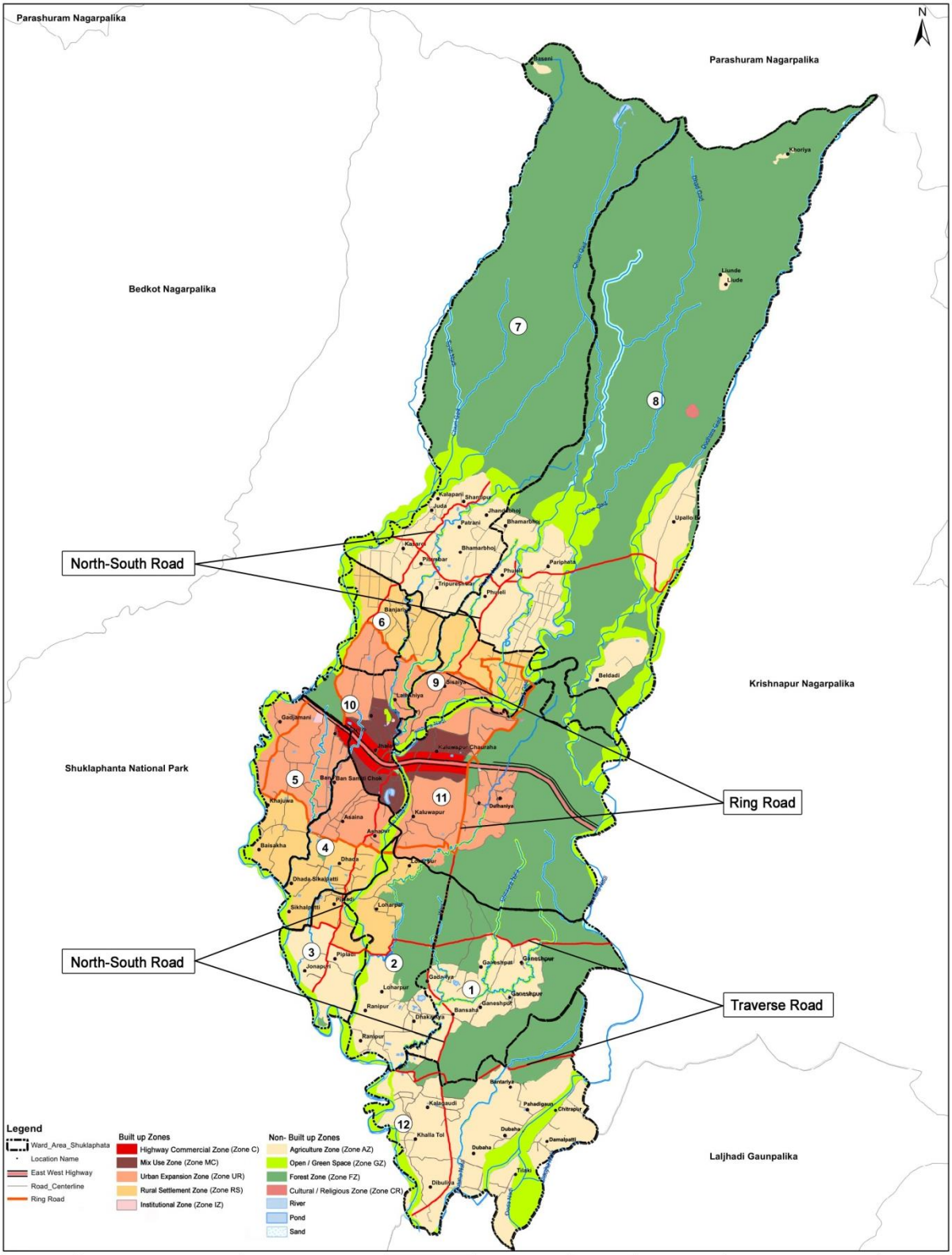
8. Cultural / Religious Zone (Zone CR)

Manika Dham area in ward 8 along with the pond and other prominent cultural / religious area in the municipality are proposed as Cultural / Religious Zone.

9. Forest Zone (Zone FZ)

Large part of Ward 1, 7, 8 &11 and small part of ward 2& 12 are occupied by forest and thus proposed to be protected as Forest Zone. Northern part of the Municipality where Shivalik range starts is proposed to protect as “Water Shade Zone”. This help to ensure continuous availability of water as well as protecting from water induced disasters.

Figure 3 Proposed Land Use Zones



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel-4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Proposed Land Use Zoning**	DRG NO: 12

5.5 Proposed Road and Transportation Network

The Municipality has a complete road network hierarchy consisting of National Highways, Feeder Roads, District Roads and Urban Roads of all four classes as shown in the Table below. This hierarchical distinction of road types becomes more essential to enable urban design principles such as accessibility, connectivity, efficiency, amenity and safety. The Urban/ municipal road network is being categorized with functional hierarchy such as Class A, Class B, Class C and Class D.

Table: Road network hierarchy and features

Road Network	Road Class	Descriptions	Minimum RoW (m)	Minimum Setback (m)	Remark
Strategic Road Network (SRN)	NH	National Highways	50	6.0	Federal level
	FR	Feeder Roads	30		
Local Road Net work (LRN)	DRCN	District Roads	20	6.0	Provincial level
	A	Main Collector	12	2.0	Urban Road/ Local level
	B	Secondary Collector	12		
	C	Feeder Road (Main Tole Road)	12		
	D	Other Tole Road	6 to 12		

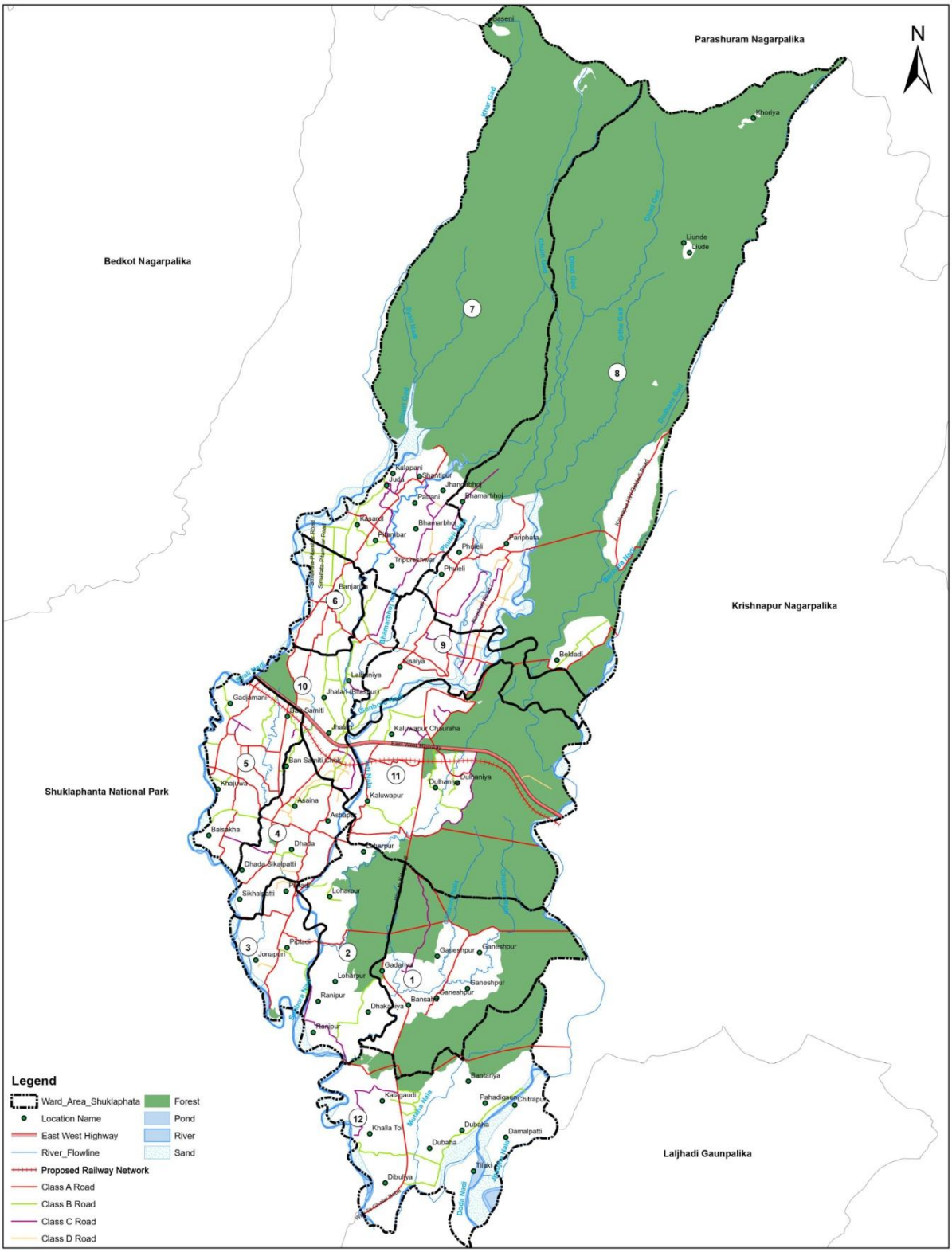
Source: Urban Road Master Plan, 2019

5.6 Key Policy Proposals for Physical Plan Implementation

The planning policies perform the important role of translating the spatial development strategy and land use proposals into the concrete programs/projects to be implemented within the plan period. The Policy Components are presented below.

1. **Population Distribution Policy** – Out of the envisaged total population of 166,420 the additional population increases of 107,500 by the year 2043 would be distributed in the various Land use zones. Proposed commercial and Mix use zone will accommodate 30,000 populations, urban expansion and rural settlement areas will accommodate 65,000 while 12,500 will be accommodated in agriculture zone.
2. **Spatial Development Policies –** Application of land development techniques such as sites & services, guided land development and Land Pooling / Readjustment would be the core elements of the spatial policies for development of urban expansion areas.
3. **Infrastructure Development Policies**- Application of the DUDBC 'Planning Norms and Standards 2015'did provide the policy guidance 'for development and management of physical, social and economic infrastructure services in a planned manner. This would be in addition to what is already been proposed by the PPTA regarding infrastructure development proposals for the 20 year plan period (road. Drainage, waste disposal).
4. **Regulatory Policies** - Provision of advisory support to Institutional Development Consultant (IDC): to review and amend the land use regulations.

Figure 4 Proposed Road and Transportation network



RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Batajoo Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:72000	COMPONENT: Urban Road	**Shuklaphanta Municipality** **Proposed Road Network**	DRG NO: **13**

Chapter 6: Multi-Sector Investment Program (MSIP)

The investment requirement for urban infrastructure includes priority urban road, priority storm water drainage and other social and economic infrastructure sub projects. The multi-sector investment requirements for various projects/programs for the plan period are being derived on the basis of:

1. Urban development Projects within the Project Phase (2017-2023) as included in the Far Western RUDP (Vol. 4), PPTA, DFR, 2015
2. The outputs from the interactions during the planning workshop from the stakeholders representing the various sectors
3. Infrastructure Master Plan (Urban Roads) of Shuklaphanta Municipality, 2019
4. Storm water Drainage Master Plan of Shuklaphanta Municipality, 2019
5. DUDBC Planning Norms and Standards, 2015
6. The field visits and interactions

The investment requirement for urban infrastructure (2023 – 2043) is given in the table below.

S.N.	Description	Amount (NRs.) M.	Amount (US$) M.
1	Priority Urban Road	11,093.89	93.58
2	Storm Water Drainage	10,621.728	89.60
3	Other Physical Infrastructure	55	0.46
4	Social Infrastructure	107	0.90
5	Economic Infrastructure	40	0.34
	Total	**21,962.62**	**179.30**

The total investment required to fulfill the infrastructure development comes out to be **NRs. 21,962.62 M. (179.30 US$ M.)**.

Chapter 7: Plan Implementation, Monitoring proposals and Recommendations

7.1 Plan Implementation: Proposed Programs

The 'Physical Development Plan' proposals (Ch.5) and the 'Multi-sectoral Investment Programs' (Ch. 6) provide a basic policy and program/project framework for Shuklaphanta LTUDP implementation covering a period of 20 years up to 2043. The plan implementation essentially need to focus on the execution of the following programs

a) Land Development Programs focused on execution of land pooling projects.

b) Integrated Urban Infrastructure Development Programs which could be a continuation of the present RUDP program.
c) Planning and Building Bye-Laws Design and Execution as a Regulatory Framework Component.
d) Environment Conservation Program focused on Shivalik Belt and Rivers/Lakes.

7.2 Plan Implementation: Proposed Programs

As per the provision of LGOA, implementation of the development plan (LTUDP) and its monitoring are within the jurisdictions of the concern municipality which could take the following measures:

a) The municipality could reconstitute the Town Development Committee (TDC) under the chairmanship of the Mayor through the provision of the Town Development Act 1988 and Amendments.

b) It is suggested to provide technical support from DUDBC in the form of guidelines/standards.

c) During the project phase the Project Support Implementation Unit (PISU) and RPIU office with the technical support from Institutional Development Consultants (IDC) could provide technical assistance to the reconstituted TDC.

d) A monitoring mechanism is suggested to form in association with DUDBC, respective province and the municipality.

7.3 Outputs of institutional and Financial Management Component of RUDP

Out of the 14 outputs entrusted to Institutional Development consultants (IDC), the following outputs (ADB, 2017) seem related to the program implementation as stated above:

1. Organization and management survey report**(Output 5)** which gives due emphasis to strengthening and development of the technical section within the restructured municipal organization.
2. Implementing building bylaws and national building code to strengthen urban planning in the municipality **(Output 6).**
3. Develop environmental management capacity in the municipality **(Output 11).**
4. Execution of Revenue Improvement Action Plan **- RIAP (Output 1 & 2)**

Those IDC outputs need to be given due consideration for successful execution of the program components as stated in 7.1 which is directly related to the LTUDP implementation.

7.4 Monitoring

A monitoring body consisting of the municipality's related section, DUDBC's regional office and the concerned stakeholders could be constituted to overlook the progress of the LTUDP implementation. The approved LTUDP has to link with annual plan and program and budget to make LTUDP happen. The body would be required to report to the municipality about the findings and present the constructive suggestions regarding the implementation of the LTUDP.

Following table suggests the tentative framework for monitoring of the prime activities. The activities could be refined and modified as required in the implementation process.

Proposed monitoring Plan and Frequency

S. No.	Description	Monitoring / Review
1	Long Term Urban Development Plan	Every 5 years
2	Implementation of planning/building bye laws	Every 5 years
4	Numbers of Building permits and status	Bi annually

5	Coordination with stake holders	Quarterly, as required
6	Provision of budget in planned area	Bi annually
7	Progress of physical works	Quarterly
8	Other activities	As required

7.5 Concluding Remarks

1. Due process is to be undertaken to give a formal approval to the LTUDP after a review by the Municipal Board for its speedy execution. The land development programs as included in the Investment programs (Chapter 6) need to be given urgent priority for execution.
2. The Municipality has a potential of organic farming, green tourism and industries based on non-timber forest product (NTFP) with proper coordination among concerning agencies.
3. The northern area of the municipality, being located in the Siwalik range with the presence of the forest, being very vulnerable, needs to protected and preserved as the watershed area. Similarly, the river protection works need to be given due priority as disaster prevention measures.

कार्यकारी सारांश

अध्याय १) परिचय

शुक्लाफाँटा नगरपालिकाको दीर्घकालीन सहरी विकास योजना (LTUDP), क्षेत्रीय शहरी विकास परियोजना (RUDP) को एक हिस्सा हो र यसलाई नेपाल सरकारको शहरी विकास तथा भवन निर्माण विभाग द्वारा एशियाली विकास बैंक (ADB)को सहयोगमा कार्यान्वयन गरिएको हो । यसको उद्देश्य धनगढी-भीमदत्त ग्रोथ करिडोरमा रहेका सुदूरपश्चिम प्रदेशका चार नगरपालिकामा सहरी पूर्वाधार विकास र सहरी क्षेत्रका संस्थाहरूलाई सुदृढ गर्नु रहेको छ ।

शुक्लाफाँटा नगरपालिकाको लागि LTUDP सहरी विकासलाई मार्गदर्शन गर्ने र आगामी बीस वर्षको अवधि (२०४३ ई.) सम्म विकास योजना/कार्यक्रमहरू कार्यान्वयन गर्ने मुख्य उद्देश्यका साथ तयार गरिएको हो । शुक्लाफाँटा LTUDP का विशेष उद्देश्यहरू निम्न हुन् ।

- PPTA अध्ययन प्रस्तावहरू प्रयोग गरी र सरोकारवालाहरू सँग व्यापक छलफलको आधारमा उप-क्षेत्रीय विकास दृष्टिकोण (धनगढी-भीमदत्त ग्रोथ करिडोर) लाई पूरक बनाउने ।
- शुक्लाफाँटा नगरपालिकाको लागि दीर्घकालीन भिजन, लक्ष्य, उद्देश्य र रणनीति, योजना र कार्यक्रम, कोषको आवश्यकता र संस्थागत भूमिका र जिम्मेवारीहरू तय गर्ने ।
- योजना कार्यान्वयनको लागि आवश्यक संस्थागत संयन्त्रको प्रस्ताव गर्नु ।

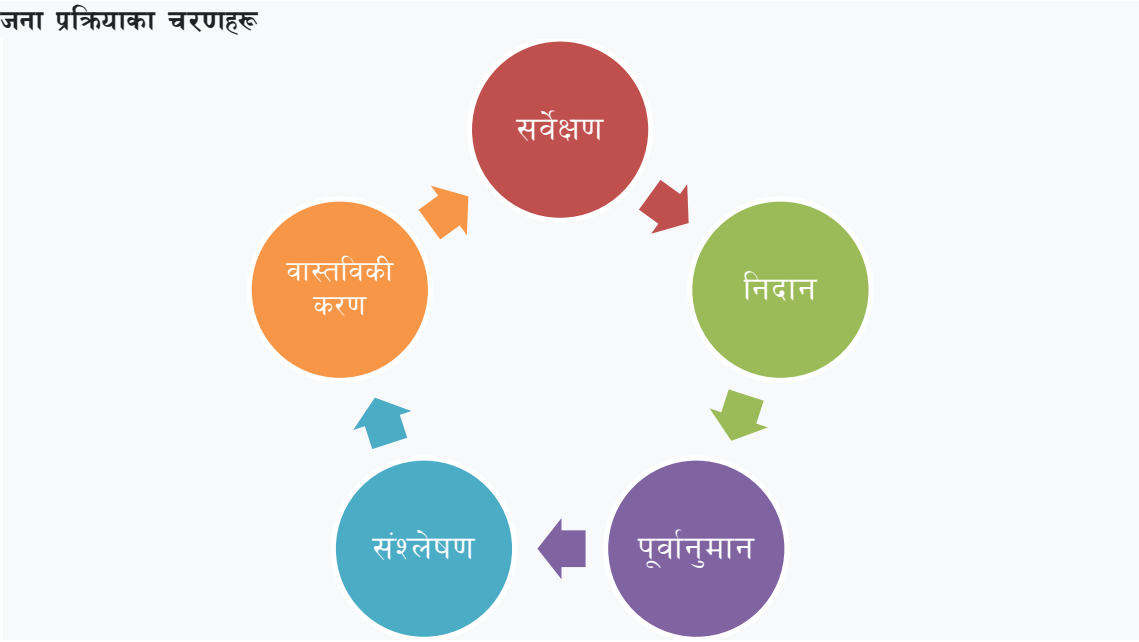
शुक्लाफाँटा नगरपालिकाको LTUDP को कामको दायरा तल उल्लेख गरिएको छ:

i) GIS द्वारा आधार नक्साको तयारी
ii) जोखिम संवेदनशील भूमि उपयोग योजना (RSLUP) को तयारी
iii) शहरी विकास योजना (LTUDP) को तयारी

LTUDP को तयारीको लागि निम्न चरणहरू समावेश गरिएको छ ।

i) सर्वेक्षण र मूल्याङ्कन - शहरको प्रोफाइल बनाउन
ii) निदान - समस्या, अवसर र शहरले सामना गर्ने चुनौतीहरूको पहिचान गर्न नेतृत्व गर्ने जोखिम संवेदनशील भूमि उपयोग योजना (RSLUP)को तयारी ।
iii) पूर्वानुमान - जनसंख्या प्रक्षेपण र सहरी विस्तार आवश्यकताहरूको पूर्वानुमानमा गर्ने जसले विभिन्न भू-उपयोगका घटकहरु सँग सम्बन्ध राख्छ ।
iv) संश्लेषण - भिजन बनाउने, लक्ष्य निर्माण गर्ने, स्थानिय विकासका रणनीतिहरु तयार गर्ने र प्राथमिकताका योजना/कार्यक्रमहरू तय गर्ने ।
v) वास्तविकीकरण - योजना कार्यान्वयनका लागी चाहिने स्रोतहरू (वित्तीय र मानवीय) र संस्थागत भूमिकाहरु सँग सम्बन्धित प्रस्तावहरु ।

चित्र १: योजना प्रक्रियाका चरणहरू



अध्याय २: क्षेत्रीय सन्दर्भ

२.१ क्षेत्रीय सन्दर्भ

शुक्लाफाँटा नगरपालिका सुदूरपश्चिम प्रदेशको कञ्चनपुर जिल्लामा अवस्थित छ । सुदूरपश्चिम प्रदेश सात प्रदेशमध्यको एक हो र यसले हिमाल, पहाड र तराई गरी तीन पारिस्थितिक क्षेत्रहरू समेट्छ । यसको पूर्वमा कर्णाली प्रदेश र प्रदेश ५, दक्षिणमा भारत र कर्णाली प्रदेश (हुम्ला जिल्ला) र उत्तरमा चीनको स्वशासित क्षेत्र तिब्बतसँग सीमा जोडिएको छ । यो प्रदेश १९,५३९वर्ग किलोमिटर (१३.२७%)को क्षेत्रफलमा फैलिएको छ भने सन् २०११मा यस प्रदेशको जनसंख्या २,५५२,५२७ (राष्ट्रिय जनसंख्याको ९.६३%) रहेको छ । प्रदेशको सहरी जनसंख्या १,५०४,२७९ (५८.९%) छ । गोदावरीलाई प्रदेशको राजधानी (पहिले धगढीलाई अन्तरिम राजधानीका रूपमा) घोषणा गरिएको छ ।

शुक्लाफाँटा नगरपालिका क्षेत्रीय शहरी विकास परियोजना (RUDP) अन्तर्गत भीमदत्त विकास करिडोर भित्र पर्ने चार शहरी केन्द्रहरू मध्ये एक हो भने अन्य तीन शहरहरू भीमदत्त नगरपालिका, गोदावरी नगरपालिका र धनगढी उप-महानगरपालिका हुन् ।

२.२ फराकिलो क्षेत्रीय योजना सन्दर्भ

कञ्चनपुर जिल्ला सहित नौ जिल्ला मिलेर बनेका सुदूरपश्चिम प्रदेशलाई बृहत् योजनाको क्षेत्र मान्न सकिन्छ र सुन्दर प्रकृतिलाई कायम राख्दै विकासका लागि चुनौती र अवसर दुवै छन् ।

यस क्षेत्रको आर्थिक विकासलाई बढावा दिन, क्षेत्रीय योजना अध्ययन - (NPC/ADB क्षेत्रीय विकास रणनीति, RDS, 2007) निम्न लिखित क्षेत्रीय विकास अवधारणा (RDC) प्रस्तावहरू अगाडि बढायो ।

क) कृषि, पर्यटन, उत्पादन, व्यापार र सेवालाई प्रमुख क्षेत्रका रूपमा र पूर्वाधार, सञ्चार, सामाजिक सेवा, शिक्षा र सुशासनलाई सहायक क्षेत्रका रूपमा।

ख) उर्जालाई दुबै सहायक क्षेत्रका साथै निर्यात क्षमता भएको क्षेत्र मानिएको छ ।

ग) दुई छिमेकी मुलुकबीचको यातायातको पहुँचले यस क्षेत्रको आर्थिक समृद्धिमा असर पार्ने छ ।

RDC प्रस्तावहरूले निम्न तीन रणनीतिक पहलहरू पनि सिफारिस गरेको छ १) तराईमा कृषि उत्पादकत्व वृद्धि गर्ने अनुसन्धानमा सहयोग २) धनगढी–गोदावरी विकास करिडोरमा चिसो भण्डार (cold storage) निर्माण ३) भारतमा कृषि वस्तु निर्यात गर्नसुविधा र प्रक्रियाहरूको विकाश र ४) बाढी नियन्त्रणका लागि पूर्वाधार ।

माथिको छलफल र निष्कर्षले शुक्लाफाँटा र अन्य RUDP नगरपालिकाहरूमा शहरी विकास योजना/कार्यक्रमहरू तर्जुमा गर्न वैचारिक आधार प्रदान गर्नेछ।

२.३ सुदूरपश्चिम प्रदेशको उपक्षेत्रका रूपमा धनगढी – भीमदत्त ग्रोथ करिडोर

RUDPको सुरुवात गर्न को लागी तयार पारिएको PPTA रिपोर्ट २०१७ ले ग्रोथ कोरिडोर को अवधारणा ल्यायो। ग्रोथ करिडोरले पूर्व पश्चिम राजमार्गसँग जोडिएको चार सहरी केन्द्रहरू समावेश गर्दछ – धनगढी, गोदावरी, शुक्लाफाँटा र भीमदत्त (महेन्द्रनगर) । यसलाई सुदूरपश्चिम प्रदेश भित्रको योजना उपक्षेत्र वा नगर क्षेत्रको रुपमा लिन सकिन्छ। उप–क्षेत्र भित्र गरिबी न्यूनीकरण र आर्थिक बृद्धि गर्न प्रस्तावित आर्थिक र शहरी विकास दृष्टिकोणलाई संक्षिप्त रूपमा तल प्रस्तुत गरिएको छ ।

उपक्षेत्रीय आर्थिक विकास भिजन (EDV)ले सुदूरपश्चिम क्षेत्रको दिगो आर्थिक विकासमा महत्त्वपूर्ण प्रभाव पार्ने पर्यटन, कृषि र वनमा धेरै ध्यान दिएको छ र ती क्षेत्रहरूमा सञ्चालन गरिने रणनीति र कार्यहरू अभिव्यक्त गरेको छ ।

उप–क्षेत्रीय शहरी विकास भिजन (UDV) द्वारा उपक्षेत्रीय आर्थिक विकास भिजन (EDV) लाई निम्नानुसार अभिव्यक्त पूरक हुन आवश्यक छ:

क)धनगढी–गोदावरी–शुक्लाफाँटा–भीमदत्त र आसपासका क्षेत्रहरूलाई सहरी विकास करिडोरको रूपमा योजनाबद्ध विकास गर्ने ।

ख)भू–उपयोग योजना, बृहत् सहरी भित्री भूभाग जडानमा लगानी, प्रभावकारी र उच्च गुणस्तरको सार्वजनिक यातायात सेवा, सहरी पूर्वाधार, पर्यटन सुविधा, र पर्यावरण मैत्री विकास नियमहरू ।

ग)दिगो आर्थिक विकास बिना दिगो शहरी विकास हासिल गर्न नसकिने भएकाले, सहरीकरणका फाइदाहरू लिएर उपक्षेत्रीय आर्थिक विकास भिजन द्वारा परिकल्पना गरिएको आर्थिक बृद्धिलाई समर्थन गर्न ।

यद्यपि,सहरी विकासको परिकल्पना भित्र प्रत्येक सहरले अझै पनि आफ्नो पहिचान र कार्यात्मक भूमिका खेल्न सक्ने छन्। चार सहरका कार्यात्मक भूमिका यस प्रकार रहेका छन् ।

क) **गोदावरी**– सुदूरपश्चिम प्रदेशको राजधानी र यस क्षेत्रको लागि लजिस्टिक हेड क्वाटरको रूपमा तोकिएको, र पूर्व–पश्चिम र महाकाली राजमार्ग (उत्तर–दक्षिण राजमार्ग) को छेउमा अवस्थित यातायात र थोक बिक्री बजारको केन्द्र ।

ख) **धनगढी** – विमानस्थल र उत्तर–दक्षिण राजमाग भएका कारण पर्यटकीय सुविधासहितको गुणस्तरीय आतिथ्य पूर्वाधार बनाएर क्षेत्रीय सेवा केन्द्र र पर्यटकीय सहरको रुपमाविकास गर्ने राम्रो सम्भावना रहेको छ । यसका साथै खेलकुद अझ विशेषगरी क्रिकेटको विकासको पनि राम्रो सम्भावना रहेको छ ।

ग) **भीमदत्त**– यो भारतको प्रवेशद्वार हो र यस क्षेत्रलाई व्यापारिक केन्द्रको रूपमा विकास गर्न सकिन्छ। यसले उत्तर दक्षिण करिडोर – महाकाली करिडोर – व्यापार मार्गको रूपमा चीनसाग जोड्ने सम्भावना पनि राख्छ।

ध) शुक्लाफाँटा – अझै ग्रामीण चरित्र भएका कारण यस सहरले कृषि केन्द्र र कृषि विश्वविद्यालय सहरको रुपमा विकास गर्न सम्भावना राख्छ ।

२.४ उप-क्षेत्रीय शहरी विकास भिजन (UDV) र शुक्लाफाँटा दीर्घकालीन सहरी विकास योजना LTUDP को लागि प्रभाव

क) शुक्लाफाँटा सहरको विकासको दृष्टिकोण – कृषि वनको हब र कृषि र वनको क्षेत्रमा सम्भावित विश्वविद्यालय सहरको रूपमा । यसले नगरपालिका स्तरमा पर्यटन, कृषि र वन क्षेत्रको गतिविधिलाई एकीकृत गर्नका साथै माथिको EDV द्वारा व्यक्त गरिए अनुसार क्षेत्रीय आकांक्षाहरू पूरा गर्न यो सहर महत्त्वपूर्ण साधन हुन सक्छ भन्ने संकेत गर्छ ।

ख)भूमि प्रयोग योजनाको निहितार्थ – भूमि प्रयोग योजना अन्तरगत सहरी क्षेत्र र यसको परिधिमा कृषि क्षेत्रको संरक्षणमा जोड दिने । यसले व्यावसायिक गतिविधिहरूको घना सहर केन्द्रमा प्रवर्घन गर्नुका साथै ग्रामीण कृषि क्षेत्रहरूमा त्यसलाई सुहाउँदो हरियो र फैलिएको शहरी बस्तीहरू विकास गर्दछ ।

ग)भित्री सहरी भूभाग राम्रो पहुँचका लागि लगानी – सडकको निर्माणले सहरका भित्री भूभागको पहुाचलाई सहज बनाउनका साथै, नगरपालिका भित्र सार्वजनिक यातायात प्रणाली सुचारु गर्न पनि अवसर दिन्छ ।

घ) सहरी पूर्वाधार – जनघनत्वको आधारमा विभिन्न पूर्वाधारहरु जस्तै पानी आपूर्ति, फोहोर पानी, ठोस फोहोर, ऊर्जा (बायो–ग्यास प्लान्ट) जल निकासी इत्यादिको प्रावधान गर्न सकिन्छ ।

ङ) पर्यटकीय सुविधा सहितको सार्वजनिक सुविधा र सेवाहरू

- नगरपालिका भित्र 'पर्यटकमैत्री सुविधा'को व्यवस्था, पर्यटकीय स्थलहरूमा आराम गर्ने ठाउँ, शौचालय, सूचना बोर्ड, साइनेज लगायत होम स्टेको व्यवस्था ।
- आधारभूत सहरी सुविधाहरू (सार्वजनिक खुला ठाउँ, बस टर्मिनल, हल, आदि) को प्रावधान ।

च) योजना र भवन सम्बन्धी मापदण्ड

साइकल र पैदल हिड्ने फुटपाथहरूका लागि सेट ब्याकका साथै हरियालीका लागि धर अगाडि र पछाडि पर्याप्त खुला आागन दिन जग्गा पार्सलको न्यूनतम आकार सीमित गर्ने कानूनहरूको लागि प्रावधान। माथिको सुझावलाई गोदावरीका लागि बनाइने भू–उपयोग योजना र नियमावलीमा समावेश गर्न सकिन्छ।

२.५ क्षेत्रीय शहरी विकासका मुद्दाहरू: शुक्लाफाँटा LTUDP निर्माण र कार्यान्वयनका लागि प्रभावहरू।

शुक्लाफाँटाको विकास योजना तर्जुमा गर्दा पर्न सक्ने असर सहित सुदूरपश्चिम तराई क्षेत्रमा रहेका क्षेत्रीय सहरी विकासका समस्याहरूलाई निम्नानुसार वर्णन गर्न सकिन्छ ।

- भारतसाग सीमा जोडिएको तराईको समथल क्षेत्रमा ६० किलोमिटर करिडोरभित्र अवस्थित आयोजना नगरपालिकाहरूको प्रतिस्पर्धात्मक र विवादित स्वार्थहरू ।
- आप्रवासीहरूको कारण भविष्यमा सामाजिक, आर्थिक, राजनीतिक र वातावरणीय समस्याहरूबाट बच्न एक समन्वयात्मक दृष्टिकोणको आवश्यकता ।

- परियोजना नगरपालिकाहरूमा समन्वयात्मक सहयोगका लागि योजना लक्ष्य, उद्देश्य र रणनीतिहरूको उप-क्षेत्रीय अभिव्यक्तिको आवश्यकता ।
- दुवै सीमावर्ती सहरहरु धनगढी र भीमदत्तबाट भारतमा सहज पहुँच नहुनु त्यस सहरहरुको विकासको बाधकका रूपमा हेरिएको छ ।
- उप-क्षेत्रीय स्तरमा आर्थिक र शहरी विकासको योजना, कार्यान्वयन, समन्वय र निरीक्षण गर्न एकल शीर्ष अधिकारको अभाव ।
- बृहत् क्षेत्रीय दृष्टिकोणलाई साकार पार्न अन्तर मन्त्रालय, अन्तर विभाग र अन्तर जिल्ला समन्वयको आवश्यकता ।
- आयोजना कार्यान्वयन सँग सम्बन्धित प्रदेश सरकारको भूमिका र कामको बारेमा स्पष्टताको अभाव ।

अध्याय ३: स्थिति विश्लेषण

३.१ स्थान र भौतिक विशेषताहरू

सुदूरपश्चिम प्रदेशको कञ्चनपुर जिल्लामा अवस्थित शुक्लाफाँटा नगरपालिकाको नाम प्रसिद्ध राष्ट्रिय वन्यजन्तु आरक्ष क्षेत्र (शुक्लाफाँटा राष्ट्रिय निकुञ्ज) बाट लिइएको हो। सन् २०१४ डिसेम्बरमा झलारी र पिपलादी नामका दुई गाउँ विकास समितिहरू (VDC) गाभिएर झलारी पिपलादी नगरपालिकाको रूपमा स्थापना गरीएको थियो। पछि सन् २०१७ फेब्रुअरीमा देखतभुली गाविसका वडा ४ र ६ लाई पूर्व झलारी पिपलादी नगरपालिकामा गाभेर शुक्लाफाँटा नगरपालिकाको स्थापना गरिएको हो । शुक्लाफाँटा नगरपालिकामा १२ वटा वडा रहेको छ र यसको क्षेत्रफल १६२.५७४ वर्गकिलोमिटर (१६,२५७.३५४ हेक्टर) रहेको छ ।

३.२ जनसांख्यिकीय विश्लेषण

सन् १९९१, २००१ र २०११ को जनगणना तथ्याङ्कले नगरपालिकाको जनसंख्या क्रमशः २२,०९४, ३२,९९३ र ४६,८३४ रहेको रेकर्ड गरेको छ ।

उमेर समूह अनुसार जनसंख्या वितरणको तथ्याङ्कले १४ वर्ष मुनिका बालबालिका ३८.२४%, काम गर्ने उमेर समूह (१५-५९) ५४.४८% र वृद्ध वृद्धा (६० वर्ष माथि) ७.२८% रहेको बताउँछ । नगरपालिकाको औसत लैंगिक अनुपात ८७.०२ हो, जुन राष्ट्रिय औसत (९४.२) भन्दा कम हो । बालबालिका, आर्थिक रूपमा सक्रिय उमेर समूह र वृद्धहरू बीचको लैंगिक अनुपात क्रमशः १०५.४२, ७५.१५ र ९४.०४ छ । शुक्लाफाँटामा आधा भन्दा बढी जनसंख्या (६२.२१%) ब्राह्मण/क्षेत्री-पहाडी, त्यस पछि जनजाति-तराई (२१.४१%), दलित-पहाडी (१३.५९%), नेवारहरू बाहेकका जनजाति पहाड (२.३१%) र अन्य जातजाति १% भन्दा कम रहेको छ ।

शुक्लाफाँटाको जनघनत्व २.८८ व्यक्ति प्रति हेक्टर छ, शुक्लाफाँटाको कुनै पनि वडामा १० व्यक्ति प्रति हेक्टर भन्दा माथिको जनघनत्व नभएको देखाउँछ, तर १२ मध्ये ५ वडाको घनत्व ५ पीपीएच भन्दा बढी छ। घनत्व ०.९५ व्यक्ति प्रति हेक्टर (वडा नं ८) देखि ८.८५ व्यक्ति प्रति हेक्टर (वडा नं ५) सम्म भिन्न हुन्छ । यसले ३, ४, ५, ६ र १० वडाहरूमा सहरीकरण भइरहेको र बाकी वडाहरू ग्रामीण रहेको संकेत गर्छ ।

३.३ स्थानिय विश्लेषणः शहरी वृद्धि प्रवृत्ति र अवस्थित भूमि प्रयोग

शुक्लाफाँटा नगरपालिकाको अधिकांश बस्तीहरु पातलो र छरिएको छ भने घना बस्ती झलारी चोक (वडा नं १०) मा मात्र सीमित छ। सन् २००३ देखि २०१७ सम्मको स्याटेलाइट फोटोको अध्ययनले झलारी चोक (वडा नं १०), पिपलाडी

(वडा नं ३), असैना (वडा नं ४) रकाला गौडी (वडा १२)मा क्लस्टर बस्ती समय सँगै विकास भएको देखाउँछ । यसबाहेक, सन् २००६ मा नेपाल सरकारले सिमालफाँटा (वडा नं ६, ७) र परिफन्टा (वडा नं ८, ९) मा विकास गरेका बस्तीहरू २०११ सम्ममा झन बाक्लो भए । भवन निर्माण अनुमति रेकर्डले वडा नं १० र ११ मा सबै भन्दा धेरै भवन निर्माण देखाउँछ जसले यी वडाहरूमा शहरीकरण प्रवृत्तिलाई संकेत गर्दछ। हालको बसोबास ढाँचाले वांछनीय सहरी घनत्वलाई प्रतिबिम्बित गर्दैन त्यसैले यसले उदीयमान शहरी क्षेत्रहरूमा वांछनीय शहरी बस्ती ढाँचा र घनत्व प्राप्त गर्न योजना बद्ध विकासको आवश्यकता देखाउँछ ।

शुक्लाफाँटा (सन् २०१८)को विद्यमान भू-उपयोगमा नगरपालिका क्षेत्रको ५६.०४% कभरेज सहित वनको प्रभुत्व रहेको छ, त्यसपछि ३३.३४% कृषि क्षेत्र रहेको छ । निर्माण क्षेत्रले ४.१५% मात्र ओगटेको जनाउँछ भने नगरपालिकामा बसोबास धेरै जसो ग्रामीण प्रकृतिको छ, तर निर्माण क्षेत्र बढ्दै गएको छ जुन बढ्दो सहरीकरणको स्पष्ट सकेंत हो ।

३.४ विपद् जोखिम र जोखिम संवेदनशील भूमि प्रयोग योजना (RSLUP)

अध्ययनको सन्दर्भ सर्तहरू (TOR) अनुसार, जोखिम संवेदनशील भूमि प्रयोग योजना (RSLUP)सहरी वृद्धि प्रवृत्ति र बहु-जोखिम मूल्याङ्कनका आधारमा तयार गर्न आवश्यक छ जसले संरक्षण, नियन्त्रण र प्रवर्द्धन गर्ने क्षेत्रहरू पहिचान गर्दछ। त्यसैले नगरपालिका भित्रका विभिन्न विपद् जोखिम पक्षहरूको अध्ययन गर्न आवश्यक छ । जोखिमप्रवण क्षेत्रहरूमा जनसंख्याको एकाग्रताले ती जोखिमहरू लाई अझ बढाउँछ । सीमान्तकृत समुदायका र कमजोर आर्थिक स्थिति भएका मानिसहरू विपद्को सामना गर्न स्रोतको अभाव भएकाले विपद्को बढी जोखिममा हुन्छन् ।

विपद् जोखिमहरू निम्न हुन्:

१) नदीमा बढ्दो बाढी र डुबानले प्रभावित तराईको समतल क्षेत्रमा रहेको शुक्लाफाँटामा विपद् जोखिम गम्भीर देखिन्छ । शुक्लाफाँटामा प्राय: मनसुनी मौसममा आएको बाढी र ठूला नदीमा पानीको बहावका कारण बाढी आउने गरेको छ । सनबरा, बनारा र स्याली नदी नजिकका विभिन्न वडाका बस्ती बाढीले प्रभावित भएका छन् ।

२) शुक्लाफाँटामा चुरिया क्षेत्रको फेदमा पहिराको जोखिम रहेको छ । कालापानी, शान्तिपुर (वडा ७), भामरभोज, परिफाँटा, बेलडाडी (वडा नं ८) ।

३) खजुवा, वैशाखा (वडा नं ५), असैना (वडा नं ४), कालकौडी (वडा नं १२) का परम्परागत बस्तीका धरहरू स्थानीयरूपमा उपलब्ध काठ, बाँस, पराल लगायतका सामग्रीको प्रयोगका कारण आगलागीको जोखिममा छन् ।

४) शुक्लाफाँटा उच्च भूकम्पीय जोखिम क्षेत्रमा परेकाले भूकम्पको जोखिम पनि रहेको छ। अव्यवस्थित सहरीकरण र पूर्व तयारीको अभावले जोखिमको स्तर झनै बढेको छ ।

RSULP प्रस्तावहरू सञ्चालन गर्ने योजना सिद्धान्तहरू:

RSULPले संरक्षण, नियन्त्रण र प्रवर्द्धन गर्न आवश्यक पर्ने विभिन्न भूमि प्रयोगहरूको पहिचानमा केन्द्रित छ । यी हुन्:

१) ऐतिहासिक, धार्मिक तथा साँस्कृतिक महत्वका क्षेत्र, वन, ताल, प्रमुख कृषि भूमि आदि संरक्षण गर्नुपर्ने क्षेत्रहरू हुन् । शुक्लाफाँटामा वडा नं १, २, ३, ७, ८ र १२ का कृषि तथा वन क्षेत्रलाई संरक्षण गरिने छ ।

२) बाढी, पहिरो, माटोको कटान आदि प्राकृतिक प्रकोपको बढी जोखिममा रहेका क्षेत्रहरूलाई नियन्त्रण गर्नुपर्ने क्षेत्रहरू हुन् । ठूला नदीहरू (सियाली, सुनबोरा र बनारा) र अन्य नदीहरूका लागि चुरिया रङको फेदमा रहेको हरियो बेल्टलाई नियन्त्रण गर्नु पर्नेछ । निकट भविष्यमा सहरीकरण हुन नसक्ने क्षेत्रहरू पनि नियन्त्रित क्षेत्रमा पर्न सक्छन् ।

३)भविष्यमा सहरीकरणको उच्च सम्भावना भएका र प्राकृतिक प्रकोपको न्यून जोखिम भएका क्षेत्रहरूलाई प्रवर्द्धन गरिनुपर्छ। पूर्वपश्चिम राजमार्गको छेउछाउका वा नजिकका वडा नं ४, ५, ६, ९, १० र ११ का क्षेत्रहरु बढुवा क्षेत्र अन्तर्गत पर्नेछन् ।

३.५ भौतिक पूर्वाधारमा पहुँच

पूर्वाधारको अन्तर र मागको विश्लेषण गर्नको लागि अवस्थित पूर्वाधारहरूको विश्लेषण आवश्यक छ।

सडक र ड्रेनेज

शुक्लाफाँटा नगरपालिकाको कुल सडक सञ्जाल १८८.९५ किलोमिटर रहेको छ । SRN, DRCN र शहरी सडक सहित। अधिकांश सडक माटोको (९१%), त्यसपछि कालोटप (८.१४%) र ग्राभेल (०.८०%) छन् । सडकको हालको अवस्था नाजुक छ र सडकको सुधार तथा पर्याप्त जल निकासको व्यवस्था हुन आवश्यक छ ।

नगरपालिकाको सडक घनत्व १.१६ किमि/वर्गकिमि (३.२१ किमि/१००० जनसंख्या) छ। राष्ट्रिय सहरी रणनीति, २०१७ अनुसार मानक शहरी सडक घनत्व ७.५ किमी प्रति वर्गकिलोमिटर छ । यसले नगरपालिका भित्र धेरै कम सडक कभरेज भएको संकेत गर्दछ ।

नगरपालिकामा उचित जल निकासको व्यवस्था छैन । सडक विभागले राजमार्गको छेउमा नाली सहित केही किलोमिटर सडक निर्माण गरेको छ । यस बाहेक नगरपालिका भित्र अन्य कुनैपनि जल निकासको व्यवस्था छैन ।

खानेपानी आपूर्ति

शुक्लाफाँटा नगरपालिकामा पिउने र अन्य प्रयोजनका लागि पानीको प्रमुख स्रोत भनेको सामान्य गहिरो वा गहिरो भूमिगत पानी हो। पाइप जडान गरिएको खानेपानी योजनाहरू मुख्य क्षेत्र (वडा नं १० र ११) मा मात्र अवस्थित छ र यसले नगरपालिकाको २५% जनसंख्या लाई समेट्छ ।

सरसफाइ र फोहोर पानी

३० सेप्टेम्बर सन् २०१९मा देशलाई खुला दिसामुक्त (ODF) घोषणा गरिएको थियो । यसले शुक्लाफाँटा नगरपालिकाको सबै घर परिवारमा पनि पूर्ण शौचालय भएको जनाउँछ । प्राविधिक सहायता परामर्शदाताको प्रतिवेदनले २०१५को नगरपालिकाको तथ्याङ्कलाई उद्धृत गर्दै पूर्व झलारी-पिपलादी नगरपालिकामा ५५ प्रतिशत खुला खाडल, १७ प्रतिशत निजी शौचालय र २८ प्रतिशत भीआईपी शौचालय रहेको जनाएको छ । एउटा झलारी बजार (वडा नं १०) र अर्को कलुवापुर बजार (वडा नं ११)मा दुई वटा सार्वजनिक शौचालय छन् । नगरपालिकामा ढलनिकासको व्यवस्था छैन ।

ठोस फोहोर

नगरपालिकामा औसत नगरपालिका ठोस फोहोर (MSW) उत्पादन ०.२१७ किलोग्राम/व्यक्ति/दिन छ। २०१७ मा ५८,९२३ लाई प्रभावकारी जनसंख्या लिदा नगरपालिकामा उत्पादन हुने कुल धरयासी फोहोर प्रति दिन ९.६ टन र नगरपालिकाको कुल ठोस फोहोर १२.७८ टन छ । फोहोर मैला संकलन वडा ५, ६, १० र ११ को मुख्य सडक र छेउका सडकहरूमा सीमित छ भने ग्रामीण वडाहरूले आफ्नो फोहोर आफैं व्यवस्थापन गरिरहेका छन् ।

बिजुली

शुक्लाफाँटा नगरपालिकाको प्रतिवेदन २०१५ अनुसार नगरपालिकाका ८५% धरघुरी राष्ट्रिय ग्रिडमा र १% सौर्य उर्जामा जोडिएका छन भने १४%मा बिजुलीको पहुँच छैन । स्थानीय तहमा सौर्य र बायोग्या सजस्ता नवीकरणीय ऊर्जा लाई प्रोत्साहन गरिन्छ ।

३.६ सामाजिक पूर्वाधारमा पहुँच

सामाजिक पूर्वाधारको व्यवस्था गर्ने सन्दर्भमा नगरपालिकामा हाल २६ बालविकास केन्द्र र विभिन्न तहका ३८ शैक्षिक संस्था सञ्चालनमा छन् । शुक्लाफाँटा नगरपालिकामा हाल ४, ७ र १० वडामा एक-एक गरी तीन वटा स्वास्थ्य चौकी सञ्चालित छन् । नगरपालिकामा एउटा वडा नं १० मा र अर्को वडा नं १ मा दुई खेल मैदान छन् । रंगशाला, कभर्ड हल जस्ता खेलकुद परिसर छैनन् ।

३.७ शहरी अर्थतन्त्र

२५ वर्ष अघि शुक्लाफाँटा राष्ट्रिय निकुञ्ज बाट विस्थापित परिवारको पुनर्वास पछि बनेको तुलनात्मक रूपमा नयाँ बस्ती भएकोले शुक्लाफाँटा नगरपालिकाले कृषि र पशुपालनले हावी रहेको ग्रामीण अर्थतन्त्र लाई देखाउँछ। ७१.५% श्रमिक जनसंख्या कृषि, ७.३% सेवा, ६.२% दैनिक ज्याला र १०% वैदेशिक रोजगारीमा (अधिकाशं भारत) संलग्न छन्।
शुक्लाफाँटा नगरपालिकाको अधिकांश भूभाग कृषि जमिन र जगंलले ओगटेकाले कृषि र वन उत्पादन र प्रवर्द्धनका लागि सामुदायिक पहलका लागि प्रदर्शन केन्द्रको रूपमा विकास गर्न सकिन्छ।

३.८ प्रमुख समग्र निश्कर्ष

१) जनगणना २००१ र २०११ अनुसार शुक्लाफाँटाको सहरी वृद्धिदर क्रमशः ४.०९% र ३.५७% छ । २०११ को जनगणना अनुसार शुक्लाफाँटा UGR भन्दा ३.४३% को राष्ट्रिय सहरी वृद्धिदर अलि कम छ। P7 नगरपालिकाहरूमा १९९१ देखि २००१ सम्मको वृद्धि ३.६% ।

२) नगरपालिकाको जनसंख्याको उच्च अनुपात, लगभग ५५% आर्थिक रूपमा सक्रिय जनसंख्या (१५-५९)उमेर समूहले ओगटेको छ भने वृद्ध र युवा वर्गहरूले क्रमश:लगभग ७% र ३८% ओगटेका छन् ।

३) बालबालिका, आर्थिक रूपमा सक्रिय उमेर समूह र वृद्धहरू बीचको लैंगिक अनुपात क्रमशः १०५.४२, ७५.१५ र ९४.०४ छ । आर्थिक रूपमा सक्रिय उमेर समूहमा कम लैंगिक अनुपात ७५.१५%ले नगरपालिकामा पुरुषहरूको छनोट पूर्ण बाहिरी बसाइलाई सक्तेत गर्छ र विशेष गरी घरपरिवारमा महिलाहरूको परिवर्तनशील भूमिकाको कल्पना गर्दछ ।

४) नगरपालिकामा जातीय/जातीय वितरणले ६७.०४% धरधुरीहरू पहाडी ब्राह्मण/क्षेत्रीले ओगटेको र त्यसपछि अन्य जातीय समूहहरूलाई ओगटेको संकेत गर्छ ।

५) शुक्लाफाँटाको वडा अनुसारको जनघनत्वले देखाउँछ कि वडा नं ३, ४, ५, ६ र १० को घनत्व ५ देखि १० व्यक्ति प्रति हेक्टरको बीचमा रहेको छ भने बाँकी वडाहरूमा ५ व्यक्ति प्रति हेक्टर भन्दा कम घनत्व भएका ग्रामीण चरित्रलाई समावेश गरिएको छ ।

६) शुक्लाफाँटामा सन् २०११ देखि २०१७ सम्मको भूउपयोग परिवर्तनको मूल्याङ्कन गर्दा अधिकांश कृषि तथा वनक्षेत्र अक्षुण्ण रहेको पाइएको छ भने सोही अवधिमा निर्माण क्षेत्र ०.५ प्रतिशतबाट बढेर ४.१५ प्रतिशत पुगेको छ ।

७) सन् २०१७मा प्रमुख भू-उपयोग वन क्षेत्र रहेको छ जसले नगरपालिकाको ५६.०४% भूभाग ओगटेको छ र कृषि क्षेत्रले ३३.३४% ओगटेको छ । यसले सहरीकरणको लागि प्रशस्त ठाउँको उपलब्धता रहेको कुरालाई पनि जनाउँछ ।

८) भवन निर्माण अनुमति तथ्याङ्क (तालिका ३.१०) बाट संकेत गरे अनुसार वार्ड नं १० र ११ लाई निर्माण गतिविधि धेरै भएका कारण सहरीको वडाका रूपमा मान्न सकिन्छ । राजमार्गको छेउछाउ (वडा नं १० र ११)मा पनि अधिकांश व्यवसायिक गतिविधि भइरहेका छन् ।

९)विपद् जोखिम विश्लेषणले शुक्लाफाँटा नगरपालिकामा विभिन्न कारकहरूका कारण जोखिमयुक्त क्षेत्रहरुको पहिचान गरेको छ । जोखिमका विभिन्न कारकहरू: भूस्खलन, बाढी, नदीकिनारको कटान, आगलागी, विद्युतीय उच्च तनावरेखा, शुक्लाफाँटा राष्ट्रिय निकुञ्ज नजिकको मध्य वर्ती क्षेत्रमा वन्यजन्तुको हस्तक्षेप आदि देखाउँछ । (उपधारा ३.४.२ मा विस्तृत रूपमा छलफल गरिएको)

१०) जोखिम संवेदनशील भूमि प्रयोग योजना (RSLUP) राष्ट्रिय भू-उपयोग नीति २०१५ (उपदफा३.४.४मा विवरणहरू) द्वारा प्रस्तुत गरिएका व्यापक सिद्धान्तहरू द्वारा निर्देशित हुनेछ र यसले माथि उल्लेख गरिए अनुसार विपद् जोखिमका सम्भावित क्षेत्रहरूलाई समावेश गर्नुपर्नेछ ।

११) जोखिम संवेदनशील भूमि प्रयोग नक्सा RSLUPको एक महत्त्वपूर्ण घटकको रूपमा लिइएको छ र यो शहरी वृद्धि प्रवृत्ति र बहु-जोखिम मूल्याक्तनमा आधारित हुनेछ । यसले संरक्षित, नियन्त्रण र प्रवर्द्धन गरिने क्षेत्रहरू संकेत गर्दछ ।

१२) RSLUP लाई शुक्लाफाँटा नगरपालिकाको अन्तिम भौतिक विकास योजना र प्रस्तावहरू सँग एकीकृत गर्न आवश्यक छ ।

१३) शुक्लाफाँटा नगरपालिकामा SRN, DRCN र शहरी सडक गरि कुल सडक सञ्जाल १८८.९५ किलोमिटर रहेको छ, जसमा ९१% सम्म माटोको छ, त्यसपछि ग्राभल टप (०.८०%) र कालोटप (८.१४%) छ ।

१४) राजमार्गका केही किलोमिटर सडक छेउको ड्रेनेज बाहेक, नगरपालिका भित्र अन्य कुनै जल निकासको व्यवस्था छैन।

१५) प्राविधिक सहायता परामर्शदाताको प्रतिवेदन अनुसार पूर्व झलारी-पिपलादी नगरपालिकामा ५५% खुल्ला खाल्डो, १७% निजी शौचालय र २८% निजी वी आई पी शौचालय रहेको नगरपालिकाको तथ्यांक २०१५को उल्लेख छ । झलारी बजार (वडा नं १०) मा एउटा र अर्को एउटा सार्वजनिक शौचालय रहेको छ। कलुवापुर बजार (वडा ११)।

१६) पाइप द्वारा पानी आपूर्ति बजार क्षेत्र (वडा नं १० र ११)मा लगभग २५% जनसंख्या लाई मात्र सीमित छ जबकि अधिकांश जनसंख्या ट्युबवेल / हातेपम्पमा निर्भर छन् ।

१७) नगरपालिकामा औसत ठोस फोहोर MSW उत्पादन ०.२१७ केजि/व्यक्ति/दिन छ। सन् २०१७मा ५८,९२३ लाई प्रभावकारी जनसंख्या लिदा नगरपालिकामा उत्पादन हुने कुल धरयासी फोहोर प्रति दिन ९.६ टन र नगरपालिकाको कुल ठोस फोहोर १२.७८ टन छ ।

३.९ प्रमुख मुद्दाहरू, अवसरहरू र चुनौतीहरू: SWOT विश्लेषण

SWOT विश्लेषण आन्तरिक कारकहरू - शक्ति र कमजोरी र बाह्य कारकहरू - अवसर र खतरा पहिचान गर्ने विश्लेषणात्मक रूपरेखा हो । यो विभिन्न गतिविधिहरुको आधारमा गरिन्छ जस्तै, डेस्क अध्ययन, सरोकारवालाहरूको परामर्श/कार्यशाला, फिल्ड भ्रमण, र प्रमुख सूचना कारहरू सँग परामर्श आदि ।

तालिका १ शक्ति, कमजोरी, अवसर र **चुनौती** विश्लेषण

आन्तरिक वातावरण	
शक्ति	**कमजोरी**
• शुक्लाफाँटा राष्ट्रिय निकुञ्जको निकटता । • राम्रो जडान – पूर्व पश्चिम राजमार्ग, कालुवापुर सडक । • सहरी विकासका लागि पर्याप्त भूमि स्रोत । • जातीय, सामाजिक र सांस्कृतिक विविधता । • राज्यको पुनसंरचना – स्थिर र सशक्त स्थानीय सरकार ।	• अवस्थित बस्तीहरू पातलो र छरिएका छन् । • सहरी केन्द्रमा समेत आधारभूत सहरी पूर्वाधारको अभाव । • नगरपालिका सडकहरूलाई सबै मौसमी सडकहरूमा स्तरोन्नति गर्न आवश्यक छ । • ड्रेनेज राजमार्गको निश्चित भागमा मात्र सीमित छ, ढल निकास नेटवर्क छैन । • योजनाबद्ध सहरीकरणको अवधारणा अहिले सम्म पेश गरिएको छैन । • एकीकृत विकास दृष्टिकोणको अभाव । • नगरपालिकाको कमजोर संस्थागत क्षमता ।
अवसर	**चुनौती**
• पर्यटक मैत्री सुविधाको व्यवस्था गरी हरित पर्यटनको सम्भावना । • उप–क्षेत्रका लागि कृषि–वन हब र कृषि र वनको क्षेत्रमा सम्भावित विश्वविद्यालय शहरको रूपमा विकास गर्ने सम्भाव्यता । • कृषि र वनमा आधारित समुदाय द्धारा संचालित घरेलु र साना उद्योगहरूको स्थापनाको सम्भाव्यता । • यो नयाँ नगरपालिका भएकाले योजनाबद्ध सहरी विकासको सम्भावना छ । • सडक निर्माण मार्फत सहरी भित्री भूभाग जडानको सम्भाव्यता ।	• अव्यवस्थित सहरीकरण । • जंगल र चुरेक्षेत्र अतिक्रमण । • अब प्रकोपको जोखिम झनझन बढ्छ र जलवायु परिवर्तनको जोखिम हुन्छ । • स्थापित बजार केन्द्रहरू (भीमदत्त र अत्तरिया) नजिकै हुनु र व्यावसायिक गतिविधिहरूको सर्तहरूमा स्थापित बजार केन्द्रहरू सँग प्रतिस्पर्धा गर्न सक्षम नहुनु । • कृषि र वन क्षेत्रमा लगानीको अभाव ।
बाह्य वातावरण	

अध्याय ४: नगरपालिकाको लागि विकास योजना ढाँचा

४.१ पूर्वानुमान

जनसंख्या वृद्धि प्रवृत्ति

अहिले शुक्लाफाँटा नगरपालिकामा समेटिएको क्षेत्रमा आसपासका पहाडी जिल्लाहरू बाट बसाइँसराइ भएका कारण जनसंख्यामा उल्लेख्य वृद्धि भएको छ । नगरपालिकाको जनसंख्या १९९१ मा २२,०९४ थियो र वार्षिक ४.०९% को वृद्धि दरले बढेर सन् २००१ मा ३२,९९३ मा पुग्यो, अर्को दशकमा तुलनात्मक रूपमा कम वृद्धिदर ३.५७%ले बढेर सन् २०११मा ४६,८३४ पुगेको थियो । औसत जनघनत्व १९९१ मा १.३६ बाट २०११ मा २.८८मा बढ्यो । यहि जनसांख्यिक डाटा सन् २०४३ सम्मको जनसंख्या लाई प्रक्षेपण गर्ने प्रयास गरिएको छ । समग्रमा नगरपालिकाको यथार्थपरक वार्षिक बृद्धिदर ३.९० प्रतिशत निर्धारण गरिएको छ र यस बृद्धिदरले नगरपालिकाको कूल जनसंख्या २०२३ र २०४३ सम्ममा ७४,४०६ र १,६६,४२१ पुग्ने अनुमान गरिएको छ भने सन् २०१७को अनुमानित जनसंख्या ५८,९२३ रहेको छ ।

बढ्दो जनसंख्या र सहरीकरणले कृषि भूमिलाई निर्मित क्षेत्रमा रूपान्तरण गर्छ, जुन नगरपालिका भित्रको सहरीकरण प्रक्रिया र विकास गतिविधिहरूको हदमा निर्भर गर्दछ। हालको वडाको जनसंख्या, हालको कुल घनत्व, अपनाईएको घनत्व र अनुमानित जनसंख्याको आधारमा आगामी २० वर्षको लागि भविष्यको जग्गा आवश्यकताहरू प्रक्षेपण गर्ने प्रयास गरिएको छ। माथिल्लो पक्षमा १५० व्यक्ति प्रति हेक्टरको घनत्व वडा नं १० (शहरीकोर) र ११ को लागि मानिएको छ । २, ३, ४, ५, ६ र ९ नं वडा हरूका लागि १०० व्यक्ति प्रति हेक्टरको मध्यम घनत्व मानिएको छ किन भने यी वडाहरू शहरी केन्द्रको नजिक छन् र भविष्यमा वृद्धिको सम्भावना छ। ग्रामीण वडा नं १, ७, ८ र १२ का लागि ५० व्यक्ति प्रति हेक्टरको धेरै कम घनत्व मानिएको छ। अनुमानित जनसंख्याको आवासको लागि कुल आवासीय भूखंडको आवश्यकता २२२५ हेक्टर अनुमान गरिएको छ र कूल जग्गा आवश्यकता (सडक, पैदलमार्ग, बफर स्पेस, खुलाठाउँ/पार्कहरू, संस्थाहरू आदि सहित) सन् २०४३ सम्ममा २८७० हेक्टर अनुमान गरिएको छ।

४.२ शहरी पूर्वाधारको लागि माग विश्लेषण

योजना मापदण्ड र मानक २०१५ (PNS 2015)को आधारमा सन् २०४३ सम्मको सामाजिक, आर्थिक र भौतिक शहरी पूर्वाधारको माग विश्लेषण गरिएको छ । भौतिक पूर्वाधारका लागि २०८.०१ किलोमिटर सहरी सडकको स्तरोन्नति, ४६३.३२ किलोमिटर शहरी जल निकास निर्माण, ल्याण्डपुलिङ आयोजनाको थालनी र बसपार्क निर्माणलाई आवश्यक पूर्वाधारका रूपमा पहिचान गरिएको छ । सामाजिक पूर्वाधारको मामलामा अस्पताल, खुल्लाठाउँ र मनोरञ्जन स्थल, दमकल स्टेशन, शमशान/घाट, वृद्धा आश्रम र प्रहरी चौकी लाई आवश्यक पूर्वाधारका रूपमा पहिचान गरिएको छ । जबकि आर्थिक पूर्वाधारको लागि तरकारी बजार र चिसो भण्डारलाई आवश्यक पूर्वाधारका रूपमा पहिचान गरिएको छ ।

४.३ विकास भिजन, योजना लक्ष्य र उद्देश्यहरू

४.३.१ विकास भिजनको रूपरेखा

शुक्लाफाँटा नगरपालिकाको दीर्घकालीन विकासको परिकल्पना गर्ने प्रयास पनि भएको छ। सन् २०१९को मे महिनामा शुक्लाफाँटामा आयोजित एक दिने योजना कार्यशालामा विभिन्न क्षेत्रका सरोकारवालाहरुको व्यापक सहभागिता रहेको, पहिले नै तय गरिएको विकास भिजनलाई पुनः अवलोकन र छलफल गरी निम्न भिजन स्टेटमेन्टलाई अन्तिम रूप दिइएको थियो:

कृषि, पर्यटन, संस्कृति र प्रकृति संरक्षणः

हरियाली र समृद्ध झलारी–पिपलाडीको आधार

यसलाई अंग्रेजीमा निम्नानुसार प्रस्तुत गर्न सकिन्छः

Agriculture, Tourism, Culture and Nature Conservation:

A Basis for Green and Prosperous Jhallari- Pipaladi

४.३.२ योजना लक्ष्य र उद्देश्यहरू

i) योजना लक्ष्यहरू

क) कृषि तथा वन क्षेत्रमा आविष्कार र व्यावसायीकरणमा योगदान पुऱ्याउन शुक्लाफाँटालाई कृषि वन अनुसन्धान र विकास केन्द्रको हबका रूपमा विकास गर्ने ।

ख) अल्पकालीन, मध्यकालीन र दीर्घकालीन योजना अवधिमा सहरको व्यवस्थित भौतिक विकासको लागि मार्गदर्शकको रूपमा काम गर्ने ।

ग) सन् २०४३ सम्ममा कुल अनुमानित जनसंख्या १,६६,४२१ लाई व्यवस्थित तरीकाले समायोजन गर्ने र उनीहरूको जीवन स्तर उकास्न र उनीहरूको जीवनमा गुणात्मक सुधार ल्याउन आधारभूत सहरी सेवा र सुविधाको व्यवस्था गर्ने ।

ii) योजनाका उद्देश्यहरू तल उल्लिखित छन्:

क) योजनाबद्ध शहरी विस्तार र चरणबद्ध विकासको लागि मार्ग निर्देशनको रूपमा काम गर्ने ।

ख) सडक, ढलनिकास, सरसफाई र फोहोरमैला व्यवस्थापन सम्बन्धी चरणबद्ध पूर्वाधार विकासका लागि योजना ढाँचा उपलब्ध गराउने ।

ग) ल्यान्डपूलिङ योजना, सहरी सेवा/सुविधा र पर्यटकीय स्थलहरूको विकासको सन्दर्भमा स्थानीय योजनाहरूको लागि योजना ढाँचा उपलब्ध गराउने ।

घ) अध्ययनको नतिजा र सरोकारवाला सँगको परामर्शका आधारमा लगानीका कार्यक्रम र आयोजनाका लागि ठोस परियोजना ल्याउने ।

ङ) प्रस्तावित भू–उपयोगमा चित्रण गरिए अनुसार नियन्त्रण, संरक्षण र प्रवर्द्धन गर्नुपर्ने क्षेत्रहरूमा लागू गर्नको लागि क्षेत्र निर्धारण र भवन उप–कानूनहरू सहित प्रभावकारी भू–उपयोग नियमहरू निर्माण गर्ने ।

च) नगरपालिकाको सिमाना भित्रका वातावरणीय दृष्टिले संवेदनशील र जोखिमयुक्त क्षेत्रहरूको संरक्षणका लागि योजना औजारको रूपमा काम गर्ने ।

छ) सहरको मुख्य आर्थिक आधारको रूपमा कृषि भूमिको अधिकतम उपयोगको लागि नियन्त्रणका उपायहरू सहित प्रयास गर्ने ।

अध्याय ५: भौतिक विकास योजना प्रस्तावहरू

५.१ योजना निर्धारकहरू: शुक्लाफाँटाको लागि भौतिक विकास योजनाको आधार

विभिन्न आधारभूत योजना मापदण्डहरू जस्तै सन् २०४३ सम्मको जनसंख्या वृद्धि, विगतका विकास योजनाहरूको समीक्षा र PPTA प्रतिवेदन (२०१७), शहरी पूर्वाधार आवश्यकताहरू र आधारभूत योजना सिद्धान्तहरूको (विकासको दृष्टिकोण, योजनाका लक्ष्यहरू र उद्देश्यहरू) विस्तृत अध्ययन पछि यथार्थपरक स्थानिक (वाभौतिक) विकास ढाँचा तयार गरिएको छ। विभिन्न भौतिक पक्षहरू, अवस्थित बसोबास ढाँचा र वृद्धि प्रवृत्तिहरू, PPTA मा उल्लेख गरिए अनुसार योजना र विकास पहलहरू सबै ध्यानमा राखेर भौतिक विकास रणनीतिहरू तयार गरिएको छ। (विकास अवधारणा/ढाँचा, शहरी विस्तारको चरण बद्धता, शहरका लागि भूमि प्रयोग नीति र क्षेत्र निर्धारण प्रस्तावहरू)।

५.२ स्थानिय विकास रणनीतिः प्रस्तावित अवधारणा र मुख्य प्रस्तावहरू

सुदूरपश्चिम RUDP, PPTA, DRF (Vol-2) द्वारा विकसित अवधारणा विकास योजनाको आधारमा शुक्लाफाँटाको लागि एकात्मक केन्द्रित विकास मोडेलको रूपमा एक यथार्थपरक स्थानिय विकास रणनीति प्रस्ताव गरिएको छ। नगरपालिकाको जनसंख्यालाई सेवा दिन प्रशासनिक कार्यहरू सहितको सहरी कोर। अद्यावधिक गरिएको स्थानिय विकास अवधारणाका मुख्य विशेषताहरू निम्नानुसार छन्।

क) शुक्लाफाँटालाई सन् २०४३ सम्ममा १,६६,४२१ जनसंख्या सहितको उदीयमान सहरी केन्द्रको रूपमा विकास गरिनेछ (सन् २०१७ को जनसंख्या ५८,९२३ मा सन् २०४३ सम्ममा १,०७,४९८ थप जनसंख्या वृद्धि हुने अनुमान गरिएको)।

ख) पूर्व पश्चिम राजमार्गको कालुवापुर चोक देखि बन समिति चोक सम्मको दुबै छेउको १०० मिटर सम्मलाई वाणिज्य क्षेत्रको रूपमा प्रस्तावित गरिएको छ र यसको कूल घनत्व १५० व्यक्ति प्रति हेक्टर प्रस्ताव गरिएको छ।

ग) वाणिज्य क्षेत्र सँग जोडिएका वडा नं ५, ९, १० र ११ को भागहरू शहरी विस्तार क्षेत्र हुने छन्। प्रस्तावित कुल घनत्व वडा १०, ११ को लागि १५० व्यक्ति प्रति हेक्टर र वडा नं ५, ९ को लागि १०० व्यक्ति प्रति हेक्टर हुनेछ।

घ) पूर्व पश्चिम राजमार्गको दक्षिण तर्फको वडा नं ४, ५ र ११ र पूर्व पश्चिम राजमार्गको उत्तरमा वडा नं ६, ९, १० र ११ जोड्ने रिङरोड प्रस्तावित गरिएको छ।

ङ) पूर्व पश्चिम राजमार्गको दुबै छेउमा मिश्रित प्रयोग क्षेत्र र चक्रपथ बीचको क्षेत्रलाई कम घनत्व आवासीय क्षेत्रको रूपमा तोकिएको छ। यसमा वार्ड नं ४, ५, ६, ९, १० र ११ को भागहरू समावेश हुनेछन्। यस क्षेत्रको लागि प्रस्तावित घनत्व १०० व्यक्ति प्रति हेक्टर हुनेछ।

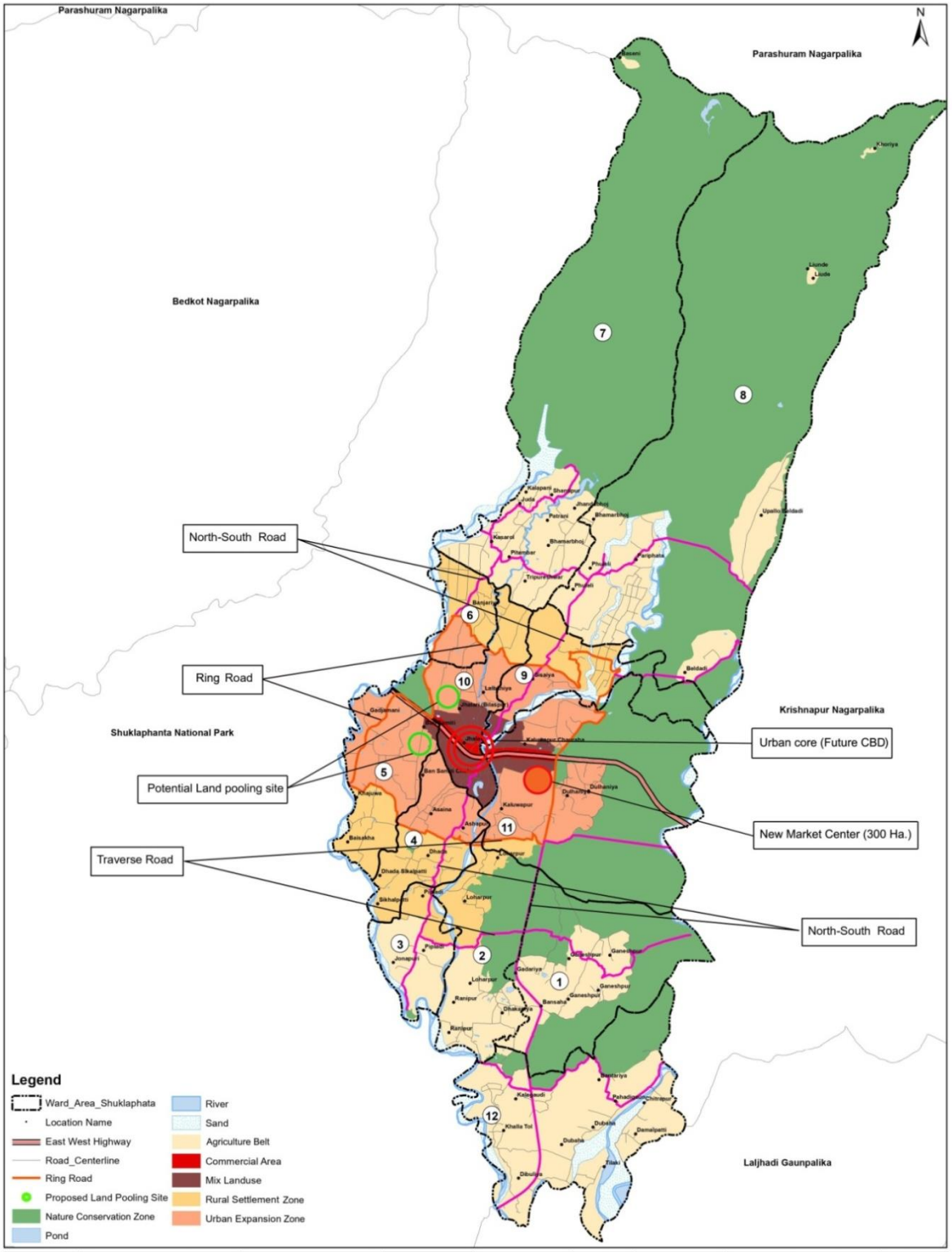
च) वडा नं ५, ९, १० र ११ मा ल्याण्ड पूलिङका लागि सम्भावित स्थानहरू पहिचान गरिएको छ।

छ) पूर्व पश्चिम राजमार्गको उत्तर-दक्षिणमा दुई ओटा सडकहरू सडकहरु र ती सडकको प्रत्येक २ किलो मिटरमा ट्रान्सभर्स लिंकेज प्रस्ताव गरिएको छ।

ज) वडा नं ७ र ८ को दक्षिणी भाग १, ३ र १२ र वडा नं २ को भागलाई कृषि क्षेत्र घोषणा गरिने छ। यो क्षेत्रमा प्रस्तावित घनत्व ५० व्यक्ति प्रति हेक्टर हुनेछ।

झ) वडा नं ७ को उत्तरी भाग, वडा ८ को उत्तरी र पूर्वी भाग र वडा नं १, २ र ११ को भाग लाई प्रकृति संरक्षण क्षेत्र घोषणा गर्न प्रस्ताव गरिएको छ।

चित्र २ शुक्लाफाँटाको स्थानिय विकास अवधारणा अपडेट गरिएको



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Updated Conceptual Development Map**	DRG NO: **10**

५.३ चरणबद्ध शहरी विस्तार प्रस्तावहरू

योजना निर्धारक र अवधारणा विकास योजनाको रूपमा विभिन्न कारकहरूको ढाँचा भित्र विकासको प्रवृत्ति, पूर्वाधारको प्रावधान र बस्तीको ढाँचामा आधारित तर्कसंगत र योजनाबद्ध विकास हासिल गर्न चरणबद्ध शहरी विस्तार प्रस्ताव गरिएको छ ।

• **पहिलो चरण** (२०२३-२८): पहिलेनै सहरी प्रयोगमा परिणत भइरहेका क्षेत्रहरू, सहरी बस्तीहरू र उपलब्ध पूर्वाधारहरूको धेरै नजिक रहेका क्षेत्रहरूलाई प्राथमिक शहरी विस्तार क्षेत्रको रूपमा पहिचान गरिएको छ । पहिलो चरणमा **वडा** नं **१० र ११** को पूर्वपश्चिम राजमार्गको छेउमा रहेका भागहरू समावेश छन् ।

• **दोस्रो चरण** (२०२८-३३): पूर्वाधार आंशिक रूपमा उपलब्ध भएका र स्थापित शहरी क्षेत्रको नजिक रहेका क्षेत्रहरूलाई सम्भाव्यताहरू दोस्रो चरणको रूपमा वर्गीकृत गरिएको छ । यसमा पूर्वपश्चिम राजमार्गको छेउमा रहेको **वडा** नं **५** को भाग र स्थापित शहरी क्षेत्रको नजिक रहेको **वडा** नं **४, ६, ९, १० र ११** को भाग समावेश छ ।

• **तेस्रो चरण** (२०३३-३८): उपलब्ध पूर्वाधार सीमित रहेको तर छेउछाउको विस्तार क्षेत्रबाट पूर्वाधार सेवा विस्तार गर्ने सम्भाव्यता रहेको क्षेत्र, बसोबास फराकिलो र ग्रामीण प्रकृतिको रहेका तर सहरीकरणको गति क्रमशः बढ्दै गएको क्षेत्रलाई तेस्रो चरणको सहरी विस्तार क्षेत्रको रूपमा वर्गीकृत गरिएको छ । यसले वडा नं ४, ५ र ११ को दक्षिणी भाग र वडा नं ६, ९ र १० को उत्तरी भाग समावेश गर्दछ ।

• **चौथो चरण** (२०३८-४३): क्षेत्रहरू जहाँ पूर्वाधारहरू सीमित छन् तर विस्तार गर्न सकिन्छ, बसोबास पातलो र ग्रामीण चरित्र को छ, धेरै कम निर्माण भएको क्षेत्रलाई चौथो चरणको रूपमा वर्गीकृत गरिएको छ । यसमा **वडा** नं २ (पश्चिमी भाग), **वडा** नं ३ (उत्तरी भाग) र **वडा** नं **४ र ५** (दक्षिणी भाग) पर्छन् ।

५.४ चरणबद्ध शहरी विस्तार प्रस्तावहरू

स्थानिय विकास रणनीतिको मुख्य प्रस्तावका आधारमा शुक्लाफाँटा नगरपालिकाको लागि भू-उपयोग क्षेत्र निर्धारण निम्नानुसार प्रस्ताव गरिएको छः

निर्माण क्षेत्रहरू

बिल्ट-अप जोनहरूमा संरचनाहरूको निर्माण तल तोकिए अनुसार अनुमति दिइएको छ । जग्गालाई निम्न खण्डहरूमा प्रत्येक निर्मित क्षेत्रकालागि तोकिएको अनुमति दिइएको प्रयोग (हरू) अनुसार मात्र विकास र प्रयोग गरिनेछ ।

१) राजमार्ग वाणिज्य क्षेत्र (जोन-C)

कलुवापुर चोक देखि बनसमिति चोक सम्म पूर्वपश्चिम राजमार्ग छेउछाउको दुबै छेउमा सडकको क्षेत्राधिकार भन्दा पछाडि १०० मिटर भित्रका जग्गालाई वाणिज्य क्षेत्रको रुपमा प्रस्ताव गरिएको छ । यसले वडा नं ५, १० र ११ को साना भागहरू समावेश गर्दछ ।

२. मिश्रित प्रयोग क्षेत्र (जोन-MC)

आवासीय र वाणिज्य मिश्रित क्षेत्र वाणिज्य क्षेत्र सँग जोडिएका क्षेत्रहरूका लागि प्रस्ताव गरिएको छ जसमा वडा नं ५, ९, १० र ११ को भागहरू समावेश छन् ।

३. शहरी विस्तार क्षेत्र / आवासीय क्षेत्र (जोन-UR)

पूर्वपश्चिम राजमागको उत्तर र दक्षिणमा प्रस्तावित चक्रपथले घेरिएको मिश्रित प्रयोग क्षेत्र भन्दा बाहिरको क्षेत्रलाई आवासीय क्षेत्रको रूपमा प्रस्ताव गरिएको छ । आवासीय क्षेत्रहरूमा वडा नं ४ मा असैना र आशापुर, वडा नं ५ मा गड्जमनी, वडा नं ६ को दक्षिणी भाग, वडा नं ९ मासिसैया, वडा नं १० मा झलारी (विलासपुर) र लालबनिया, वडा नं ११ मा कलुवापुर पर्छन् ।

४. ग्रामीण बस्ती क्षेत्र (जोन-RS)

ग्रामीण बस्ती क्षेत्रमा वडा नं २ को लोहारपुर, वडा नं ३ को पिपलादी, वडा नं ४ को धाडा र सिकलपट्टी, वडा नं ५ को खजुवा र वैशाखा रहेका छन् जुन आवासीय क्षेत्रको दक्षिणमा ट्राभर्स रोड सम्म र आवासीय क्षेत्रको उत्तरमा वडा नं ६ ,वडा नं ९ र १० को उत्तरी भाग पर्दछन् । यी क्षेत्रहरूले ग्रामीण चरित्र बोकेका छन् र निकट भविष्यमा सहरीकरण हुने सम्भावना छैन ।

५. संस्थागत क्षेत्र (जोन-IZ)

सरकारी कार्यालयहरुका लागि कुनै विशिष्ट क्षेत्र नतोकिए पनि नगरपालिका कार्यालय, दूरसञ्चार कार्यालय र प्रहरी चौकी लगायतका अधिकांश सरकारी कार्यालय हरु वडा नं १० को झलारी बिलासपुरमा रहेको छ भने राजमार्गको छेउ वडा नं ५ मा वनसमितिको कार्यालय रहेको छ । त्यसैले यी क्षेत्रहरूलाई संस्थागत क्षेत्रको रूपमा प्रस्ताव गरिएको छ ।

गैर-निर्मित क्षेत्रहरू

गैर-निर्मित क्षेत्रहरू प्रकृति र कृषि योग्य संरक्षण गर्न आरक्षित छन्; यस क्षेत्र कुनै पनि उपयोग निर्धारित रूपमा प्रतिबन्धित छ। विकास र संरचना तदनुसार सीमित छन् ।

६. कृषि क्षेत्र (जोन-AZ)

नगरपालिकाको उत्तरी भागमा रहेको चुरिया डाँडा सम्मको वडा नं ७ मा त्रिपुरेश्वर, पिताम्बर, कसरोल, भामरभोज, पटरानी, शान्तिपुर, जुडा, कालापानी र वडा नं ८ मा फुलेली, परीफाटा, उपल्लो बेलडाडी जस्ता समतल क्षेत्रहरू कृषि क्षेत्र पर्छन् । कृषि क्षेत्रमा नगरपालिकाको दक्षिणी भाग जस्तै वडा नं १ मा बन्सहा, गणेशपुर र गदरिया; वडा नं २ मा रानीपुर, ढकनिया र लोहारपुर; वडा नं ३ मा जोनपुरी र पिपलादी; वडा नं १२ मा दिबुलिया, तिलकी, दुबहा, खल्लाटोल, कालागौडी, पहाडीगाउँ, चीत्रापुर, चीत्रपुर र बन्तारिया लगायतका भाग पर्दछन । यस क्षेत्रमा RUDP अन्तर्गत पूर्वाधार विकास परियोजनाहरू अन्तिम चरणको लागि प्रस्तावित छन् जसले निर्माण गतिविधिहरू नियन्त्रण गर्न र कृषि भूमि संरक्षण गर्न मद्दत गर्ने छ ।

७. खुलाठाउँ / हरियोक्षेत्र (जोन-GZ)

वडा नम्बर १० मा रहेको नगरपालिका कार्यालयको छेउमा ठूलो खेल मैदान र वडा ९ मा सुनबोरा खोलाको छेउमा शुक्लाफाँटा लोकल पार्क रहेको छ । तसर्थ यी क्षेत्रहरूलाई नक्सामा देखाइए बमोजिम सार्वजनिक प्रयोगको लागि हरियो ठाउँको रूपमा प्रस्ताव गरिएका छ । पहाडी र तराई क्षेत्रका लागि ठूला नदीहरूको लागि क्रमश :३० मिटर र ५० मिटर सेटब्याक र नदीको किनारबाट अन्य नदीहरूका लागि २० मिटर र ३० मिटर सेटब्याकको लागि हरियो बफर स्पेस प्रस्ताव गरिएको छ ।

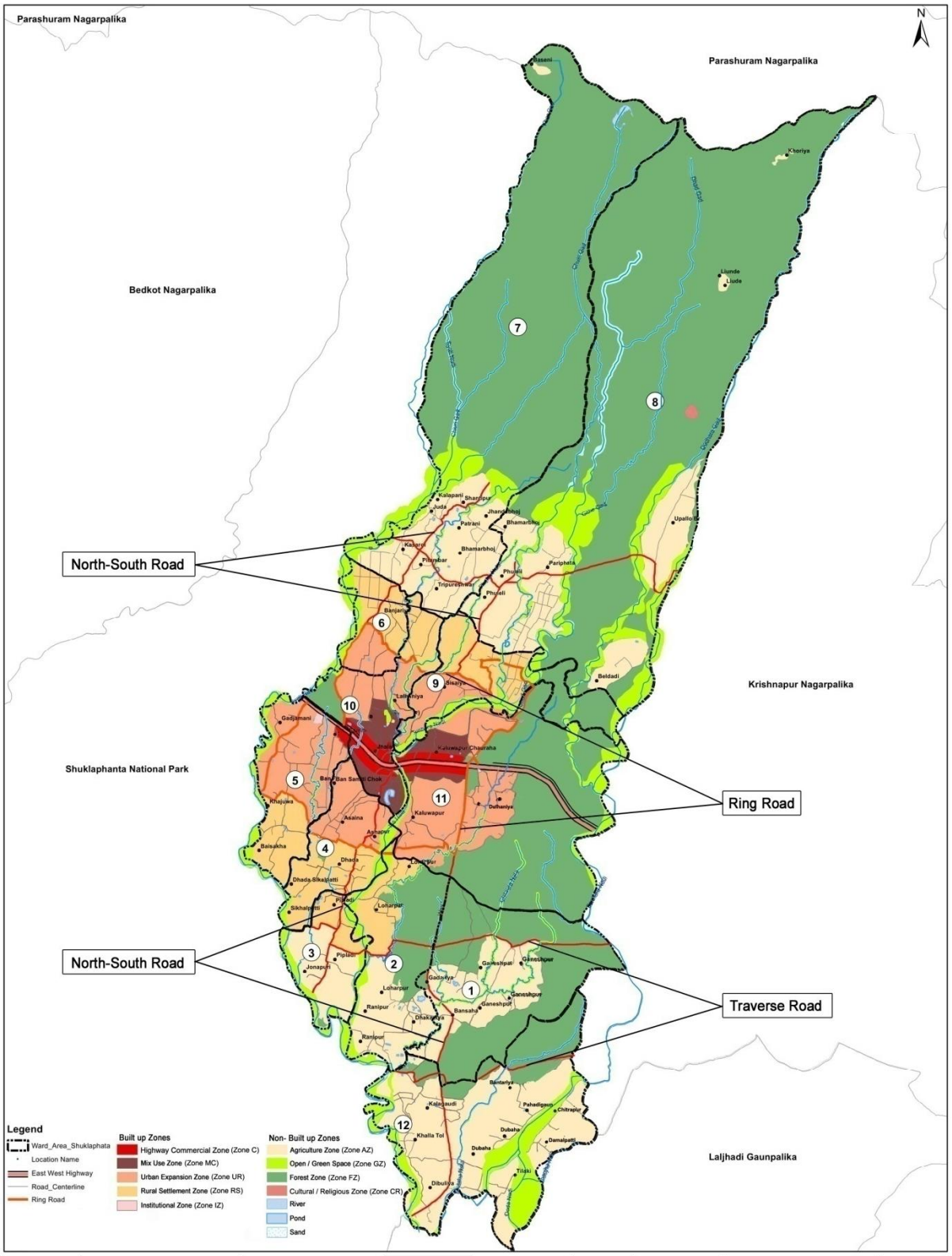
८. सांस्कृतिक / धार्मिक क्षेत्र (जोन-CR)

वडा नं ८ मा मनिका धाम क्षेत्र र पोखरीका साथै नगरपालिकाको अन्य प्रमुख धार्मिक क्षेत्र लाई सांस्कृतिक/धार्मिक क्षेत्रको रूपमा प्रस्ताव गरिएको छ ।

९. वनक्षेत्र (जोन-FZ)

वडा नं १, ७, ८ र ११ को ठुलो भाग र वडा नं २ र १२ को सानो भाग वनले ओगटेको हुनाले वन क्षेत्रको रुपमा संरक्षण गर्न प्रस्ताव गरिएको छ । शिवालिक श्रृंखला सुरुहुने नगरपालिकाको उत्तरी भागलाई जलक्षेत्रका रूपमा संरक्षण गर्न प्रस्ताव गरिएको छ । यसले पानीको निरन्तर उपलब्धता सुनिश्चित गर्नका साथै पानी प्रेरित प्रकोपहरू बाट जोगाउन मद्दत गर्दछ ।

चित्र ३ प्रस्तावित भूमि प्रयोग क्षेत्र



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Proposed Land Use Zoning**	DRG NO: **12**

५.५ चरणबद्ध शहरी विस्तार प्रस्तावहरू

नगरपालिका सँग राष्ट्रिय राजमार्ग, फिडर सडक, जिल्ला सडक र चार वटै वर्गका शहरी सडकहरू समावेश गरी तलको तालिकामा देखाइएको पूर्ण सडक सञ्जाल पदानु क्रम छ । पहुँच, जडान, दक्षता, सुविधा र सुरक्षा जस्ता शहरी डिजाइन सिद्धान्तहरू लागु गर्नको लागि सडकको श्रेणी बद्ध वर्गीकरण अझ आवश्यक हुन्छ। शहरी/नगरपालिका सडक सञ्जाललाई **Class A**, **Class B**, **Class C** र **Class D** जस्ता कार्यात्मक पदानुक्रममा वर्गीकृत गरिएको छ ।

तालिका: सडक नेटवर्क पदानुक्रम र सुविधाहरू

Road Network	Road Class	Descriptions	Minimum RoW (m)	Minimum Setback (m)	Remark
Strategic Road Network (SRN)	NH	National Highways	50	6.0	Federal level
	FR	Feeder Roads	30		
Local Road Net work (LRN)	DRCN	District Roads	20	6.0	Provincial level
	A	Main Collector	12	2.0	Urban Road/ Local level
	B	Secondary Collector	12		
	C	Feeder Road (Main Tole Road)	12		
	D	Other Tole Road	6 to 12		

५.६ भौतिक योजना कार्यान्वयनका लागि प्रमुख नीति प्रस्तावहरू

स्थानिय विकास रणनीति र भू-उपयोग प्रस्तावहरूलाई कार्यान्वयन गर्न र ठोस कार्यक्रमहरू / परियोजनाहरू तर्जुमा गर्न योजना नीतिहरूले महत्त्वपूर्ण भूमिका निर्वाह गर्दछ । नीतिका अवयवहरू तल प्रस्तुत गरिएका छन् ।

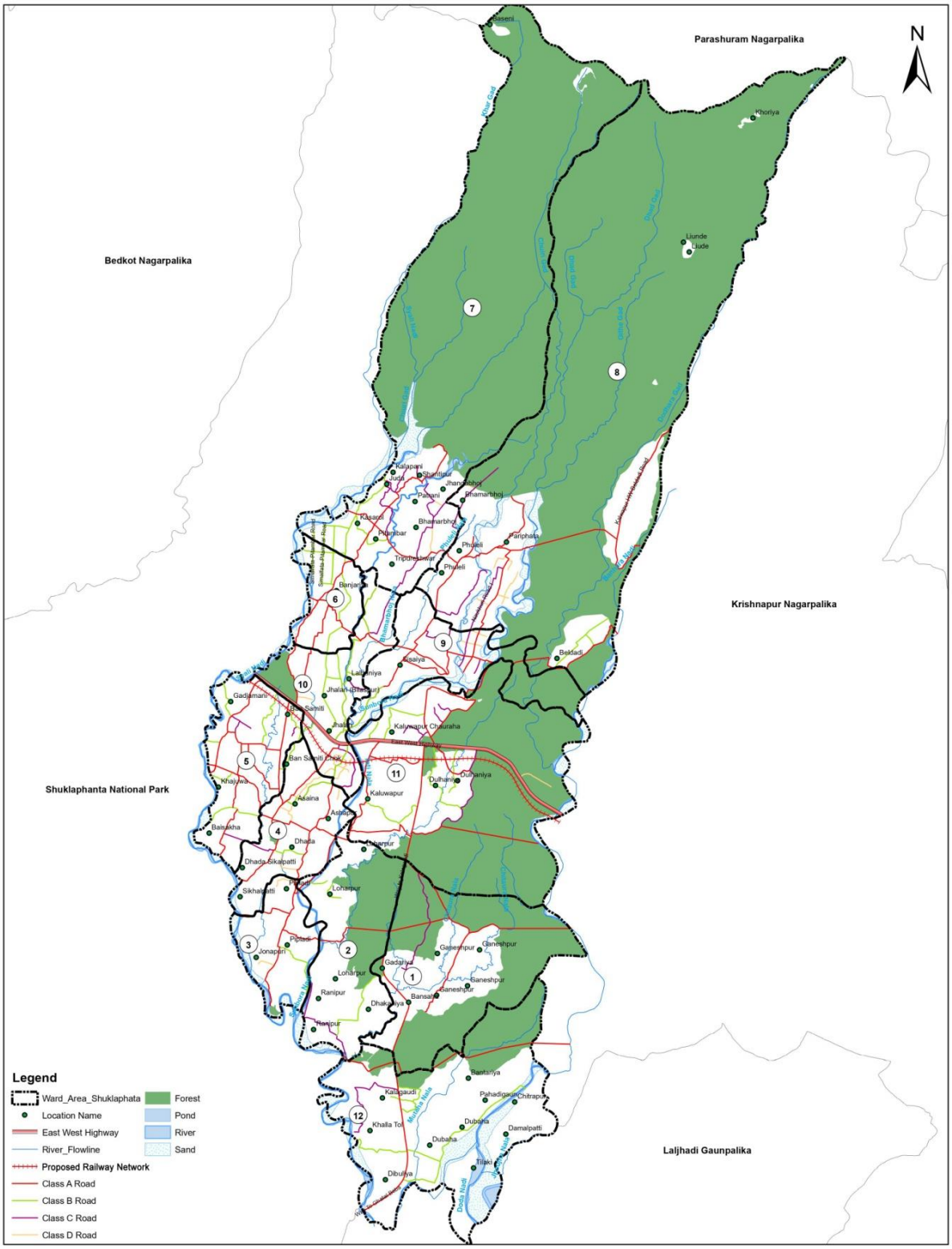
१) **जनसंख्या वितरण नीति** – २०४३ सम्ममा परिकल्पना गरिएको कुल जनसंख्या १६६,४२० मध्ये १०७,५०० को अतिरिक्त जनसंख्या विभिन्न भूमि उपयोग क्षेत्रमा वितरण गरिने छ । प्रस्तावित व्यावसायिक र मिश्रित प्रयोग क्षेत्रमा ३० हजार जनसंख्या, सहरी विस्तार र ग्रामीण बस्तीमा ६५ हजार र कृषि क्षेत्रमा १२ हजार ५०० अटाउने छन् ।

२) **स्थानिय विकास नीतिहरू** – स्थल र सेवाहरू, निर्देशित भूमि विकास र भूमि एकीकरण / पुनः समायोजन जस्ता भूमि विकास प्रविधिहरूको प्रयोग शहरी विस्तार क्षेत्रहरूको विकासको लागि स्थानिक नीतिहरूको मुख्य तत्व हुनेछ ।

३) **पूर्वाधार विकास नीतिहरू** – DUDBC को 'योजना मापदण्ड २०१५'ले योजनाबद्ध रूपमा भौतिक, सामाजिक र आर्थिक पूर्वाधार सेवाहरूको विकास र व्यवस्थापनको लागि नीति निर्देशन प्रदान गरेको छ । यो २० वर्षे योजना अवधि) को लागि पूर्वाधार (सडक, ढलनिकास, फोहोर व्यवस्थापन) विकास प्रस्तावहरूको सम्बन्धमा PPTA द्वारा पहिलेनै प्रस्ताव गरिएको कुरामा थप केहि कुरा थपिने छ ।

४) नियामक नीतिहरू – भूमि प्रयोग नियमहरूको समीक्षा र संशोधन गर्न संस्थागत विकास परामर्शदाता (IDC) लाई समर्थन गरिनेछ ।

चित्र ४ प्रस्तावित सडक र यातायात नेटवर्क



RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Batajoo Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:72000	COMPONENT: Urban Road	**Shuklaphanta Municipality** **Proposed Road Network**	DRG NO: **13**

अध्याय ६: बहुक्षेत्रीय लगानी कार्यक्रम (MSIP)

सहरी पूर्वाधारका लागि आवश्यक पर्ने लगानीमा प्राथमिकताको सहरी सडक, प्राथमिकतामा पर्ने आधीपानी निकास र अन्य सामाजिक तथा आर्थिक पूर्वाधार उप-परियोजनाहरू समावेश छन् । योजना अवधिका लागि विभिन्न परियोजना/कार्यक्रमहरूको लागि बहु-क्षेत्रीय लगानी आवश्यकताहरू निम्न आधारमा व्युत्पन्न गरिएको छ:

१) सुदूरपश्चिम RUDP (vol 4), PPTA, DFR, २०१५ मा समावेश गरिएको परियोजना चरण (२०१७-२०२३) भित्रका शहरी विकास परियोजनाहरू ।

२) विभिन्न क्षेत्रहरूको प्रतिनिधित्व गर्ने सरोकार वालाहरूबाट योजना कार्यशालाको क्रममा अन्तरक्रियाहरू बाट आएको प्रतिफल ।

३. शुक्लाफाँटा नगरपालिकाको पूर्वाधार गुरुयोजना (शहरी सडक), २०१९

४. शुक्लाफाँटा नगरपालिकाको स्ट्रोम वाटर ड्रेनेज गुरुयोजना, २०१९

५. DUDBC योजना नियम र मानक, २०१५

६. क्षेत्र भ्रमण र अन्तरक्रिया

सहरी पूर्वाधार (२०२३ - २०४३) को लागि लगानीको आवश्यकता तलको तालिकामा दिइएको छ।

क्र.स	वर्णन	रकम (नेपाली रुपैयाँ) लाख	रकम (अमेरिकी डलर) लाख
१	प्राथमिकता सहरी सडक	१,१०,९३८.९	९३०.९
२	पानी निकास	१०६२१७.२८	८९१.३
३	अन्य भौतिक पूर्वाधार	८५०	५.५
४	सामाजिक पूर्वाधार	१०७०	८.९
५	आर्थिक पूर्वाधार	५५०	४.६
	जम्मा	**२,१९,६२६.२**	**१,७९३.३**

पूर्वाधार विकास पूरा गर्न आवश्यक पर्ने कुल लगानी रु. २,१९,६२६.२ लाख रुपैयाँ। (१,७९३.३) लाख अमेरिकी डलर)।

अध्याय७: योजना कार्यान्वयन, अनुगमन प्रस्ताव र सिफारिसहरू

७.१ योजना कार्यान्वयन: प्रस्तावित कार्यक्रमहरू

भौतिक विकास योजना प्रस्तावहरू र बहुक्षेत्रीय लगानी कार्यक्रमहरूले गोदावरी LTUDP कार्यान्वयनको लागि सन् २०४३ सम्मको २० वर्षको अवधिलाई समेट्ने आधारभूत नीति र कार्यक्रम/परियोजना ढाँचा प्रदान गर्दछ । योजना कार्यान्वयनको लागि अनिवार्य रूपमा निम्न कार्यक्रमहरूको कार्यान्वयनमा ध्यान केन्द्रित गर्न आवश्यक छ ।

क) भूमि एकीकरण परियोजनाहरूको कार्यान्वयनमा केन्द्रित भूमि विकास कार्यक्रमहरू ।

ख) एकीकृत शहरी पूर्वाधार विकास कार्यक्रमहरू जुन वर्तमान RUDP कार्यक्रमको निरन्तरता हुन सक्छ ।

ग) नियामक फ्रेमवर्क कम्पोनेन्टको रूपमा योजना र निर्माण उप-कानून डिजाइन र कार्यान्वयन ।

घ) शिवालिक बेल्ट र नदी/तालहरूमा केन्द्रित वातावरण संरक्षण कार्यक्रम ।

७.२ योजना कार्यान्वयनः प्रस्तावित कार्यक्रमहरू

स्थानिय सरकार संचालन ऐन को प्रावधान अनुसार, विकास योजना (LTUDP) को कार्यान्वयन र यसको अनुगमन सम्बन्धित नगरपालिकाको क्षेत्राधिकार भित्र पर्दछ जसले निम्न उपायहरू अपनाउन सक्छः

क) नगरपालिकाले नगर विकास ऐन १९८८ र संशोधनको व्यवस्था मार्फत मेयरको अध्यक्षतामा नगर विकास समिति (TDC) को पुनर्गठन गर्न सक्ने छ ।

ख) शहरी विकास तथा भवन निर्माण विभागबाट मार्गदर्शन/मानकको रूपमा प्राविधिक सहयोग उपलब्ध गराउन सुझाव दिइएको छ ।

ग) परियोजना चरणको अवधिमा परियोजना समर्थन कार्यान्वयन इकाई (PISU) र RPIU कार्यालयले संस्थागत विकास परामर्शदाता (IDC)को प्राविधिक सहयोगमा पुनर्गठित त्स्क्ृ लाई प्राविधिक सहयोग उपलब्ध गराउन सक्ने छ ।

घ शहरी विकास तथा भवन निर्माण विभाग, सम्बन्धित प्रदेश र नगरपालिका सँगको सहकार्यमा अनुगमन संयन्त्र गठन गर्न सुझाव दिइएको छ ।

७.३ RUDP को संस्थागत र वित्तीयव्य वस्थापन घटकको आउटपुट

संस्थागत विकास परामर्शदाता (IDC) लाई सुम्पिएका १४ आउटपुटहरू मध्ये, निम्न आउटपुटहरू (ADB, 2017) माथि उल्लेख गरिए अनुसार कार्यक्रम कार्यान्वयन सँग सम्बन्धित देखिन्छः

१) संगठन र व्यवस्थापन सर्वेक्षण प्रतिवेदन जसले नगर संगठन भित्रको प्राविधिक खण्डको सुदृढीकरण र विकासमा जोड दिन्छ ।

२. नगरपालिकामा सहरी योजनालाई सुदृढ पार्न भवन निर्माण विनियम र राष्ट्रिय भवन संहिता कार्यान्वयन गर्ने ।

३. नगरपालिकामा वातावरणीय व्यवस्थापन क्षमताको विकास गर्नु ।

४ राजस्व सुधार कार्ययोजनाको कार्यान्वयन – RIAP

यी IDC आउटपुटहरू ७.१ मा भनिए अनुसार कार्यक्रमको कम्पोनेन्टहरूको सफल कार्यान्वयनको लागि उचित ध्यान दिन आवश्यक छ जुन LTUDP कार्यान्वयन सँग प्रत्यक्ष रूपमा सम्बन्धित छ ।

७.४ अनुगमन

LTUDP कार्यान्वयनको प्रगतिलाई अनुगमन गर्न नगरपालिकाको सम्बन्धित शाखा, शहरी विकास तथा भवन निर्माण विभागको क्षेत्रीय कार्यालय र सम्बन्धित सरोकारवालाहरू सम्मिलित एक अनुगमन निकाय गठन गर्न सकिन्छ । स्वीकृत LTUDP लाई कार्यान्वयन गर्नका लागि वार्षिक योजना/कार्यक्रम र बजेटसँग जोड्नु पर्छ । निकायले निष्कर्षको बारेमा नगरपालिका लाई प्रतिवेदनर LTUDP कार्यान्वयनका लागि रचनात्मक सुझाव पेश गर्न आवश्यक छ ।

निम्न तालिकाले प्रमुख गतिविधिहरूको अनुगमनको लागि अस्थायी रूपरेखाको सुझाव दिन्छ। कार्यान्वयन प्रक्रियामा आवश्यकता अनुसार गतिविधिहरू परिमार्जन गर्न सकिन्छ ।

तालिका– प्रस्तावित अनुगमन योजना र आवृत्ति

क्र.स	विवरण	अनुगमन / समीक्षा
१	दीर्घकालीन सहरी विकास योजना	हरेक ५ वर्षमा
२	योजना/निर्माण उपनियमहरूको कार्यान्वयन	हरेक ५ वर्षमा
३	भवन निर्माण अनुमति र स्थितिको संख्या	अर्ध वार्षिक
४	सरोकारवाला सँग समन्वय गर्ने	त्रैमासिक, आवश्यकता अनुसार
५	योजनाबद्ध क्षेत्रमा बजेटको व्यवस्था गर्ने	अर्ध वार्षिक
६	भौतिक कार्यको प्रगति	त्रैमासिक
७	अन्य गतिविधिहरू	आवश्यकता अनुसार

७.५ समापन टिप्पणी

१) यसको कार्यान्वयनको लागि नगरपालिका बोर्डले समीक्षा गरेपछि LTUDP लाई औपचारिक स्वीकृति दिनको लागि आवश्यक प्रक्रिया अगाडि बढाइने छ। लगानी कार्यक्रम (अध्याय ६) मा समावेश भएका भूमि विकास कार्यक्रमहरू कार्यान्वयनका लागि तत्काल प्राथमिकता दिनुपर्छ।

२) नगरपालिका सँग सम्बन्धित निकायहरू बीचको उचित समन्वयमा जैविक खेती, हरित पर्यटन र गैर-टिम्बर वन उत्पादन (NTFP) मा आधारित उद्योगहरूको सम्भावना छ।

३) नगरपालिकाको उत्तरी क्षेत्र सिवालिक दायरा भित्र जोखिममा रहेको वन, त्यस्तै जोखिममा रहेको जलाधार क्षेत्रको संरक्षण गर्न आवश्यक छ। त्यसै गरी नदी संरक्षणका कामलाई विपद रोकथामका उपायका रूपमा प्राथमिकतामा राख्नुपर्छ।

४) नगरपालिका सरकारको विशेषगरी सहरी योजना र कार्यान्वयनमा संस्थागत सुधार र सुदृढीकरणमा जोड दिनु आवश्यक छ। नगरपालिका नयाँ भएकाले संस्थागत क्षमता निकै कमजोर छ। IDC को भूमिका र प्राविधिक सहयोग धेरै महत्वपूर्ण हुनेछ।

ACRONYMS

ADB	Asian Development Bank
BS	Bikram Sambat (56+AD)
CBO	Community Based Organization
DFR	Draft Final Report
DoR	Department of Roads
DRM	Disaster Risk Management
DSC	Design & Supervision Consultant
DUDBC	Department of Urban Development and Building Construction
EMI	Earthquake and Megacities Initiative
EMP	Environmental Management Plan
GESI	Gender Equality and Social Inclusion
GoN	Government of Nepal
Ha	Hectare
IDC	Institutional Development Consultant
ISWM	Integrated Solid Waste Management
KMC	Kathmandu Metropolitan City
LTUDP	Long Term Urban Development Plan
MoFGA	Ministry of Federal Affairs and General Administration
MoLRM	Ministry of Land Reform and Management
MSIP	Multi Sector Investment Program
MoUD	Ministry of Urban Development
NGO	Non-Government Organization
NUDS	National Urban Development Strategy
PCO	Project Co-ordination Office
PISU	Project Implementation Support Unit
PPH	Population per hectare
PPTA	Project Preparation Technical Assistance
RoW	Right of Way
R-PIU	Regional Project Implementation Unit
RSLUP	Risk sensitive Land use Plan
SLuZ	Special Land use Zone
TDF	Town Development Fund
ToR	Term of Reference
WHO	World health Organization
LTUDP	Long Term Urban Development Plan

Contents

ANNEXES

List of Figures

LIST OF TABLES

LIST OF ANNEXES

CHAPTER I: INTRODUCTION

1.1 Project Background

The Government of Nepal (GoN) has received a loan and a grant from the Asian Development Bank (ADB) to help finance the proposed **Regional Urban Development Project (RUDP)**.The Project aims to develop urban infrastructure and to strengthen urban sector institutions. The broader goals are to uplift the standard of living of the people of this region, reduce poverty and capitalize on the benefits of urbanization to support economic growth based on a sustainable development track. The services are proposed to deliver in four Municipalities of Sudurpaschim Province (P-7) namely Dhangadhi Sub-Metropolitan City, Godawari, Shuklaphanta and Bheemdatta municipalities of Dhangadhi – Bheemdatta corridor. Dhangadhi and Godawari Municipalities are located in Kailali district where as the rest two in Kanchanpur district.

The Project will implement urban environmental improvement, on an integrated basis, in the areas of urban planning, municipal road, drainage, waste water management, solid waste management and municipality office building. Gender equality and social inclusion (GESI) will be mainstreamed in all subprojects in the project municipalities and the capacity to address GESI in the Ministry of Urban Development (MoUD) will be strengthened by establishing appropriate institutional structure and mechanisms for GESI mainstreaming.

Hence, the aim of the project is to achieve sustainable urban development ensuring multi-sector investments to transform the region. In fact, sustainable urban development cannot be achieved without sustained economic development. While investments in city infrastructure would surely translate to an improvement in the liveability index of the towns and contribute to attracting human resources to the region, it would not automatically translate into a high level of economic growth and development. This could be seen as a challenging issue, and hence, calls for a more realistic and practical approach to project execution.

A contract was entered into on 27th of August 2017 between the Project Coordination Office, Department of Urban Development and Building Construction (DUDBC), Babarmahal Kathmandu and Joint venture team of Building Design Authority in association with ITECO Nepal, Soil test and Udaya Consultancy, Kathmandu (the DSC) for the provision of consultancy services related to urban formulation and infrastructure components.

The objective of this project investment is to achieve higher and more inclusive economic growth through effective, efficient, and reliable delivery of improved and affordable urban environmental services through following project activities:

- Long term urban development plan for all project municipalities; needs development plan to complement the regional development vision with extensive discussions with wider stakeholders. This also includes setting of goals, objectives, strategies, plans and programs, financing requirements and probable institutions and roles and responsibilities.
- Preparation of Risk Sensitive Land Use Plan based on multi hazard assessment or the entire four project municipalities.

- Roads and Drainage augmentation in all the four project municipalities which includes rehabilitation and improvement of municipal roads about 98.5km, drainage works in the both sides of roads, construction of outlet structures etc.
- Municipality office buildings for newly formed Municipalities Godawari and Shuklaphanta.
- Improvements to existing on-site waste water management, including improved Faecal Sludge Management (FSM) and treatment. This also includes provisions of vehicles and equipment necessary for the operation and maintenance of the system. Approximately 7,400 households of the four project municipalities will be directly benefited.
- Integrated Solid Waste Management (ISWM) focusing on Reduce, Reuse and Recycle (3R) including landfill site. Conveyance vehicles, trolley and other equipment will also be provided. About 30,700 households of the project municipalities will be directly benefitted by this sub-project.

After submission of Inception Report topographic field survey, studies of existing available reports were carried out. Similarly extensive discussions were carried out with local leaders, representatives of political parties, Mayor and Deputy Mayor, municipality officials, local journalists etc. The report has been prepared in close association with R-PIU and Municipality officials.

This report has been prepared for Shuklaphanta municipality with the purpose to mainly ensuring the participation of the beneficiaries in the project for the implementation and successive operation of the project. This report forms as a Final Urban Development Plan for Shuklaphanta municipality. This report is one of the many deliverables required under the contract as mentioned in, the Reporting Requirements of the Contract.

1.2 Study Objectives and Scope of the Work

1.2.1 Objectives of the Study

The main objective of the study is to formulate a Long Term Urban Development Plan (LTUDP) for Suklaphanta Municipality, as one of the project municipalities of Sudurpaschim Province, so as to guide its urban growth and to manage and to execute development plans/programs over the next twenty years period (2043 AD).

The specific objectives of the Suklaphanta LTUDP are:

- To complement sub-regional development vision (Dhangadhi- Bheemdatt Growth Corridor) using the concept development plan of Shuklaphanta developed under the PPTA Study Proposals on the basis of extensive discussion with stakeholders;
- To set out the long term Vision, Goals, Objectives and Strategies, Plans and Programs, funding requirements and institutional roles and responsibilities for Shuklaphanta Municipality.
- To come up with the institutional mechanism for the plan implementation.

1.2.2 Understanding the scope of the work

The scope of the study for preparation of LTUDP of Shuklaphanta Municipality is outlined below:

A. Preparation of Base maps

- Develop/update digital Base maps revealing major topographical features- road, water courses and building footprints.
- Preparation of geo-referenced digital inventory base maps suitable of all existing urban infrastructure- road/drain, water supply, electric power lines and sub stations, street lighting, public spaces/parks, community facilities etc.
- Prepare road hierarchy by defining right of way (RoW) as per the prevailing standards (Urban Development/ Planning Norms of DUDBC) and Disaster Risk Management.
- Delineation of the poverty ridden pocket areas (national classification), gender discrimination problem areas, and marginalized population areas based on analysis of socio-economic information.

B. Preparation of Risk Sensitive Land Use Plan (RSLUP)

- Identification of different land use that needs to be **protected, controlled and promoted** based on urban growth trend and multi hazard assessment (available socio-economic data/ information, geo-morphological map, flood zones, river bank erosion and local consultation). Set out incentive mechanism to adhere RSLUP.
- Preparation of Land use zoning map based on existing growth pattern, building typology, density and potential future growth.
- Preparation of Land use Map as classified upon National Land use Policy 2015 and its update as applicable.
- Advisory support to Institutional Development Consultant (IDC) to review and amend building bylaw, preparation of implementation and monitoring mechanism for RSLUP, building bye laws and land sub division regulation.

C. Preparation of Urban Development Plan (LTUDP)

- Preparation of LTUDP for the project municipality on the basis of: the 'concept development plans under PPTA' to complement regional development vision; the Base Maps and RSLUP Analysis; and the situation analysis of various aspects (population dynamics, urbanization trends and pattern, infrastructure, employment, access to social services and amenities, and SWOT analysis), and future requirement (prognosis) followed by the development vision, goals/ strategies and the plans of action based on extensive discussion with stakeholders.

D. Expected output

- Formulation of a **strategic and action oriented physical planning document:** that lays down the basic planning principles and proposals based on vision, goals and objectives in compliance with regional development vision under PPTA, and guided by the development potentials, opportunities and challenges encountered by the city (SWOT Analysis); that accommodates the various components/aspects dealing with population, employment, housing, physical environment, utilities, transportation, community amenities and resources; and that consists of the priority programs/projects, short, medium and long term priority pre programs/projects along with implementation proposals/recommendations.

1.2.3 Structure of the report

The report consists of the main report & a set of GIS Maps reflecting the various components of the LTUDP.

1.3 The Planning Process

1.3.1 Steps/ Phases of Planning process

The planning process adopted for the preparation of LTUDP is being conceptualized as consisting of the following steps/ phases (Figure: 1.1)

I. Survey & Assessments leading to the town profile;

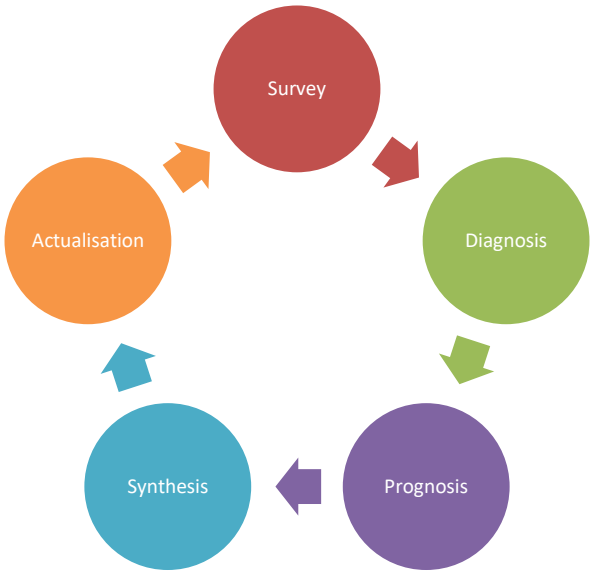
II. Diagnosis leading to the identification of issues, opportunities and challenges faced by the city;

III. Prognosis resulting into the forecast of population and urban expansion needs related to the various land use components;

IV. Synthesis leading to vision setting and goal formulation, spatial development strategies. and priority plans/programs;

V. Actualization resulting into the plan implementation proposals related to the resources (financial and human) and institutional roles.

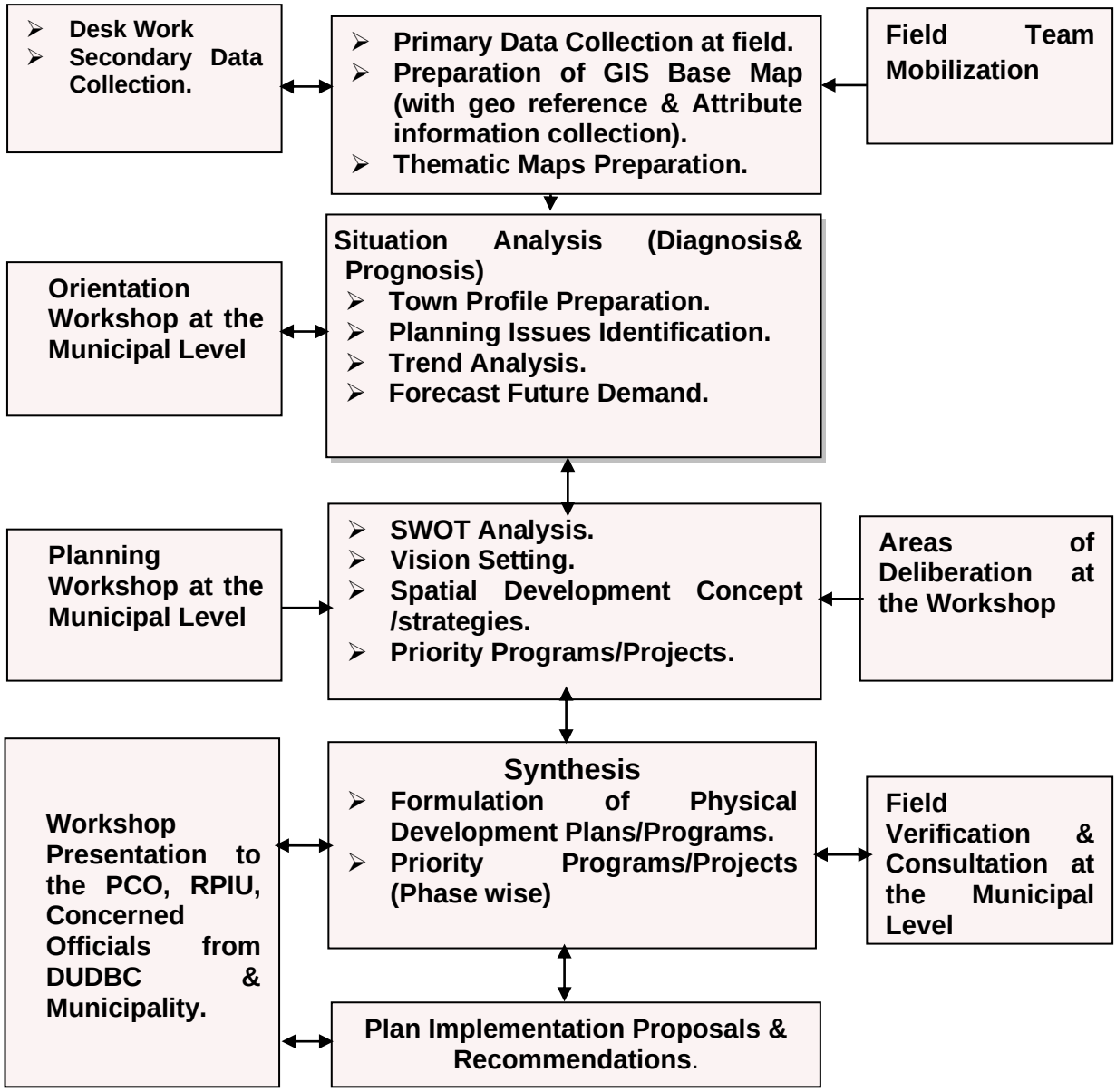
Figure 1.1Steps/ Phases of the Planning Process



1.3.2 The LTUDP Flow Diagram

The Flow Diagram (Figure 1.2) as presented below provides a brief overview of LTUDP approach and processes followed in the formulation of the urban development plan for Shuklaphanta. It deals with literature review & secondary data collection, primary data collection at the field, preparation of GIS based thematic maps; data analysis, orientation and planning workshops; plan and programs formulation, and implementation proposals. The planning workshops did emphasize broader representation of the stakeholders within the municipality, and focused more on the community participation.

Figure 1.2LTDUP Flow Diagram



CHAPTER II: REGIONAL CONTEXT

2.1 Regional Setting

Shuklaphanta Municipality (SM) is located in Kanchanpur district of Sudurpaschim Province, as one of the seven provinces brought about after adoption of the federal system of governance in Nepal as per the promulgation of Constitution of Nepal 2015. The Province, located at western part of the country, covers three ecological regions- Mountain, Hill and Terai. It consists of 9 districts with altogether 88 local levels which include 1 Sub Metropolitan City, 33 Municipalities and 54 Rural Municipalities. Apart from Kanchanpur, the rest of the districts are adjoining Kailali, Dadeldhura, Accham, Baitadi, Bajhang, Darchula, Doti and Bajura.

The province borders Karnali Province and Lumbini Province to the east, India to the south and Karnali Province (Humla district) and Tibet Autonomous Region of China to the north. The Province spreads over an area of 19,539 sq.km (13.27%) and the population size is 2,552,517 (9.63% of national, CBS 2011). Its growth rate is 1.53% (1991-2011) and population density 130 person/ sq.km. The urban population of the province is 1,504,279 (58.9%). Godawari is being declared as the capital (formerly Dhangadhi as the interim Capital) of the Province.

Established in December 2014 by merging two Village Development Committees (VDCs) i.e Pipaladi and Jhalari, it was named Jhalari Pipaladi Municipality. Before the local election in 2017, ward 4 & 6 of Dekhatbhuli VDC was also merged and it was renamed as **Shuklaphanta Municipality.** The name of the Municipality 'Shuklaphanta' is derived from the famous National Wildlife Reserve Area (Shuklaphanta National Park). It covers an area of 162.574 sq.Km (16,257.354 ha.) and administratively divided into twelve wards.

The SM is also one of the four urban centers covered by the Regional Urban Development Project (RUDP) as the project municipalities within the Dhangadhi – Bheemdatta growth corridor, the others being Dhangadhi Sub-Metropolitan City, and Godawari and Bheemdatta municipalities. Earlier reports mentioned the growth corridor as 'Bheemdatta-Jhalari-Pipaladi-Attariya-Dhangadhi', which has been changed after the emergence of Shuklaphanta and Godawari replacing Attaria.

Figure 2.1 shows regional setting at provincial, district and municipal level. Shuklaphanta National Park and its buffer zones are given in **Figure 2.2**. Delineation of municipal boundary of Shuklaphanta at ward level is given in **Figure 2.3** (Place name boundary of Shuklaphanta).

Figure 2.1 Regional Setting at Province, District and Municipal Level

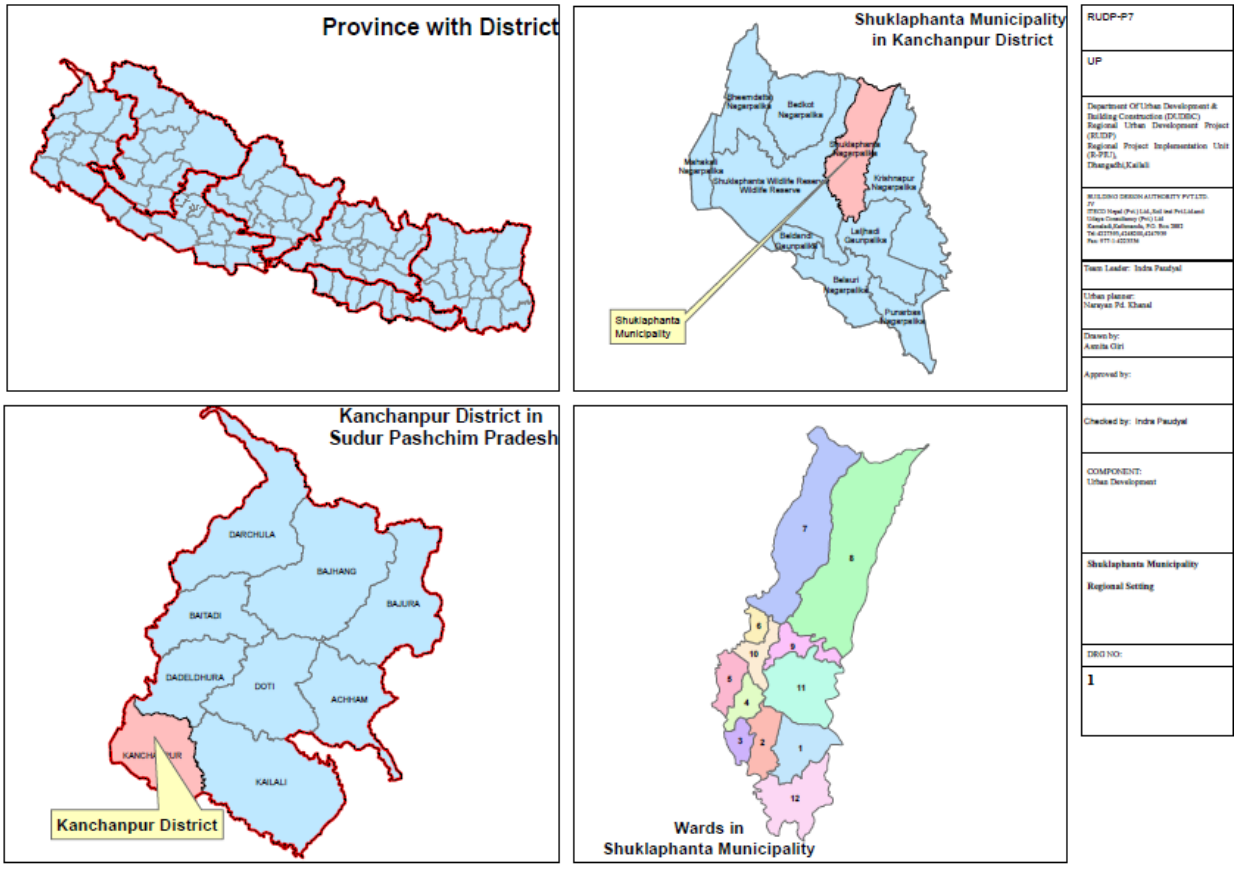


Figure 2.2 Shuklaphanta National Park and Buffer Zone

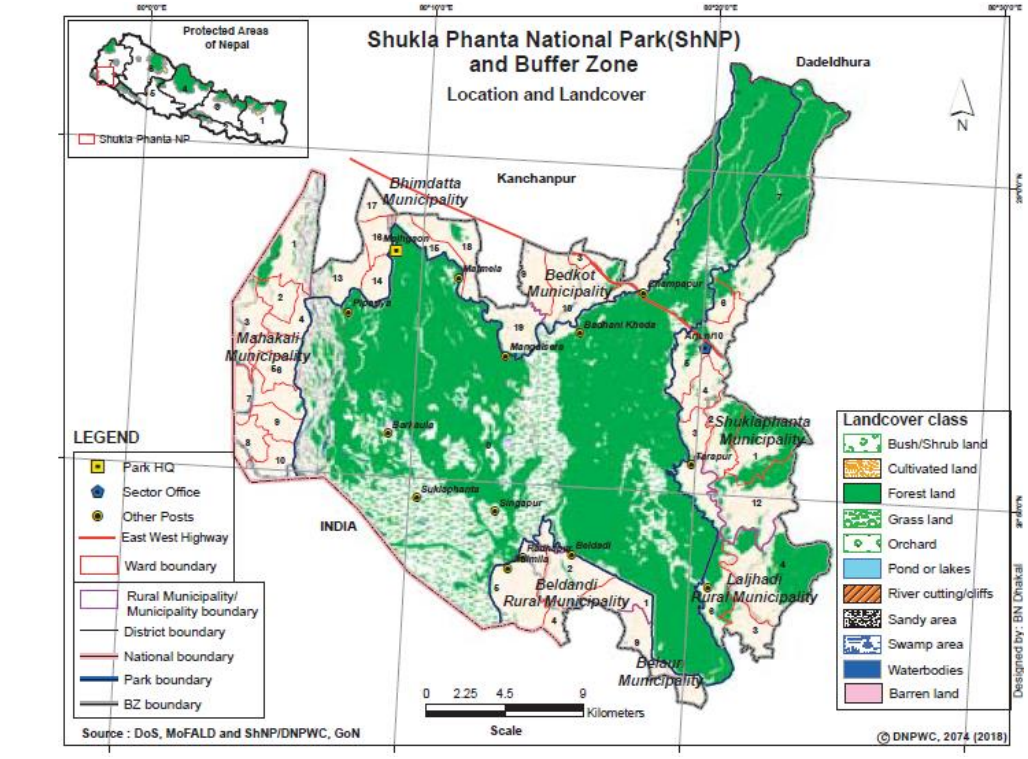
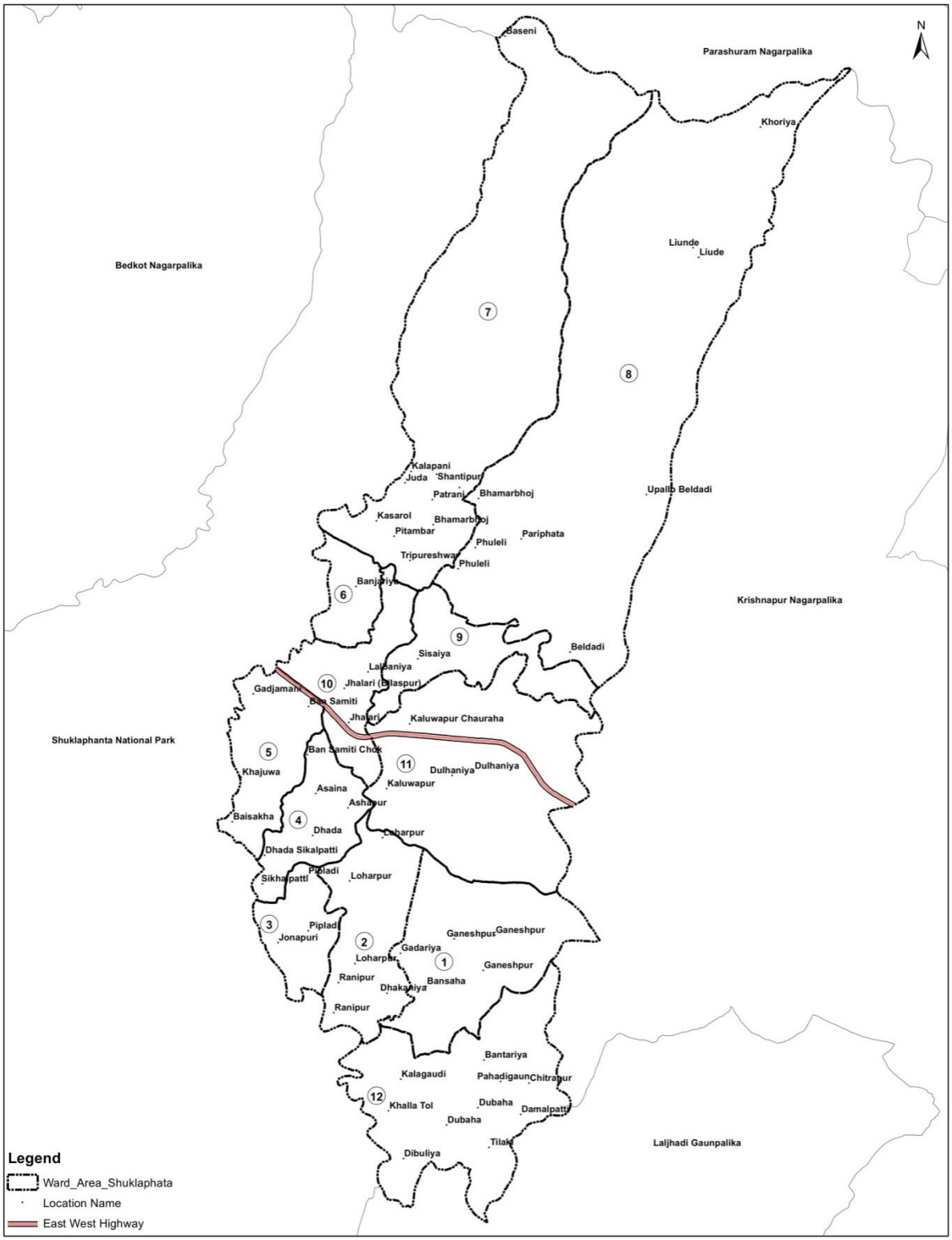


Figure 2.3 Place Name and Ward Boundary of Shuklaphanta Municipality



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Place Name and Ward Boundary**	DRG NO: 2

2.2 Broader Regional Planning Context

The whole Sudurpaschim Province consisting of nine districts including Kanchanpur District can be considered as a broader planning region with planning and development implications for Shuklaphanta Municipality. The province is among the backward regions of Nepal. It is also one of the most virgin and unexplored territories. So, this region has both the challenges and opportunities for development while retaining its beautiful and unspoilt nature.

As per a regional planning study (NPC/ADB, Regional Development Strategy, Draft Final Report, Region 1: Dhangadhi, 2007), its socio-economy, development challenges, proposed development concept along with identification of the lead sectors and strategic initiatives to be taken on those sectors with a focus on Terai Region are presented as follows:

1) Socio-economic Features (as of the year 2007)

- The region consisted of 9 % of total national population with its share of national GDP being 7.6%.
- Agriculture was the main economic activity with its share of 51% of the region's GDP.
- Poverty level of the districts is more than national average, with 45% population below poverty level.
- Limited trading activities (8% of regional GDP) were mostly between hills and Terai settlements only. Limited manufacturing activities were confined to only in the Terai region.
- Tourism potential of the region not being exploited yet.
- More than 20% of the Terai residents were the migrants from the Hills.
- Lack of employment opportunities within the region with people looking for jobs abroad further induced by subsistence agriculture.

Those figures of the past years provide more or less, a realistic scenario of the present.

2) The region's development potentials

- Reduction of the gap between actual and potential agriculture yields.
- Introduction of the high value crops where appropriate.
- Exploitation of the potential of herbs, medicinal and aromatic plants.
- Establishment of agro-forest based industries.
- Trade promotion with India.
- Tourism promotion.
- Improvement of road access.

3) Proposals for Regional Development Concept (RDC)

The RDC, which represents 'a long term vision to enhance economic development of the region', did come up with 'Development packages' comprising of related activities, projects and programmes of private and public sectors. Agriculture, tourism, manufacturing, trade and services were considered as the lead sectors followed by the supportive sectors – infrastructure, communications, social services, education and governance. However, energy

was considered as both the supportive sector as well as a sector having the export potential in its own right.

Hence, as per the RDC proposals, the key sectors -: tourism, agriculture, forestry, herbs production - presents themselves as the focus areas for economic development of the region. Furthermore, those sectors will have to be supported by the strong infrastructure sector investment program such as power, roads, urban infrastructure and services which will further contribute to additional economic activities. In addition, the economic prosperity of this region is undoubtedly tied to its relations with India and China, more specifically with the quality of the transportation access between the two neighbouring countries.

The development package for the Far West Terai, as per the RDC proposals, focused on a need for realizing the development potentials as stated above, and recommended the following three strategic initiatives (i) research and extension support to increase agricultural productivity in the Terai; (ii) Construction of cold storage along the Dhangadhi-Godawari growth corridor; (iii) cross border facilities and processes for exporting agricultural commodities to India; and (iv) river training and flood control works in the Far West Terai plains.

The deliberations and findings as presented above provides a conceptual basis towards formulation of urban development plans/programs in Shuklaphanta, and other RUDP municipalities.

2.3 Dhangadhi-Bheemdatta Growth Corridor as a Sub-region within the Sudurpaschim Province

The PPTA Report 2017, prepared for launching ADB assisted Second Integrated Urban Development Project (IUDP2 - termed as the RUDP), came up with economic and urban development vision for Far West Terai Region (FWTR) which paved the way for bringing about the growth corridor concept involving the four urban centers – Dhangadhi, Godawari, Shuklaphanta and Bheemdatta (Mahendra Nagar). The areas covered by those urban centers accessed by the East West Highway could be considered as a planning sub-region or city region within the FWTR and the Sudurpaschim Province, and constitute the geographic focus of the proposed RUDP Project.

As the overall goal of the project was stated to improve standard of living of people in the sub-region, the objectives of reducing poverty and enhancing economic growth in a sustainable manner provided a firm conceptual basis for the proposed economic and urban development vision within the sub-region briefly dealt with below.

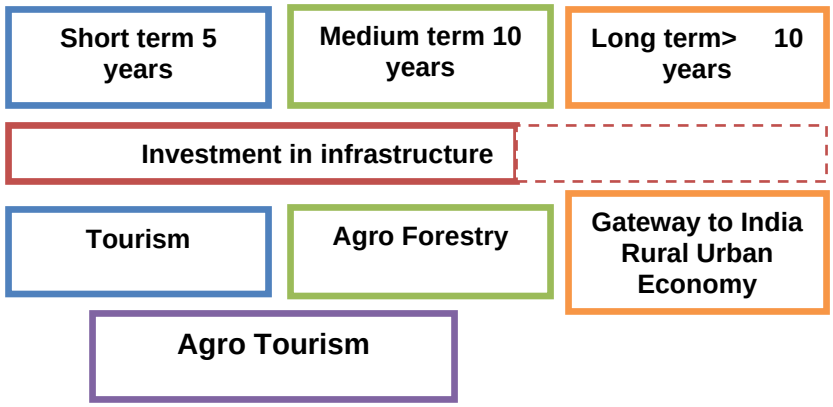
1) Economic Development Vision (EDV)

The Sub-Regional Economic Development Vision (EDV) very much focused on tourism, agriculture and forestry having important bearing on economic development of the FWTR which confirms the validity of the RDC recommendations of the earlier NPC/ADB study as presented in the Sub-Section 2.2. The EDV proposals do articulate the strategies and actions to be undertaken in the tourism, agriculture and forestry sectors with the emphasis

on 'agro-tourism' and agro-forestry considered as the natural relationships as depicted in the **Figure. 2.4**.

Hence, the urban vision looks forward to integrate tourism, agriculture and forestry sectors so as to contribute towards sustainable economic development of the region.

Figure 2.4 Evolving Economic Development Vision



Source: PPTA, DFR, discussion note 1 (August, 2015)

The PPTA, Draft Final Report, discussion note 1 on 'economic and urban development vision for Far west Terai region' (August, 2015) did outline four major points for evolving economic development vision:

- Advantages and assets of the region
- National plan and policies, and regional perspective including National Urban Development Strategy (NUDS)
- Sustainable development principles with emphasis on local values
- Stakeholder consultative workshops and meetings at the local and central level.

2) Urban Development Vision (UDV)

As per the PPTA Report the evolving EDV as depicted in then Figure 2.4 needs to be complemented by the UDV in the form of planned development of Dhangadhi –Godawari – Shuklaphanta- Bheemdatta axis and the adjoining areas as an urban growth corridor. The aim of the growth corridor is to capitalize upon the benefits of urbanization to support economic growth envisaged by the EDV. This also implies that sustainable urban development cannot be achieved without sustained economic development and vice versa.

However, within urban development vision each town could still have its own identity and functional role to play in the region's development listed below:

a) Godawari- Designated as the Capital of Sudurpaschim Province and logistical head quarter for the region. As it lies at the intersection of East-West and Mahakali highway (North-South highway), it can house major transport terminals, SEZ, wholesale market for the hill products, industrial parks, etc

b) Dhangadhi – Potential administration centre for the region and tourism hub- town with all the HQ for the two districts located there. Also serving as the tourist entry point, due to the airport location at the border with Attariya. Hence, good quality hospitality infrastructure including tourist amenities should be developed here as a priority. Further, Dhangadhi also holds good potential for the development of sports, especially cricket.

c) Bheemdatta- It is the Gateway to India, and currently has the maximum flow of people and goods coming from India into Sudurpaschim Province and beyond. Hence, it can be developed as a commercial center of the region. It also holds a potential being linked to China through North South Corridor - the Mahakali Corridor - as trade and transit route.

d) Shuklaphanta- It is still rural in character. It is endowed with the following characteristics and potentials: Agricultural centre and potential University town – Quiet town with many innovations in agriculture; pilot experimentation with 'Agro-forestry' & other forms of commercial & sustainable agriculture/ forestry.

It is evident, the four project municipalities Dhangadhi, Godawari, Shuklaphanta and Bheemdatta have potentials for future growth and development because of their strategic location and resource availabilities, and the progress in these project municipalities will ultimately trigger the growth and development in adjoining Krishnapur and Bedkot municipalities as well.

Apart from the functional roles of those towns, there are also other characteristics that need to be considered within urban development vision (PPTA, 2017). These are: Implications for land use planning, investments in greater urban hinterland connectivity, effective and high-quality public transport service, implications for urban infrastructure, tourism facilities, and eco-friendly development regulations.

3) The Sub-Regional Urban Development Vision (UDV) and Implications for Shuklaphanta LTUDP.

a) **Development vision for Shuklaphanta town.**

The potential functional role attributed to Shuklaphanta by the urban development vision (UDV) could be an important input to formulate the development vision for the town's long term urban development plan. The vision could be seen in terms of the town's role as the agro-forestry hub and the potential university town with many researches/ innovations in the fields of agriculture and forestry. This implies that the town could also be an important vehicle for integrating tourism, agriculture and forestry sectors activities at the municipal level as well as for realizing regional aspirations as articulated by the EDV above.

b) **Implications for land use planning**

As per the UDV (PPTA 2017) the emphasis is on a need for conserving the agricultural spaces in the urban areas and its peripheries, promoting a dense town centre for commercial activities, and developing a green and spread out urban settlements at the periphery that merges with the rural agricultural areas within the project municipalities. This planning concept would very much apply to Shuklaphanta land use proposals.

c) **Investments in greater urban hinterland connectivity**

This implies that construction of a hierarchy of roads is an important component of the Shuklaphanta LTUDP that facilitates not only urban hinterland connectivity, but also provides for efficient public transport system within the municipality.

d) **Implications for urban infrastructure**

Provision of various infrastructure components e.g. Water supply, waste water, solid waste, energy (bio-gas plants) drainage, could be undertaken on centralized or decentralized basis depending on the varying densities of land use zones. As per the PPTA 2017, different systems may have to be adopted for areas with high, medium and low densities. It further states, 'centralized systems may be needed in the town centre and the older parts of the city, but the mid areas and the peripheries of the city will require 'decentralized' infrastructure at various scales and capacities – from household scale to small communities to large communities.

e) **Public Amenities & Services including Tourist Facilities.**

The UDV (PPTA 2017) clearly states that 'tourist friendly facilities will have to be scattered across the corridor and more particularly in the tourist spots – places to relax, toilets, information boards, signage, etc. will need to be planned and provided. Homestays would form an important part of the picture including Tourist Facilities'.

The above statement holds good especially for Shuklaphanta, which being an emerging market town, needs, apart from tourism friendly facilities, also needs a provision of basic urban amenities (public open spaces, bus terminal, city hall, etc,). To this end, the UDV has proposed a small market centre of about 300ha along the E-W Highway, through land pooling, which could be developed with facilities, such a, petrol pumps, public toilets, bus stops, vegetable markets along with residential plots in the inner areas.

f) **Planning and Building Regulations**

The UDV suggests that 'there could be laws that limit the minimum size of a land parcel to allow sufficient front and back yard space for ecosystem services and green patches. Bicycle and walking tracks may also have to be planned for. As one of the officers who were interviewed mentioned, the FWR could pioneer the idea of a 'farmer friendly city'.

The above suggestion could be incorporated in land use plan and regulations to be drafted for Shuklaphanta.

2.4 Regional Urban Development Issues: Implications at the Sub-regional (Growth Corridor) Level

The regional urban development issues in the far western Terai region in general and sub-regional level in particular, may be described as follows

- Since all of these project municipalities are located within a 60 km corridor in the Terai plain bordering India, competing and conflicting interests of those towns could hamper their growth and development.

- All the project municipalities are facing the pressure of in-migrants, a majority from the northern hill districts of the Far-Western Province. Far western Terai region did attract about 17% (281,272) of total migration to Terai and about 74% of the people migrated from the mountains and hills of far western region itself. This indicate a need for a coordinated approach to deal with accommodation of the incoming population that could cause, if not properly responded, the social, economic, political and environmental problems in future.
- There is a need for a sub-regional articulation of planning goals, objectives and strategies to accomplish a coordinated planning intervention in those project municipalities. As regards to planning, infrastructure investments, and institutional strengthening.
- As per the PPTA Report, a lack of easy accessibility to India from both border towns; Dhangadhi and Bheemdatta – is being seen as constraints to development. . At Bheemdatta, access across the Sarada Barrage is totally under control of India, has severe weight restrictions and is open only a few hours each day. The single lane 35 km long road south from the border near Dhangadhi, which passes through Dudhuwa National Park, is often restricted to the vehicles. Hence, the quality of the transportation access between the two neighbouring countries is a crucial regional development issue.
- There is no single apex authority to plan, coordinate and oversee economic and urban development at the sub-regional level. Hence, the inter-municipality coordination is not effective. Moreover, there is also a lack of explicit division of roles between MoFGA and MoUD, which often creates confusion or duplication
- Regional approach to urban planning is relatively new. Inter ministry, inter department and inter district coordination among other government agencies relating to roads, land reform, irrigation, forest, agriculture, health, education etc. would be required in order to realize the broader regional vision. A lack of clarity about the role and functions of the provincial government related to the project execution could create the complications and confusion in future.

CHAPTER III: SITUATION ANALYSIS

3.1 Location and Physical Characteristics

3.1.1 The Planning Area

Shuklaphanta Municipality was established in 2nd Dec, 2014 by merging two VDCs, namely Jhalari and Pipaladi. Before the local election, it was renamed as Shuklaphanta Municipality; with 12 wards (previously it had 11 wards). The name of Municipality "Shuklaphanta" is followed by the famous National Wildlife Reserve Area (Shuklaphanta National Park) in the Province No-7 of the country. It covers an area of 162.574 sq.Km (16,257.354 ha.).

This area is relatively a new settlement. Very less population were experienced by Jhalari and Pipaladi before the evicted people from Shuklaphanta National Park were settled in this area about 25 years back. Moreover, the urbanization trend in this municipality gathered the momentum after the in migration of the people from the surrounding hill districts such as Dadeldhura, Baitadi, Darchula, Doti, Bajura and Achham.

The Municipality lies on the East-West Highway, about 30 km from Attaria. Towards the eastern side of the municipality lies the Shuklaphanta National Park (SNP) and Bedkot Municipality, whereas towards the south lies the SNP and Dekhatbhuli rural municipality. Towards the north lies Parsuram Municipality (Dadeldhura District), where as the eastern part is surrounded by Krishna Nagar Municipality and Laljhadi Rural Municipality. (Ref. Fig, 2.2).

The Municipality consists of 12 wards after the merger of wards 4 and 6 of Dekhatbhuli VDC. The following **Table 3.1** demonstrates how the present wards of Shuklaphanta municipality have been reconstituted after the merger of VDCs.

Table 3.1 Readjustment of Wards in Shuklaphanta Municipality

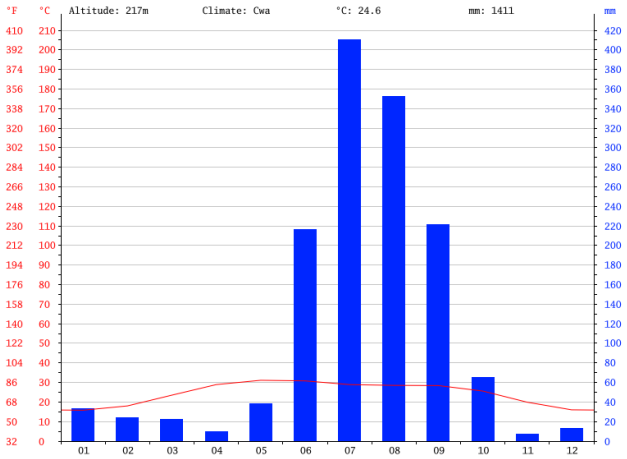
S. No.	VDC	Wards of	
		VDC's (then)	Shuklaphanta Municipality (Now)
1.	Pipaladi	3	1
2.		4	2
3.		5,6	3
4.		7,8	4
5.		9	5
6.	Jhalari	6	6
7.		2	7
8.		4	8
9.		5	9
10.		3,7	10
11.		9	11
12.	Dekhatbhuli	4,6	12

3.1.2 Climate

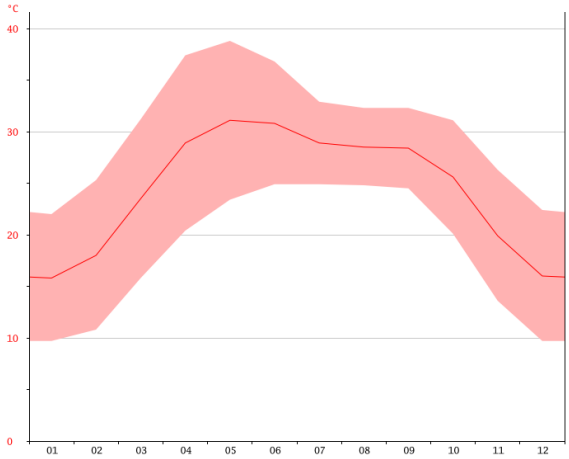
The climate of Shuklaphanta is warm and temperate. The average maximum temperature is 31.1°c as May is the hottest month. Minimum average temperature is 15.8°c as January is the coldest month. The average annual rainfall is 1411 mm (climate-data.org). **Figure 3.1** shows trend of climate and temperature of Shuklaphanta throughout a year.

Figure 3.1Climate and Temperature Graph

Climate Graph



Temperature Graph



Source: climate-data.org

Precipitation is the lowest in November is the driest month with an average of 7 mm of rainfall. Most precipitation occurs in July with an average of 410 mm. There is foggy weather Sheet Lahar as cold breeze in the winter.

3.1.3 Topography

The topography is almost plain with mild slope in the south with increasing altitude towards north. Shivalik (Churia) range is situated in the north side while south portion of the municipality lies in Terai plain. The altitude varies from 192-1528m (south to north). The settlements of the municipality are mostly located in the southern plain while northern parts are mostly covered by forest. Many rivers/streams emerge from the Siwalik range flowing from north to south.

3.1.4 Geology

Nepal is well defined into eight physiographic regions from south to north, namely;(1)Terai (the northern edge of the Indo- Gangetic plain),(2) Siwalik (Churia) Range,(3) Dun Valleys, (4) Mahabharat Range, (5) Midlands, (6) Fore Himalaya, (7) Higher Himalaya, and (8)Trans Himalaya. Each of these units has unique altitudinal variation, slope, relief characteristics, and climatic pattern (R.K Dahal, 2010).

Nepal is a Himalayan country. It is sub divided into five major tectonic zones from north to south- Tibetan Tethys Himalayan, Higher Himalayan, Lesser Himalayan (Mahabharat), Sub Himalaya (Siwalik/Churia), and Indo- Gangatic Plain (Terai). The tectonic zones are separated from each other by the thrust faults.

Geologically, Shuklaphanta belongs to Indo-Gangatic Plain (middle and southern Terai) and Churia Range. The municipality mainly spreads over a large alluvial plain in the lower part of the western Terai region and exhibits a gradual slope towards south.

3.1.5 Water bodies

The municipality comprises of different water bodies – River, strem (Khola / Nala) and lake (Tal). Sunbora, Syaliand Banharaare major rivers that flow from north to south through the municipality. Beside these, there are other river/streams and lakes within the municipality.

Table 3.2 Major water bodies

S.N	River	Gad	Stream (Nala)	Lake (Tal)
1	SyaliNadi	Chauri Gad	ChitauraNala	Manika Tal
2	GharkatuwaNadi	Dhad Gad	MutahaNala	Agingar Tal
3	JyaramKhola	Githe Gad	BhamarbhojNala	Majhar Kandi Tal
4	ChhitauraKhola	Dodhara Gad	PhuleiNala	BharaKunda
5	SunboraNadi	Khar Gad	TotiNala	Bansaha Tal
6	DodaNadi		JhaujhaNala	
7	BanharaNadi			

Source: GIS Map, Site survey, 2018

3.1.6 Places of Cultural Importance

The municipality bears a number of temples and shrines. Multi castes and ethnic groups are settled in this municipality. It has developed cohesion among the local people. Ward wise names of the religious and touristic places are given in the **Table 3.3** below:

Table 3.3 Places of Cultural importance

S.No.	Names of Temples	Wards
1.	Sidhanath Temple	1
2.	Baijanath Temple	2
3.	Deusthan	3
4.	Shiva Temple and Sidhanath Temple	4
5.	Baijanath and Krishna Temple	5
6.	Baijanath, Shiva Gauri and Ram Temple	6
7.	Bhagawati, Badhgaura Devi and Shiva Temple	7
8.	Sun Devi and Bhamarbhoj Shiva Temple	8
9.	Shiva Temple	9
10	Manikadham Touristic place	10
11.	Ram Janaki, Sidhanath, Shiva and BhumidevBhuiyaPujan Temple	11

Source: Site survey, 2018

3.2 Demographic Analysis

3.2.1 Population Size and Growth Rate

Population growth refers to the change in the number of persons residing in an area during a specified period of time. The change may be either positive or negative. The demographic structure of a city can be understood by the analysis of its population growth. Population growth serves as one of the indices of a city or region's development in relation to its resources.

Shuklaphanta municipality has been formed by merging Jhalari-Pipaladi municipality and 2 wards of Dekhatbhuli VDC. It was thus required to study and analyze the population and urban density of the then area now covered by "Shuklaphanta Municipality". Population size and growth rates of Shuklaphanta municipality from 1991 to 2011 are given in the **Table 3.4**.

Table 3.4 Population Size and Growth Rates

Year	1991	2001	2011	2017
Population Shuklaphanta	22,094	32,993	46,834	58,923
Growth Rate %		**4.09**	**3.57**	**3.90**
Urban Population	2,289,478	3,229,880	4,525,831	18,285,000
Growth Rate %	**5.9 (1981-91)**	**3.50**	**3.43**	
National Population	18,491,097	23,151,423	26,494,504	29,022,000
National Pop. Growth %	**2.08**	**3.38**	**1.35**	
Project Municipalities (4) Growth Rate %	**X**	**4.5**	**2.7**	

Source: CBS, Population Census 2011

3.2.2 Population distribution and structure

Population distribution by age group suggests children below 14 years comprise 38.24% of municipal population. A higher portion of working age group (15-59) of population is 54.48%, which is also economically active population. The elderly age group above 60 years is relatively less and comprises 7.28 %.

The average sex ratio of the municipality is 87.02, which is lower than the national average (94.2). The sex ratio is high in age group 0 – 14 years (105.42) and it is the age group with more males than females. The sex ratio is lowest (75.15) in the economically active age group (15 – 59) and lower (94.04) in the elderly population (above 60). The lower sex ratio reveals females surpassing males in these age groups. It indicates selective outbound migration of males in the municipality and also especially visualizes the changing roles of female in the households. **Table 3.5** shows population distribution as 5 year age group and sex. It is also shown in **Figure 3.2**

Table 3.5 Population Distribution 5 Years Age group and Sex

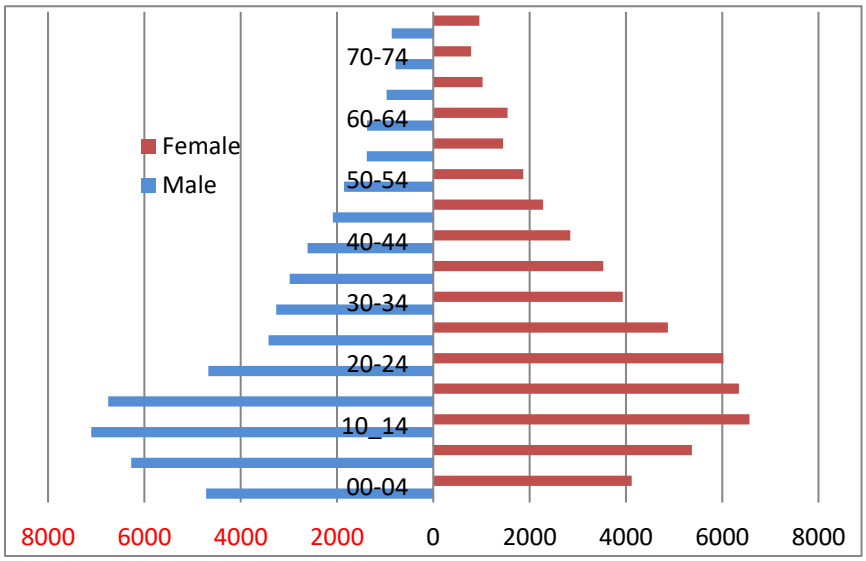
Age Group	Total	Percentage	Male	Female	Sex Ratio
00 – 04	4843	10.34	2478	2365	104.76
05 - 09	6009	12.83	3073	2936	104.64
10 – 14	7058	15.07	3641	3417	106.56
15 – 19	5686	12.14	2619	3067	85.41
20 – 24	4033	8.61	1525	2508	60.80
25 – 29	3466	7.4	1310	2156	60.79
30 – 34	2927	6.25	1190	1737	68.51
35 – 39	2684	5.73	1130	1554	72.73
40 – 44	2173	4.64	927	1246	74.45
45 – 49	1850	3.95	881	969	90.92
50 – 54	1518	3.24	764	754	101.36
55 – 59	1176	2.51	599	577	103.91
60 – 64	1218	2.6	564	654	86.23
65 – 69	834	1.78	416	418	99.51
70 – 74	642	1.37	327	315	103.58
75 +	717	1.53	347	370	93.63
Total	**46,834**	**100**	**21791**	**25043**	**87.02**

Source: NPHC 2011, Vol. 07, Part I, CBS

Age Group	Total	Percentage	Male	Female	Sex Ratio
00 – 14	17910	38.24	9192	8718	105.44
15 - 59	25513	54.48	10945	14568	75.13
60 +	3411	7.28	1654	1757	94.14
Total	**46834**	**100**	**21791**	**25043**	87.01

Source: CBS, Population Census 2011

Figure 3.2 Population Distribution according to Age group



3.2.3 Caste/Ethnic distribution

More than half of the population (62.21%) in Shuklaphanta is Brahman / Chhetri – Hill, followed by Janajati – Terai (21.41%), Dalit – Hill (13.59%), and Janajati Hill excluding Newars (2.31%). OBC, Muslim and others each constitute less than 1% of the total population. Similarly caste/ethnic distribution according to households (HHs) indicates 67.04% of HHs is Brahman/Chhetri – Hill followed by 18.68% of Janajati – Terai and 11.86% Dalit – Hill and 2.01% of Janajati – Hill excluding Newars. Brahman/Chettri – Terai, Muslim and others each constitute less than 1% of the HHs. Caste/ethnic distribution of Shuklaphanta is shown in **Table 3.6.**

Table 3.6 Caste/ Ethnic Distribution

S.N.	Caste / Ethnicity	Population %	No. of HH	%
1	Dalit (Hill)	13.59	952	11.86%
2	Dalit (Terai)	0.00	-	0.00%
3	Janajati (Hill), excluding Newars	2.31	161	2.01%
4	Janajati (Newars)	0.00	-	0.00%
5	Janajati (Terai)	21.41	1499	18.68%
6	Brahman / Chettri (Hill)	62.21	5380	67.04%
7	Brahman/Chettri (Terai)	0.05	3	0.04%
8	Other Brahman, Chettri (OBC)	0.00	-	0.00%
9	Muslim	0.11	8	0.10%
10	Others	0.31	22	0.27%

Source: Municipal Data, IUDP 2, PPTA, DFR, Discussion note # 2 (Vol. 3), 2015

Rana-Tharus are the indigenous people living here however in migrants are mostly from hill districts Baitadi, Darchula and Dadeldhura. The ethnic Tharu people celebrate Holi and Maghi festival while Hill people celebrate GauraParba.

3.2.4 Ward wise Population (Household size, Density)

National Urban Policy (NUP), 2007 suggests 10 pph as criteria for urban areas, though it is not taken into consideration in municipal designation. This is particularly applicable with respect to provision of infrastructure, facilities and services. Population density is also a useful index to measure population pressure on land. Ward wise population density of Shuklaphanta shows that none of the wards have densities above 10 pph however 5 out of 12 wards have density more than 5 pph. Density varies ranging from 0.95 pph (ward 8) to 8.85 pph (ward 5). It indicates that wards 3, 4, 5, 6 & 10 are urbanizing and remaining wards incorporate rural character. About 20% of the population is concentrated in the urban wards which comprises about 7% of the total municipal area. The remaining 80% of the population are thinly spread over 93% of the municipal area. It gives an idea of the concentration and dispersal of urban population. The average ward wise population density of the Municipality is 2.81 pph (> 10 pph) and does not satisfies the urban area criteria as suggested by NUP. However population density would increase with respect to buildable area excluding steep slope/forest such as northern Siwalik/Churia range; and river/ lake. **Table 3.7** shows ward wise population- density profile and **Table 3.8** indicates Population distribution of Shuklaphanta. Population density in ward level is shown in **Figure 3.3** and **Figure 3.4**.

Table 3.7 Households, Population and Population Density

Ward No.	Area ha.	HH	Population				HH size	Remark
			Total	Male	Female	Density ppha		
1	1132.38	952	5,217	2,447	2,770	4.61	5.48	Adjacent to Kaluwapur road
2	758.22	350	1,967	899	1,068	2.59	5.62	"
3	372.33	320	2,030	935	1,095	5.45	6.34	
4	487.05	587	3,256	1,551	1,705	6.69	5.55	
5	582.07	1,015	5,151	2,338	2,813	8.85	5.07	Adjacent to E/W highway
6	274.78	358	1,841	843	998	6.7	5.14	
7	3284	1,024	5,283	2,457	2,826	1.61	5.16	Mostly forest area
8	4869.97	891	4,650	2,192	2,458	0.95	5.22	"
9	598.64	497	2,519	1,147	1,372	4.21	5.07	
10	551.81	854	4,130	1,981	2,149	7.48	4.84	Adjacent to E/W highway
11	1849.84	1,158	5,924	2,787	3,137	3.2	5.12	
12	1496.26	851	4,866	2,214	2,652	3.25	5.72	
Total	**16257.4**	**8,857**	**46,834**	**21,791**	**25,043**	**2.88**	**5.29**	

Source: NPHC 2011, Vol. 07, Part I, CBS,

Table 3.8Population Distributions

Population density		Ward No.	Total
ppha	**Pp/sq km**		
0-2	0-200	7, 8	2
2-5	200-500	1, 2, 9, 11, 12	5
5-10	500-1000	3, 4, 5, 6, 10	5
		Total wards	**12**

Figure 3.3 Population Density in Ward Level

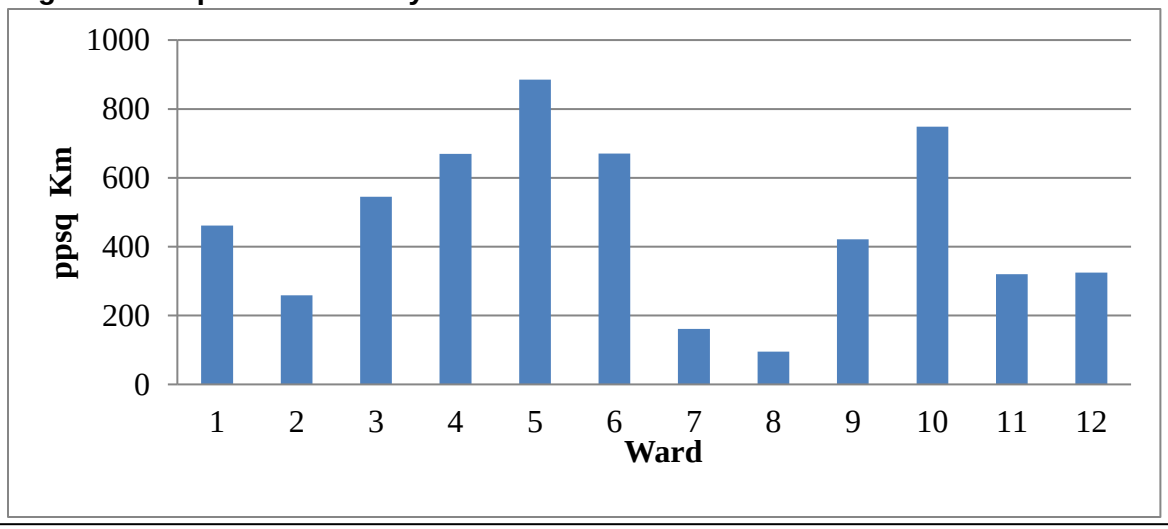
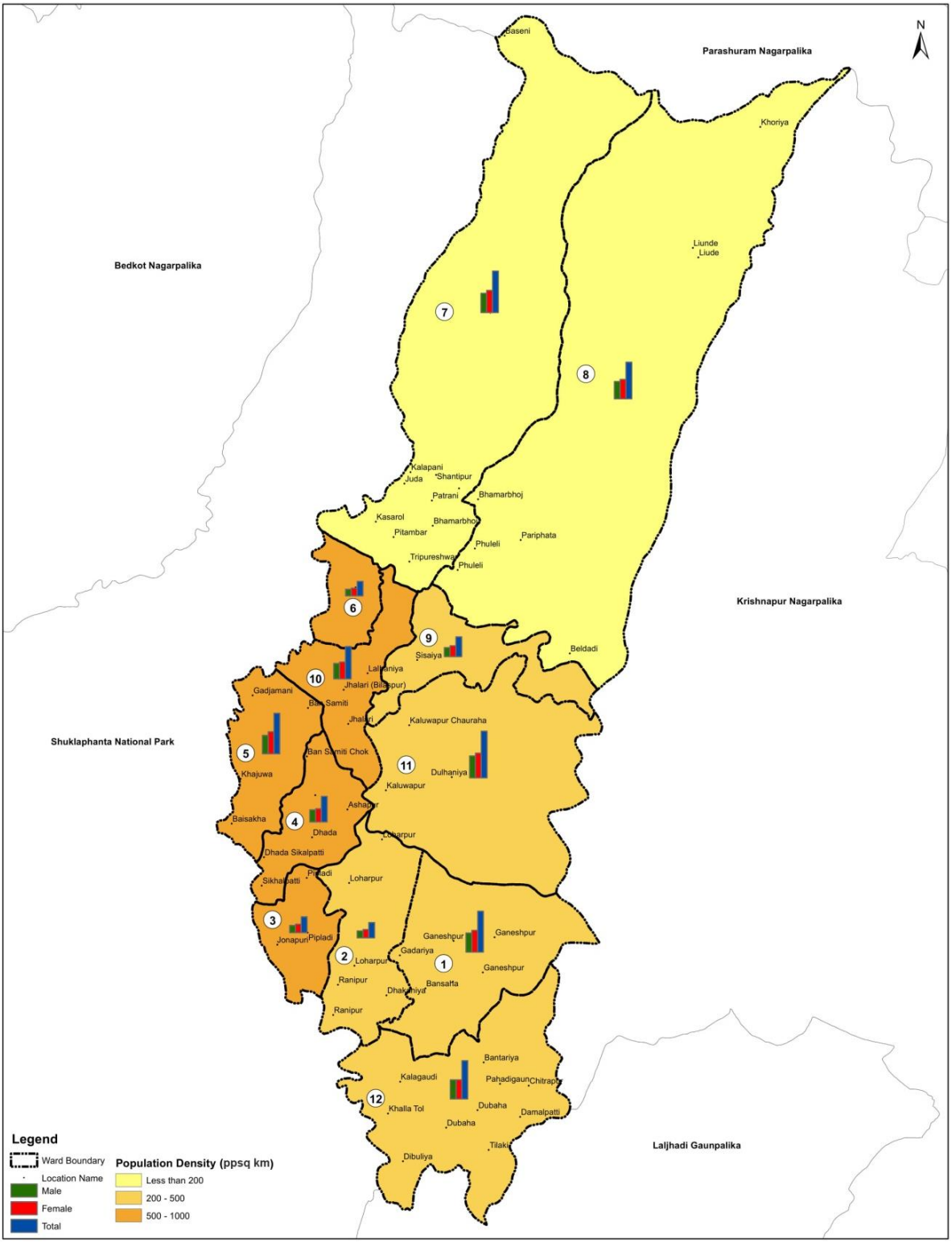


Figure 3.4Population Density Map



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Population density (Existing)**	DRG NO: 3

3.3 Spatial Analysis

3.3.1 General

The form and pattern of human settlements along with the dynamics of the changes, as a main concern of the spatial analysis, varies according to geo-physical condition, climate, available construction materials, caste/ ethnicity, local culture and economic condition of the local people. The settlements in Shuklaphanta are, at present, largely of the rural character- a characteristic of the Terai Region with a predominance of agricultural activities. Hence, the spatial analysis covers mainly the following aspects: urban growth trends, assessment of the land use situation, land suitability analysis, and available land areas for future expansion.

3.3.2 Urban Growth Trends

Urbanization is a new phenomenon for Shuklaphanta as it is a recently created municipality. The new settlement came up only in 1995 after the evicted people from the National Park were settled here. The proliferation of the urban sprawl, the extent of the conversion of forest and agricultural land into the built up areas, the land use changes and the building permit records would be dealt here as the measures of urban growth trends within the municipal area.

a. Urban Growth Trends: Land use changes over the years (2001- 2011)

Land Use pattern in 2001

The land use map of Shuklaphanta Municipality at 2001 shows very few sparse settlements mainly at parts of Jhalari Chowk, few in Dhakamiya (ward 2) and Jhalari Bilaspur (ward 10). Most of the settlement developed linearly along the roadside while some cluster settlements were observed in areas such as Kalagaudi, Dhakamiya and Phuleli areas. Similarly, some market place areas were also found in linear pattern from Jhalari Chowk to the North. The predominant land use was agriculture (59.31%) followed by agriculture area (34.70%). The built up area was only 0.19 %. Please refer map 3a attached in Annex.

Land Use pattern in 2011

The land use map of year 2011 shows that built up area has been increased by 2.7 folds during the decade. As per the table 3.8 indicates, the forest area decreased by about 45 ha within a period of 10 years due to the development of new settlements of Simalphanta and Pariphanta. But the predominant land use was still forest (59%) followed by cultivation areas (34.65 %). Land use map of the year 2011 is attached here within Annex (Map 3b).

Table 3.9 Change of Land use over a decade (2001 – 2011)

Land Use	Year 2001		Year 2011	
	Area (ha)	Percent (%)	Area (ha)	Percent (%)
Built Up	30.08	0.19	82.82	0.504
Agriculture	5640.73	34.70	5633.41	34.654
Forest	9642.55	59.31	9597.13	59.037
Pond	23.73	0.15	23.73	0.144
River	920.26	5.66	920.26	5.661
Grand Total	**16,257.35**	**100.00**	**16,257.35**	**100**

b. Urban Growth Trends: Land use changes over the years (2011- 2018)

In Shuklaphanta municipality since the historical data are not available, land use pattern and the satellite imageries are being used to determine the historic land use changes. Thus imageries from 2011 and 2018 are being presented below.

The satellite image in 2011 shows sparse settlements scattered all around the municipality with very few clusters settlements. Jhalari chowk area (ward 10), Pipladi (ward 3), Asaina (ward 4) and Kalagaudi (ward 12) are few places where small clusters settlements have developed. Besides, the settlements developed by Nepal Government in around 2006 at Simalphanta (ward 6, 7) and Pariphanta (ward 8, 9) became more prominent by 2011. Accordingly, new linear settlements have also came up in other roads.

The existing land use map of Shuklaphanta based on the field visit, satellite image GIS map and review of relevant documents, has broadly categorized the land uses as built up area, agricultural area, forest area, grassland, river/pond, open spaces and the road.

The built up area constitutes residential area, residential cum commercial area, institutional area. There is no significant area for zones like industrial, institutional etc. hence the land is divided into above-mentioned zones. The change in land use pattern of the municipality in 2011 and 2018 is shown in satellite image **Figure 3.5** and area comparison is shown in **Table 3.9.**

Figure 3.5 Settlement pattern in 2011 and 2018

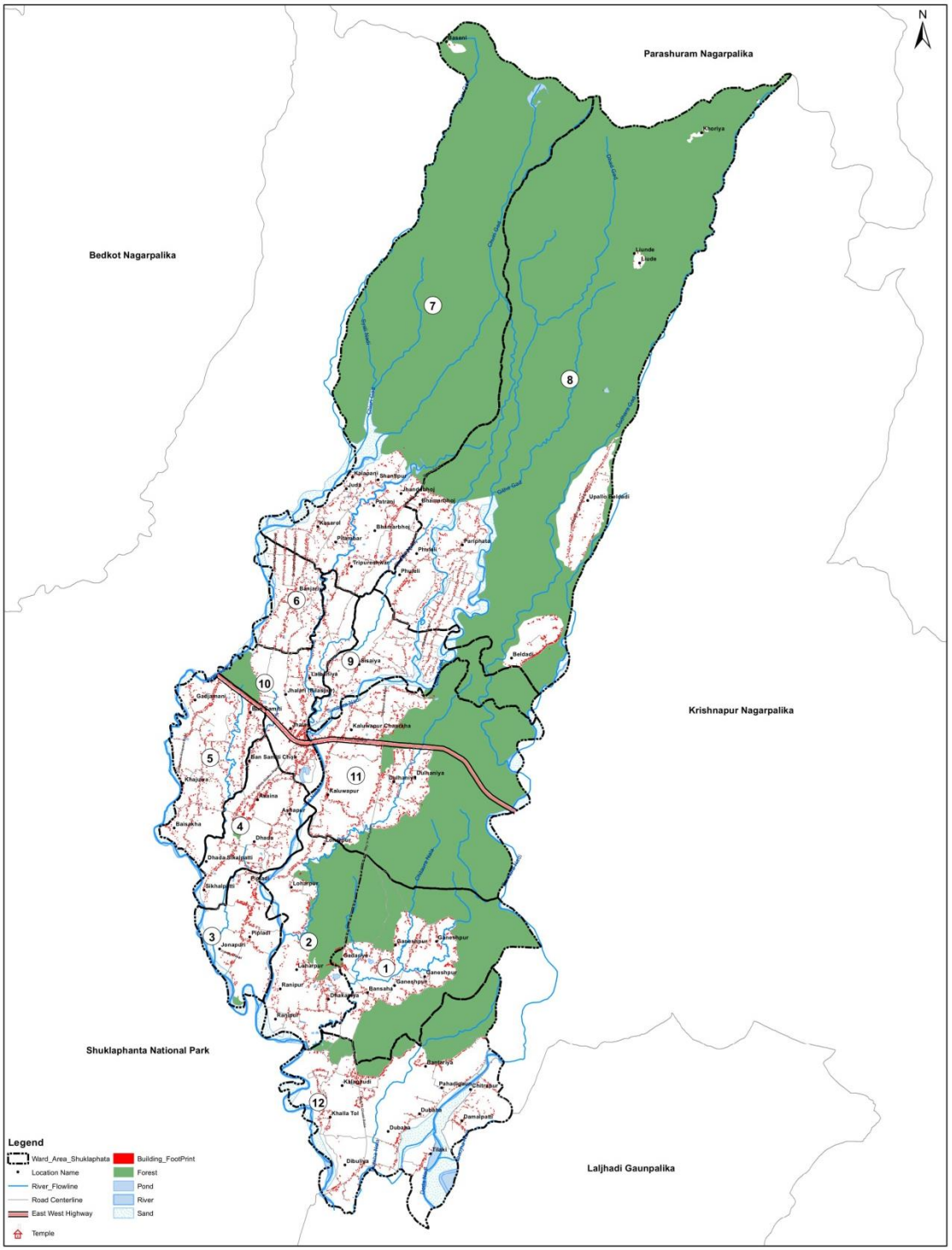
Satellite image 2011 Satellite image 2018

c. Urban Growth Trends as reflected in Current Settlement Pattern within the Municipality.

A current settlement pattern map (**refer Fig. 3.6**) prepared based on field visit, satellite imageries and population densities, shows indicates a distribution and density of urban sprawl presently within the municipality. The map indicates the relatively dense settlement around JhallariChowk in the East West Highway (ward 10). Beyond the compact settlement, low density settlements are developing in the wards4, 5, 9, 10 &11. Low density, i.e. sprawl developments is visible in southern parts of wards 5,4&11 and northern parts of wards 9&10. High sprawl rural settlements are noticed in wards 1, 2, 3, 7, 8 & 12. Refer Annex II Drawing

No 2 for current settlement pattern. Hence, the current settlement pattern and form does not reflect the desirable densities as indicated by the scattered population in a rural setting.

Figure 3.6 Current Settlement Pattern



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Current Settlement Pattern Map**	DRG NO: 4

d. Urban Growth Trends as reflected in Building Permit Records of the Municipality.

Effort was made to collect the building permit data from Shuklaphanta municipality to determine the urban development trend. It seems municipality lacks the well managed data. However, DSC was able to receive some data and is presented in tabular form. Data of the wards 1, 2, 8 and 9 are completely missing. It was known that most of the land parcel in the municipality is unregistered land and thus construction data in these land holdings are not available, though construction of private houses are carried out in these places.

The building permit **Table 3.10** demonstrates that most of the buildings are constructed in wards3, 7, 10 & 11. Wards 10 & 11 are adjacent to north and south of East-West Highway.

Table 3.10 Building Permit Records (2014/15 – 2017/18)

Ward numbers	FY 2014/15	FY 2015/16	FY 2016/17	FY* 2017/18	FY 2014/15 – 2017-18
1	NA	NA	NA		NA
2	NA	NA	NA		NA
3	0	2	35	0	37
4	1	0	6	0	7
5	2	2	19	2	25
6	4	3	21	2	30
7	8	0	35	NA	NA
8	NA	NA	NA	NA	NA
9	NA	NA	NA	NA	NA
10	10	0	132	5	147
11	1	7	50	4	62
12	NA	NA	NA	NA	NA
Total	**26**	**14**	**289**	**13**	**308**

Source: Shuklaphanta Municipality, 2018

3.3.3 Assessment of Existing Land Use Situation

a) Existing Land Use Zones.

As per National land Use Policy 2015, municipal land can be divided into major 11 Land use zones (LUZ) as follows:

• Agriculture	• Residential	• Commercial	• Industrial
• Mines and minerals	• Cultural and archeological	• River, lake and reservoirs	• Forest
• Public and open space	• Building material (stone, sand) excavation	• Other zones as specified as per necessity	

The existing land use zones of Shuklaphanta Municipality are as follows:

1. **Mix-Use (Residential and Commercial):**
   Buildings atJhalari chowk (ward 10), Ban samiti chowk (ward 10), Kaluwapur chowk (ward 11)are using its ground floor for commercial purpose.
2. **Residential**
   Almost all buildings in the municipality except the ones mentioned above for Mix-use and few government offices in ward 10 are used for Residential purpose.

3. **Agriculture**

   The reaming part of the municipality is designated as the agriculture zone.

4. **Forest**

   The wards 1, 7, 8 and 11 consist of thick forest where as the ward 2, 9 and 12 consists of thin forests; hence, the areas covered by forests in these wards can be designated as Forest zone.

5. **River / Pond**

   There are several ponds, streams and rivers in the municipality as shown in **Figure 3.8** with three major rivers being Syali Nadi, Sunbora Nadi and Banara Nadi.

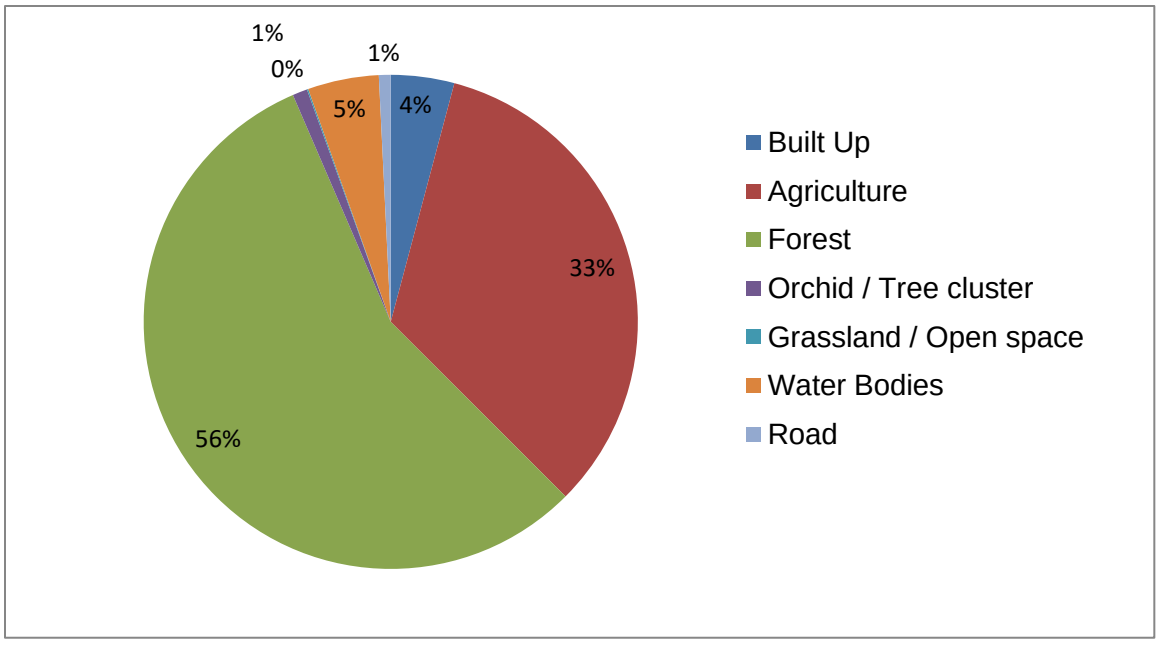
6. **Grasslands**

   Grasslands are scattered all around the municipality especially around the water bodies.

Table 3.11 Existing Land Use (2018)

Land use	Area ha.	Percent
Built Up	673.95	4.15
Agriculture	5420.22	33.34
Forest	9110.79.	56.04
Orchid / Tree cluster	157.82	0.97
Grassland / Open space	14.61	0.09
Water Bodies (river, pond etc)	755.20	4.65
Road	124.77	0.77
TOTAL	**16,257.40**	**100**

Figure 3.7 Percentage of Land Use



Major portion of land in the municipality 56.16% is covered by forest. The agriculture area constitutes 35.69% of the total land area, as agriculture is the primary source of economy. The built up area only covers 1.47% indicating that settlements in the municipality are mostly of rural character. Comparing to 2001 and 2011 the built up area has increased many folds. This is a clear indication of rapidly growing urbanization. As the urbanization increases, the large chunk of land that is covered by agriculture will be decreased. A plenty of room is still available for the urbanization.

b) Ward wise Land use analysis

Efforts are made to classify Shuklaphanta into different categories in terms of area, population density and urbanization.

1) The wards with less than 500 hectare are classified as small wards. Wards like 3, 4 and 6 fall under this category. The population density is quite high in these wards compared to other wards. (Refer Table 3.7).
2) Wards with the area 500 Ha to 1000 Ha are classified as medium wards. Wards 2, 5, 9 & 10 fall under this category with Wards 5 & 10 exhibiting higher densities.
3) Wards with the area between 1000 Ha to 2000 are classified as medium big wards such as 1,11& 12 depicting medium densities. However, those wards still exhibit rural setting. Urbanization in these wards may take place in later phase compared to the ward 5, 9 &10.
4) Ward 7 & 8 are quite larger having area more than 3200 ha and exhibit lowest densities.
5) The wards 4, 5, 6, 9, 10 & 11 can be classified as urban core wards. Majority of the private housing are being constructed in these wards that can be confirmed from building permit data. Urbanization is taking place in these wards and this will continue in coming years as there are vacant lands. DUDBC carried out block planning at Ward 6 (Simalfanta) some 10 years ago.
6) Most of the commercial activities are taking place along the Highway. The municipality is likely to extend towards the North West in the ward 10, 6 and south east in ward 11, 4 because of the available road networks and upgrading of some of the roads under RUDP program.

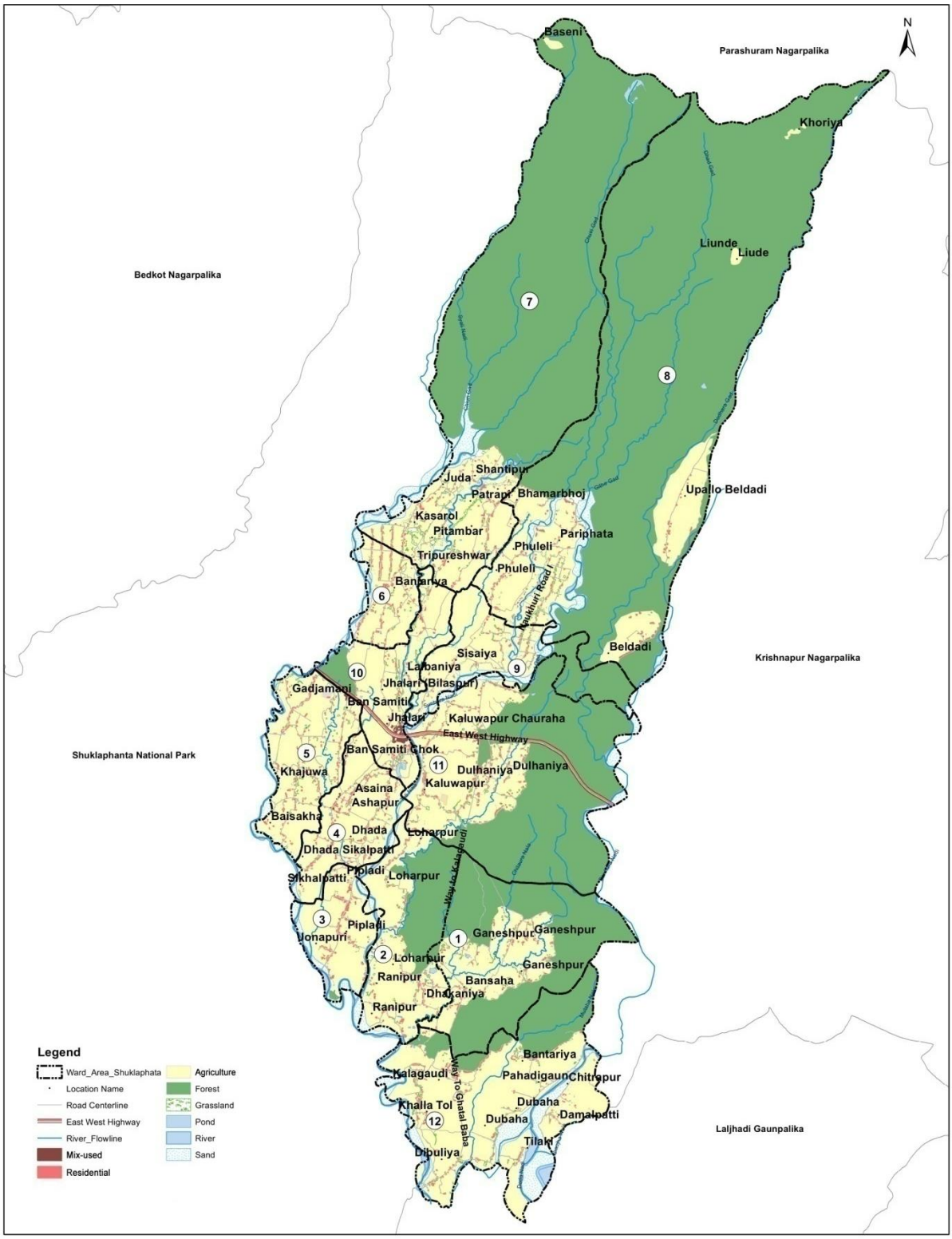
The Buildable area of the Municipality excludes land cover as steep slopes (>45%), river/ pond and forests (NUDS, 2017 p: 80). In other words Buildable area includes built up, agriculture, infrastructure (road, airport) and open spaces and greenery. Whereas Build Control area includes forest and water bodies. Ward wise land use analysis of Shuklaphanta in terms of Buildable and Build control area is shown in **Table 3.12**.

Table 3.12 Ward wise Land use Analysis

Ward No	Ward Area	Buildable Area ha.										Built control Area ha.			
		Built-up Area		Agriculture		Road		Orchard / Tree cluster		Grassland / open space		Forest		Water bodies	
		Ha	%	Ha	%	Ha	%	Ha	%	Ha	%	Ha	%	Ha	%
1	1132.93	52.5	4.63	338.89	29.91	10.68	0.94		0.00	7.52	0.66	716.4	63.23	5.94	0.52
2	761.25	50.53	6.64	402.39	52.86	8.02	1.05	6.61	0.87	6.91	0.91	256.11	33.64	29.68	3.90
3	374.56	30.62	8.17	275.95	73.67	4.51	1.20	1.83	0.49	3.49	0.93	3.43	0.92	53.73	14.34
4	491.24	55.27	11.25	401.39	81.71	8.9	1.81		0.00	5.65	1.15	2.29	0.47	17.74	3.61
5	586.05	64.44	11.00	482.81	82.38	10.86	1.85	3.28	0.56	10.15	1.73	0	0.00	14.5	2.47
6	278.71	42.68	15.31	202.96	72.82	6.79	2.44		0.00	3.87	1.39		0.00	22.41	8.04
7	3278.21	61.58	1.88	481.09	14.68	10.43	0.32		0.00	38.27	1.17	2574.21	78.52	108.63	3.31
8	4859.21	61.9	1.27	678.24	13.96	12.55	0.26	0.27	0.01	27.49	0.57	3972.82	81.76	121.94	2.51
9	599.15	28.51	4.76	322.29	53.79	5.47	0.91	0.34	0.06	12.3	2.05	163.11	27.22	67.13	11.20
10	556.55	59.91	10.76	402.44	72.31	11.44	2.06	1.17	0.21	14.76	2.65	49.78	8.94	17.05	3.06
11	1841.09	90.61	4.92	541.71	29.42	18.91	1.03	1.08	0.06	12.67	0.69	1105.27	60.03	69.85	3.79
12	1498.40	75.4	5.03	890.06	59.40	16.22	1.08	0.04	0.00	14.73	0.98	267.37	17.84	226.6	15.12
GT	**16257.34**	**673.95**	**4.15**	**5420.22**	**33.34**	**124.77**	**0.77**	**14.61**	**0.09**	**157.82**	**0.97**	**9110.79**	**56.04**	**755.2**	**4.65**

Source: GIS Map 2017

Figure 3.8 Existing Land use (2018)



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Existing Landuse Map (2018)**	DRG NO: **5**

3.4 Disaster Risks Analysis and Risk Sensitive Land Use Plan

3.4.1 General

As per the ToR of the study, preparation of Risk Sensitive Land Use Plan (RSLUP) that is focused on Identification of different land uses that needs to be protected, controlled and promoted needs to be carried out. This calls for a need for disaster risk assessment (DRA) of the multi-hazard elements based on socio-economic data/information, geo-morphological map and local consultations. The RSULP is being identified as one of the most effective ways to respond to disaster risk reduction (DRR) initiatives, which need to be undertaken within the municipal area. The disaster risk scenario within Shuklaphanta municipality and Kanchanpur District need to be looked at within the national context.

Looking at the national level Nepal's geology and climate make it particularly susceptible to disasters, including floods, landslides, earthquakes, fire, drought and epidemics, ranking 11th in global vulnerability to earthquakes and 30th in vulnerability to floods (Reducing Disaster Risk, UNDP 2004). Floods and landslides are the most recurrent, claiming an average of 211 lives annually in the past ten years (UNDP, 2006) and significantly affecting livelihoods through the loss of houses, infrastructure, livestock, arable land, crops and other property. Poor and marginalized people are especially affected by disasters due to settlement along the river banks or other unstable parcels of land and poor access to resources to prepare for, respond to and recover from disasters (Mercy Corps, Natural Resource and Disaster Risk Management, Kailali Disaster Risk Reduction Initiatives I & II).

The disaster risks as stated above are further aggravated by the climate change as Nepal as listed as fourth most climate vulnerable country in the world. As per the document (MCCRMD, 2014, Urban Sector Synthesis Report) recent climatic trends show:

- Temperature is expected to increase by 1.5^0 C in 2050 and 3^0 C in 2100,
- Climate projections indicate more intense rainfall and extreme weather events in the future accompanied by the sudden occurrences of the extreme events – flash floods, river flooding, landslides, droughts, glacial lake outbursts floods and storms.
- Regional climate change threats also indicate, intense and prolonged rainfall, flash flooding, riverine flooding and settlement inundation**,** which applies for the Terai Plains including Kanchanpur district and **Shuklaphanta**.

Hence, it is obvious. Disaster risks seem severe in Shuklaphanta being located at the Terai Plains affected by increasing flood risks because of the rivers, population concentration at risk prone locations, haphazard developments, poorly constructed houses (*Kuccha* houses/constructed with fire prone materials like wood, straw etc), seismic risks and transient or migrant populations in which social and economic networks tend to be loose.

Hence, It calls for a risk sensitive land use plan (RSULP), which integrate the DRR actions with the physical development strategies, regulatory and non-regulatory tools, and related bylaws and procedures. (EMI, 2011).

3.4.2 Multi-Hazard Assessment in Shuklaphanta

The disaster risk aspects as depicted in the Disaster Risk Map (Figure 3.10) are presented below.

a) Landslide

Churia area, lying in lesser Himalaya in the north and Terai in the south, is formed of very fragile, weak and young sedimentary rocks called the Siwaliks (TU-CDES (2016). The study shows that, last few decades have witnessed deforestation, over exploitation of forest products, development of road networks, forest encroachment, open grazing and unscientific use of land in the Churia area. Such activities on fragile ecosystem have exacerbated landslides in the hills and mountains and consequent flood hazards in the river valleys and lowland Terai in the south. Due to its fragility and vulnerability, conservation of Churia area has been considered as the issue of national challenge in Nepal.

Shuklaphanata has also started experiencing landslide caused by deforestation. River bed materials like sand, gravels and boulders are also collected from these areas particularly from the foot hill of Shivalik range. Land slide can be observed in Kalapani, Shantipur (ward 7), Bhamarbhoj, Pariphanta, Beldadi (ward 8).

b) Flood and Flood Prone Areas

Flooding in Shuklaphanta municipality is usually due to the flash flood in monsoon season and over flow in major rivers. Only a few hours of heavy rainfall causes a flash flood in the downstream communities. The origin of these rivers/streams is Siwalik range and flowing from north down to the south. **Sunabara** as a perennial river emerges from Siwalik and flows through the middle of the municipality down to south. Settlements of Pariphanta (ward 8), Sisaiya (ward 9), Jhallari (Ward 10), Asapur (Ward 11), Pipladi (Ward 4), Loharpur (Ward 2) are being periodically flooded by river Sunabara. **Banara River** forms the eastern boarder of the municipality and affects Beldadi (Ward 8), Dudhaniya (Ward 11), Chitrapur (Ward 12) Dubaha (Ward 12). In the western boarder of the municipality **Syali River** flows. The main affected areas by the river are Kalapani (Ward 7), Simalphanta (Ward 6), Jhalari-Bilaspur (Ward 10), Gadjamani (Ward 5), Sikhalpatti (Ward 4), Jonapuri (Ward 3), Ranipur (Ward 2), KhallaTole (Ward 12). Beside other streams as Gharkatuwa, Jayramkhola, ChtauraKhola, Totinala, Gaudinala, Fulelinalaetc are the tributaries to the main rivers. These tributaries mainly affect the settlement areas north of the East-west highway whereas; main rivers cause flood in the areas particularly south of the highway.

c) River Bank Erosion

Every year, river bank erosion washes away hectares of agricultural land in Kanchanpur. The impact is huge on human lives and property. During last three years Sunabara river has changed its course about 900 m and eroded more than 50 hectares of agriculture land at Loharpur (Ward 2) and Laxmipur (Ward 11). Banara River has also changed its course more than 700 m and washed away more than 20 hectares of productive land

particularly in Ward 12. Similarly Syali River has eroded immediate south to the Highway and other tributaries have also caused erosion.

d) Fire

Disasters due to fire in settlements are a common phenomenon in Terai. During the dry season, incidents of fire cause loss of property, livestock and human lives. Mostly traditional settlements of Shuklaphanta are vulnerable to fire as the houses are constructed out of timber with the thatched roofs. In 2015, the fire that broke out at TharuBasti destroying property of more than 3 million. There are several traditional settlements like Khajuwa, Baishakha (Ward 5), Asaina (Ward 4), Kalakaudi (Ward 12). The houses in those settlements are constructed with traditional locally available materials such as timber, bamboos, straws, etc. Straws are also found stocked near the house. Besides fire woods and animal dung cakes are still used as fuel for cooking. Most fire disasters occur during summer (April – July) when temperature is high and wind is strong. During winter season these communities burn fire woods and straw in their courtyard to overcome cold. A minor negligence may put entire community on fire risk. It is necessary to encourage the use of non-combustible construction materials for fire safety. As the Fig. 3.9 indicates, the Wards 4, 5 & 12 are susceptible to fire.

Similarly, forest fires are prevalent particularly in Terai forests as well as in forests in Churia hills. All types of forests (community, leasehold, protected and government managed) are affected by fire although the magnitude varies. From the management perspective, community and leasehold forests are less affected by fire as compared to other types of forest. The fire management is an important initiation to safeguard forest, biological resources, environment and public heath, by reducing fire damages through mobilizing wide spectrum of stakeholders- non/government, private, civil society and local community.

e) Electric High Tension Line

A 132 KV electric high tension transmission (HT) line runs towards north of the East – West Highway. Settlements are restricted within 15 m each side of the HT line due to risk of high voltage. Altogether 30 m. band area can be used as the open space and for the agriculture purposes etc. Similarly, right of way (RoW) of highway as 25 m from each side of the centre of highway is restricted for any type of construction.

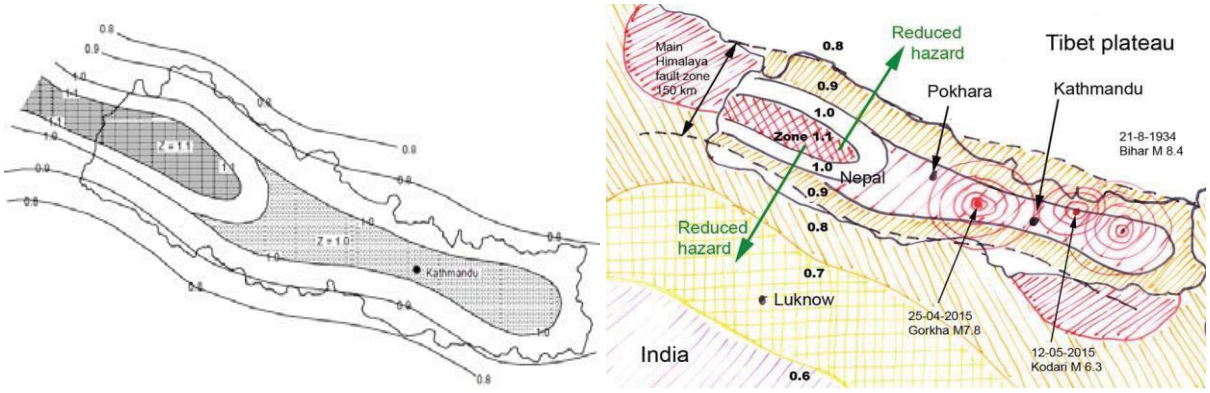
f) **Earthquake**

SudurpashchimProvince (Far western region) falls in a high earthquake hazard zone. The level of risk has been increased further in the cities due to haphazard urbanization and a lack of preparedness. There are a number of factors that contribute to the configuration of risk in cities. Firstly the location of the city in terms of geology and seismological hazard; secondly the urbanization process which leads to the concentration of population in the risk-prone cities, and the risk–prone locations within cities; thirdly, in the cities with transient or migrant populations where social and economic networks tend to be loose.

Past earthquake of 6.5 Richter scale in the far western region mostly affected Baitadi, Bajhang, and Darchula with: 125 people dead, 248 seriously injured, 11,604 buildings destroyed, 13,414 buildings damaged, and a heavy loss of livestock.

Seismic Zoning Map (sketch) of Nepal of (**Figure 3.9**) indicates the main Himalayan fault zone between the interrupted lines. Within this zone, the value Z = 1.1 indicates the highest hazard. Moving towards India reduces the earthquake hazard in Nepal to Z = 0.9 and in India further to Z = 0.6.

Figure 3.9 Seismic Zoning Map of Nepal



Sources: (1) Nepal National Building Code NBC 105:1994; (2) Seismic Building Codes in the Himalaya Region – Questions and Answers related to the 2015 Nepal Earthquake, SjoerdNienhuys, 2016, www. Nienhuys.info)

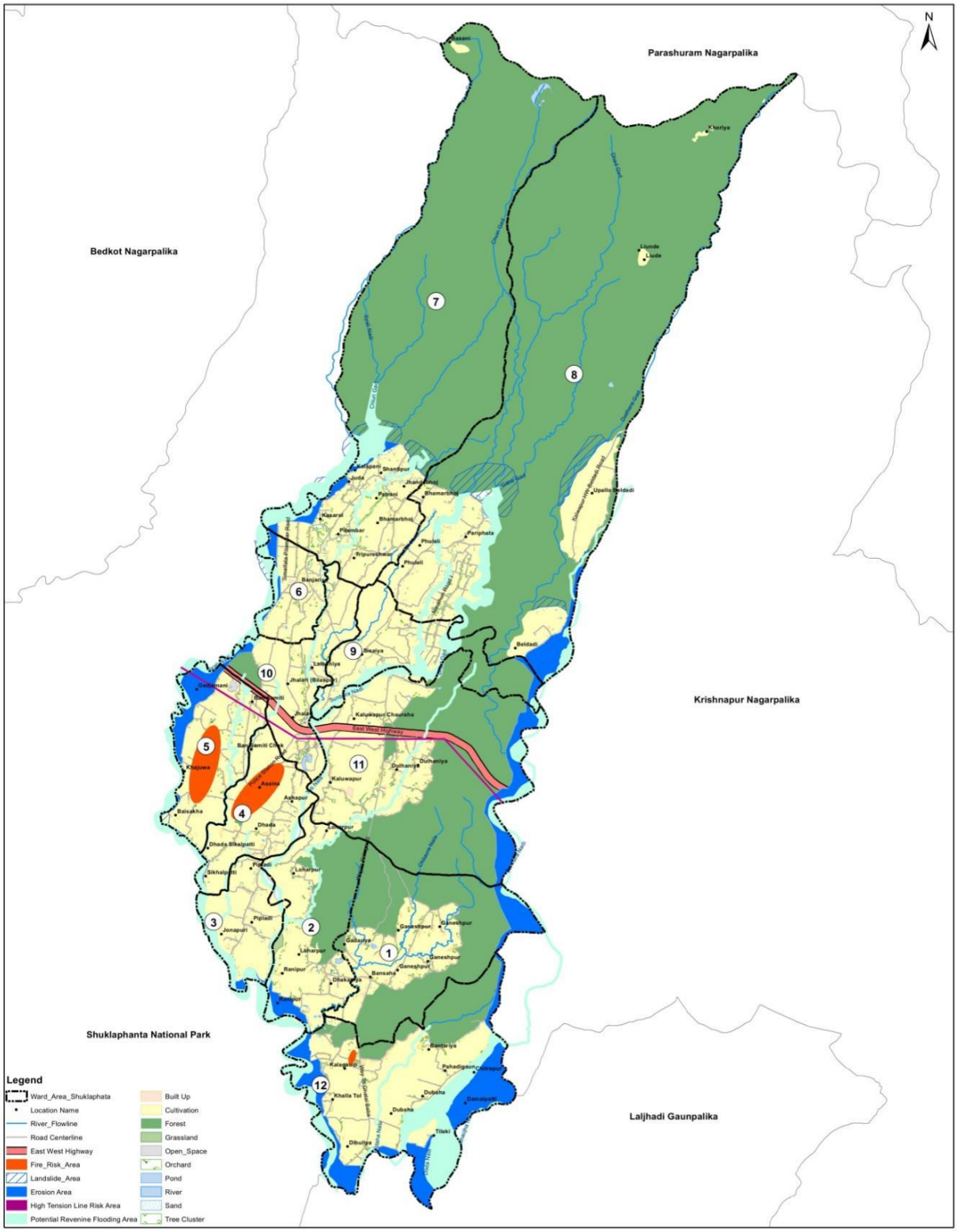
g) Socio Economy Aspects

Socially marginalized and pro poor people are usually more vulnerable to disasters because they lack resources to cope with disaster. For example, the poor families people living in squatters, cannot afford to live in a safer place.

h) Geomorphological Aspects

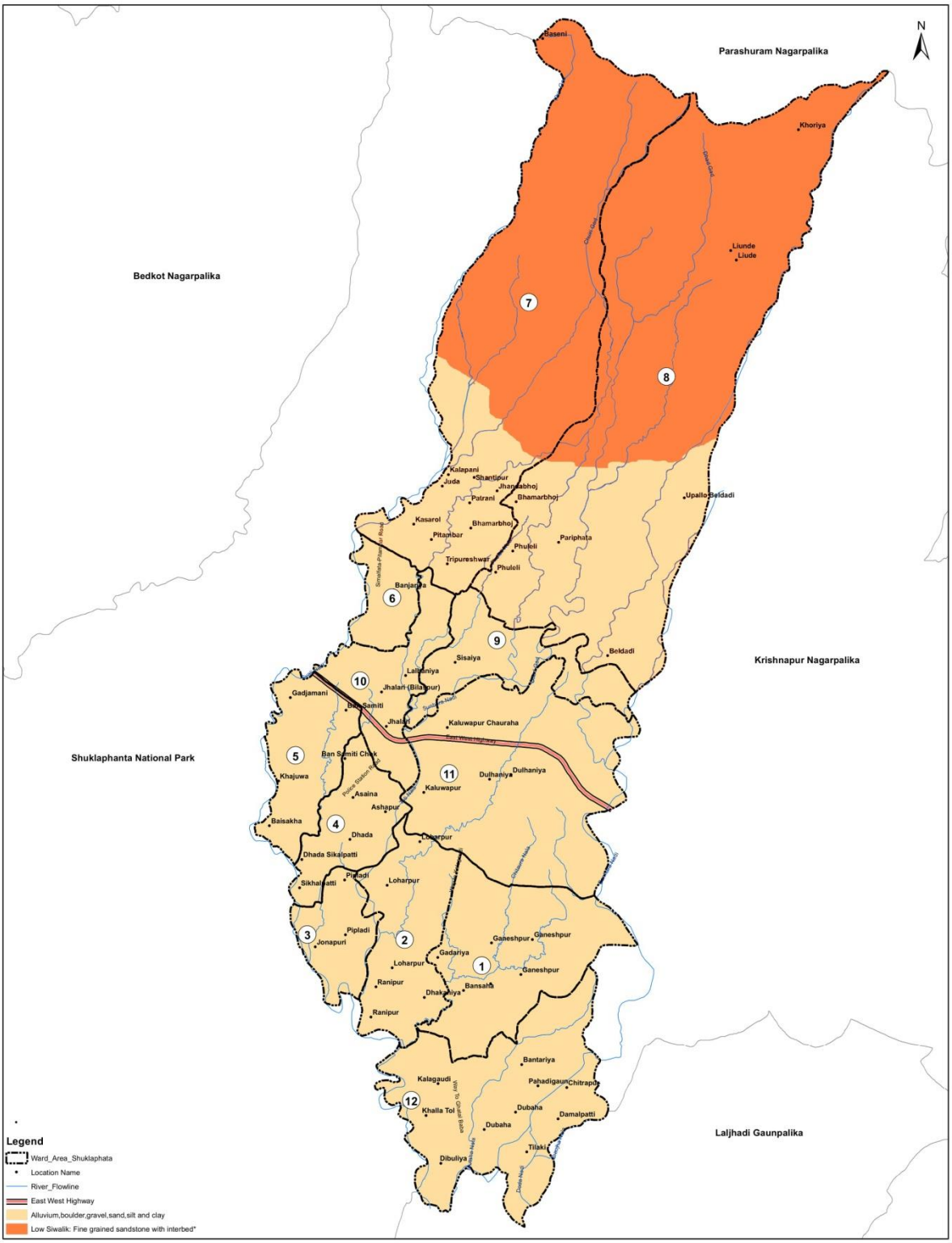
Geology of Shuklaphanta can be broadly categorized into two categories with the first one located in the Indo-Gangatic Plain and the second one in the Lower Shiivalik Chure Range. Lower Shivalik with fine grained sand stone, inter beds of purple or red coloured mudstone, shale, and silt stone is found towards the North of the Highway. Recent deposit with alluvium, boulder, gravel sand silt and clay are found in plain area. (Geological map of Petroleum Exploration Promotion Project, Department of Mines and Geology, 2007) The major settlements are located in the Indo_Gangatic Plain. The settlement area which is composed of silty clay (which is consolidated in nature) and sand mixed with clayey material making the area highly susceptible to liquefaction respectively. Hence, most of the southern part lies in high liquefiable zone making it more vulnerable to earthquakes. Geomorphology of Shuklaphanta is shown in **Figure 3.11.**

Figure 3.10 Disaster Risk Map



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Shuklaphanta,Kanchanpur	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Indra Paudyal Urban planner: Narayan Pd. Khanal Drawn by: Asmita Giri	Approved by: Checked by: Indra Paudyal	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Disaster Risk Map**	DRG NO: **6**

Figure 3.11 Geomorphology Map



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Geo-Morphological Map**	DRG NO: **7**

3.4.3 The Risk Sensitive Land Use Plan (RSLUP) as a Tool for Managing the DRR and Climate Change

As the above deliberations indicate, the RSLUP involves:

- Mainstreaming DRRM particularly in spatial development planning process;.
- Incorporation of the DRRM within the operations of public and private institutions;
- Coordination with the plans, programs and projects related to land use, land management, and infrastructure development.

RSLUP, being a new practice, especially in developing countries, the planners and planning organizations lack experience and methodology for the RSLUP formulation. For those familiar with traditional planning practice the main difficulty lies in using disaster risk information in formulation of development plans. The RSLUP integration leads to policies and investments geared towards proper environmental planning, designing of safer buildings and infrastructure, and improving the over-all preparedness of cities to respond to catastrophic events (EMI, 2010). It is intended to serve as a guide for engaging in historical preservation, infrastructure development (e.g. transport, utilities, and facilities), regulating housing settlements and open space, reclassifying agricultural lands into non-agricultural uses, and improving emergency management. It shall cover the entire territorial jurisdiction of the city (EMI, 2010).

The RSLUP is a participatory approach that utilizes information related to potential hazard risks and resource constraints within the area to develop a more risk resilient settlement that has the right mix of both development and risk reduction (Burby, 1999). The RSLUP could also be used as a mechanism through which disaster risk reduction and climate change adaptation can be mainstreamed and institutionalized.

The Land Use Policy 2015 (MoLRM) has recommended three fundamental principles to be adopted by the RSLUP;

- Promote complimentary Land use for encouragement,
- Maintain competitive Land use for balance and
- Avoid conflicting Land use principle for discouragement.

The Policy also adopts strategy of optimal and sustainable use of 'unused', ‘under-used', ‘misused’ and ‘excessive used’ land. It also classifies different Land use Zones: Agriculture Zone, Residential Zone, Commercial Zone, Industrial Zone, Mines and Mineral Zone, Cultural and Archaeological Zone, River and Lake Reservoir Zone, forest zone, Public use and Open spaces Zone and Building material excavation Zone, No Go Zone and other zones as per necessity.

The RSULP for Shuklaphanta needs to be guided by the following considerations:

- Protection of agriculture land, maintain balance between development and environment, conservation of historical, religious, cultural and tourist area; protection and promotion of bio-diversity, develop green belts and open spaces along with both sides of river, roads, canals

- Designate Specific Land use Zones (SLUZs) to ensure safety, production and productivity, protect bio-diversity, and maintain ecological balance; Maintain government and public land (records)
- Protection of Churia Bhabhar Eco-system,
- Conservation of watershed and wet land reserves, Buffer zones, National Parks and Wild life reserve, Bio- track in Forest area
- Encourage unused land under SLUZs for commercial farming, tourist hub, games and sports, entertainment center.

3.4.4 Risk Sensitive Land Use Map

A Risk Sensitive Land Use Map is prepared based on urban growth trend and multi-hazard assessment. The multi-hazard assessment is to be carried out based on 1) available socio-economic data, 2) geo-morphological map, flood zones, river bank erosion, land use information etc. Based on field visit, secondary data, literature review and with discussions with municipal officials a map showing area to be protected, controlled and promoted have been prepared. The Risk sensitive land use classification is given belowand Risk sensitive land use map is given in **Figure 3.12**

Risk Sensitive Land Use Classification

i. Areas need to be protected

Areas of historical, religious and cultural importance, forests, lakes, prime agricultural lands etc are the areas to be protected. In Shuklaphanta, agriculture and forest areas in wards 1, 2, 3, 7, 8 & 12 along with 10m setback from edge of the ponds are proposed as areas to be protected.

ii. Areas to be controlled

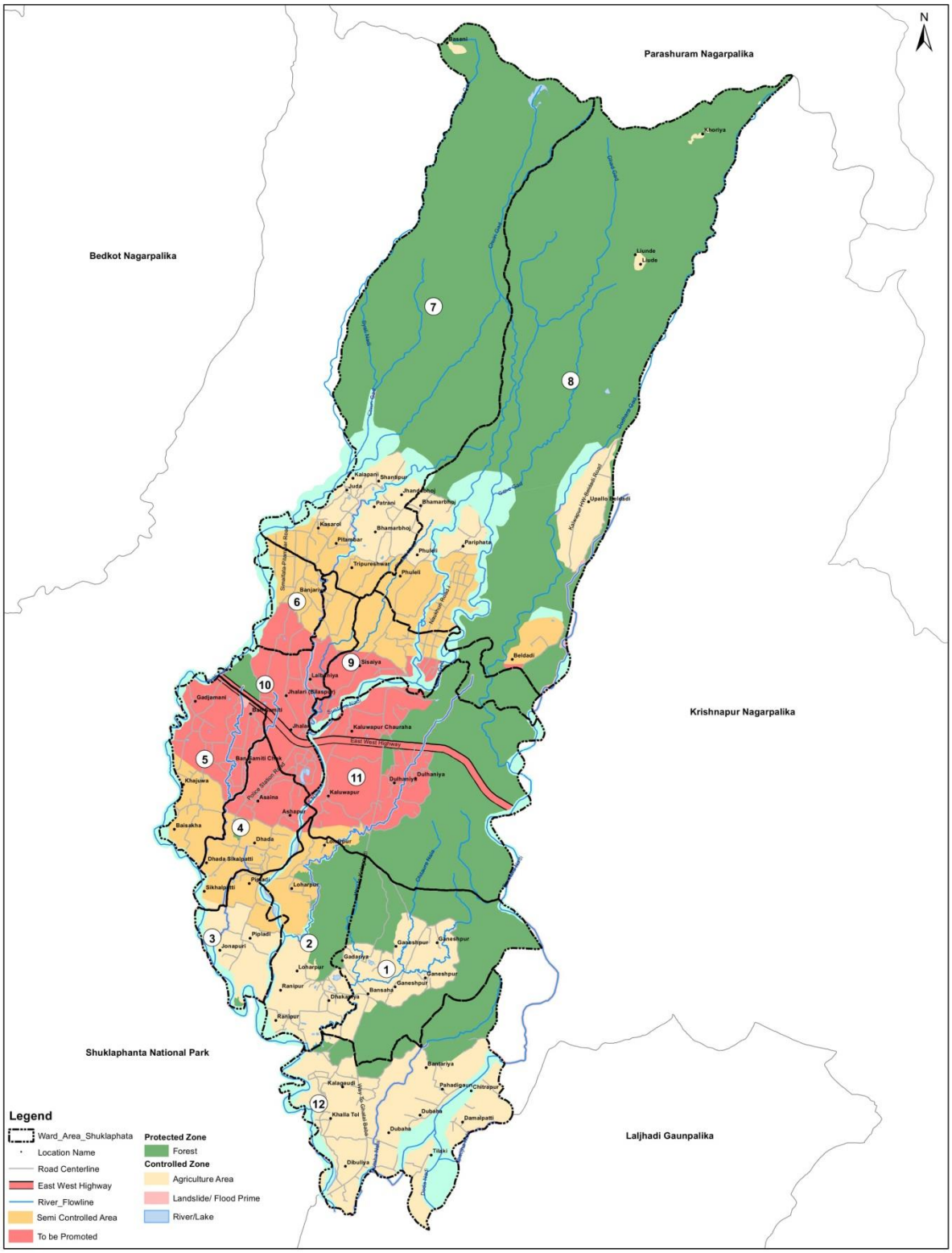
Areas at greater risk of natural hazards such as flood and landslide prone areas, river erosion areas, areas with geologically weak soil etc are the areas to be controlled. In Shuklaphanta, areas on the foothills of Churia range, 30m &50m setback from the edge of the major rivers (Syali nadi, Sunbora nadi and Banhara nadi) and 30m& 20m setback for other rivers in the hilly region and terai region respectively are proposed as areas to be controlled. Areas of wards 4, 5, 6, 9 & 10 which are comparatively far from East west highway and not likely to urbanize in near future are proposed as semi controlled area.

iii. Areas to be promoted

Areas which are already urbanized or are in near proximity of the urbanized area, which have potential for future urbanization, which have low risk of natural hazards and which are geologically safe are the areas to be promoted. In Shuklaphanta, areas of wards 4, 5, 6, 9, 10 & 11 which are adjacent to or at near proximity of East west highway excluding the river buffer (setbacks from river) are proposed as areas to be promoted.

Risk sensitive land use map is given in **Figure 3.12** and clearly shows areas to be protected, areas to be controlled and areas to be promoted.

Figure 3.12 Risk sensitive land use Map



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Shuklaphanta,Kanchanpur	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Risk Sensitive Landuse (Area to be Controlled, Promoted and Protected)**	DRG NO: **8**

3.4.5 Key Findings and Conclusions

- **The building permit record** demonstrates most of building construction activities in wards 10 and 11 which are adjacent to the EW highway.
- Geology and climate of Shuklaphanta make it particularly susceptible to disasters including floods, landslides, river bank erosion, fire and earthquake.
- **Landslide** particularly occurs due to deforestation in Churia / Siwalik range, Kalapni, Shantipur (Ward 7), Bhamarbhoj, Parphanta, Beldadi (Ward 8).
- **Flooding** is usually due to the flash flood in monsoon season and over flow in the major rivers (Sunbara, Banara and Syali).
- Sunabara River periodically floods Pariphanta (Ward 8), Sisaiya (Ward 9),Jhallari (Ward 10), Asapur (Ward 11), Pipladi (Ward 4), Loharpur (Ward 2) whereas Beldadi (Ward 8), Dudhaniya (Ward 11), Chitrapur (Ward 12) and Dubaha (Ward 12) are periodically affected by Banara River. Kalapani (Ward 7), Simalphanta (Ward 6), Jhalari-Bilaspur (Ward 10), Gadjamani (Ward 5), Sikhalpatti (Ward 4), Jonapuri (Ward 3), Ranipur (Ward 2), KhallaTole (Ward 12) are the areas affected by Syali River.
- The tributaries (Gharkatuwa, Jayramkhola, ChtauraKhola, Totinala, Gaudinala, Fulelinalaetc) of major rivers also cause flooding of settlements areas lying mainly on the north of EW highway.
- **River bank erosion** washes away the vulnerable sections of the agricultural land causing a huge impact on human lives and property. All three major rivers Sunabara, Banara and Syalicauses erosion.
- **Fire disaster,** a common phenomenon in Terai during dry season, traditional clustered settlements in Khajuwa, Baishakha (Ward 5), Asaina (Ward 4), Kalakaudi (Ward 12) that use timber, bamboo, straws are more vulnerable to fire. Forest fires are prevalent particularly in the Churia range and other forests in Terai.
- **Electric High Tension** Transmission line (132 KV) runs towards south of the EW highway. Right of way of the electric HT is 30 m (restricted for any type of construction activities, or used as open space/ agriculture land).
- **Wild Life intervention** in Buffer zone of the SNP (Wards 2, 3, 4, 5, 6, 7, 10 and 12) could harm the crops and human properties as well.
- **Earthquake**- Seismic Zoning Map of Nepal indicates Sudurpashchim Province falls in a high earthquake hazard zone. The risk is further increased due to haphazard urbanization and lack of preparedness.
- **Socio Economy**- Socially marginalized/poor people are usually more vulnerable to disasters as they lack resources to afford for the safer place.
- **Geomorphology**- The geology of Shuklaphanta can be categorized as belonging to the Indo-Gangatic Plain and Churia range (lower Siwalik). The major settlements are located in the Indo- Gangatic Plain susceptible to liquefaction and vulnerable to earthquakes. Lower Siwalik with fine grained sand stone or mudstone lies towards North of the Highway.
- **Risk Sensitive Land use Plan** of Shuklaphanta needs to incorporate the following features:
    i. Protection of Agriculture land;

ii. Delineation of the 'Specific Land use Zones' (SLUZs) to ensure safety, production and productivity;
iii. Protection of the bio-diversity;
iv. Protection of Churia Bhabhar Hill area;
v. Conservation of: National Parks and Bio Track in Forest area, and the watershed areas;
vi. Encourage the unused land under SLUZs for commercial farming, and as the tourist hubs

- **Risk Sensitive Land Use Map** depicts:
  i. Areas to be protected;
  ii. Areas to be controlled;
  iii. Areas to be promoted;

3.5 Physical Infrastructure Analysis

3.5.1 Road and Transportation Network

The total road network of Shuklaphanta Municipality comprises 188.95 km. including SRN, DRCN and Urban road. Table no. 6 shows administrative classification of road- National High way (NH), Feeder Road (F), District Core Network (DRCN) and Urban road within the municipality. Most of the road is earthen (91%), followed by black top (8.14%) and gravel (0.80%). The existing condition of road is poor and requires improvement with adequate drainage.

Shuklaphanta Municipality is well connected to National Highway networks as it lies in the East-West Highway. Road distance from Attaria is about 30 km. Shuklaphanta Municipality has very short length of all-weather transport facilities because most of the municipal roads are earthen. Every day a number of bus services are available from Kathmandu and other towns. Nearest airport is Dhangadhi located about 40 km distant. Existing road network in Shuklaphanta is illustrated in **Table 3.13** and **Figure 3.14**

Table 3.13 Existing Road Network

S.N	Road network	(1)	(2)
1.	Strategic road network	East-west (Mahendra) Highway - 7.84 Km.	Kaluwapur (MRM) – ShreepurBelauri (IB) - 7.20 Km.
2.	District core network (DRCN) -		
3.	Local road network	Municipal road including earthen tracks and trails (173.91 Km.)	

Municipal Road	Nos	Length (km)
A	3	20.54
B	9	51.83
C	12	29.73
D	62	71.81
Total	**86**	**173.91**

Type of Road	Length (km)	%
Black topped	15.38	8.14%
Gravel	1.51	0.80%
Earthen	172.06	91.06%
Total	**188.95**	**100%**

Source: MTMP Jhalari-Pipaladi, 2016

The road density of the municipality is 1.16 km/sq.km (3.41 km/1000 population). The road lengths within Shuklaphanta Municipality are very little. This has to be improved for the development of the municipality. According to National Urban Strategy, 2017 the standard urban road density is 7.5 km per sq.km. The existing road density on ward wise of Shuklaphanta Municipality has been given in **Table 3.14**and also in **Figure 3.13.**

Table 3.14 Road Density

Ward	Road Length (Km)	Area sq. km.	Population 2011	Population 2017	Density km/sq.km	Density (km/1000)
1	15.06	11.32	5,217	6,647	1.33	2.27
2	16.603	7.58	1,967	2,277	2.19	7.29

3	7.72	3.72	2,030	2,334	2.08	3.31
4	11.58	4.87	3,256	3,888	2.38	2.98
5	18.32	5.82	5,151	6,151	3.15	2.98
6	10.37	2.75	1,841	2,135	3.77	4.86
7	15.33	32.84	5,283	7,092	0.47	2.16
8	22.56	48.7	4,650	5,844	0.46	3.86
9	12.92	5.99	2,519	3,008	2.16	4.30
10	19.7	5.52	4,130	5,428	3.57	3.63
11	27.83	18.5	5,924	8,241	1.50	3.38
12	10.95	14.96	4,866	5,878	0.73	1.86
Total	**188.95**	**162.57**	**46,834**	**58,923**	**1.16**	**3.21**

Figure 3.13 Road Density

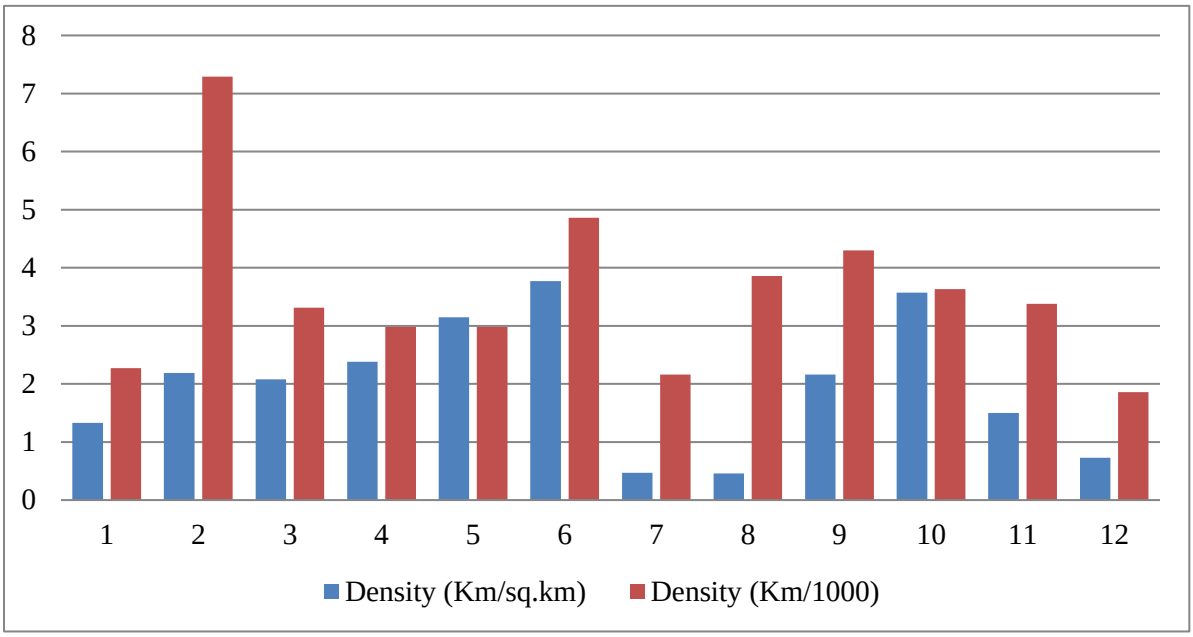
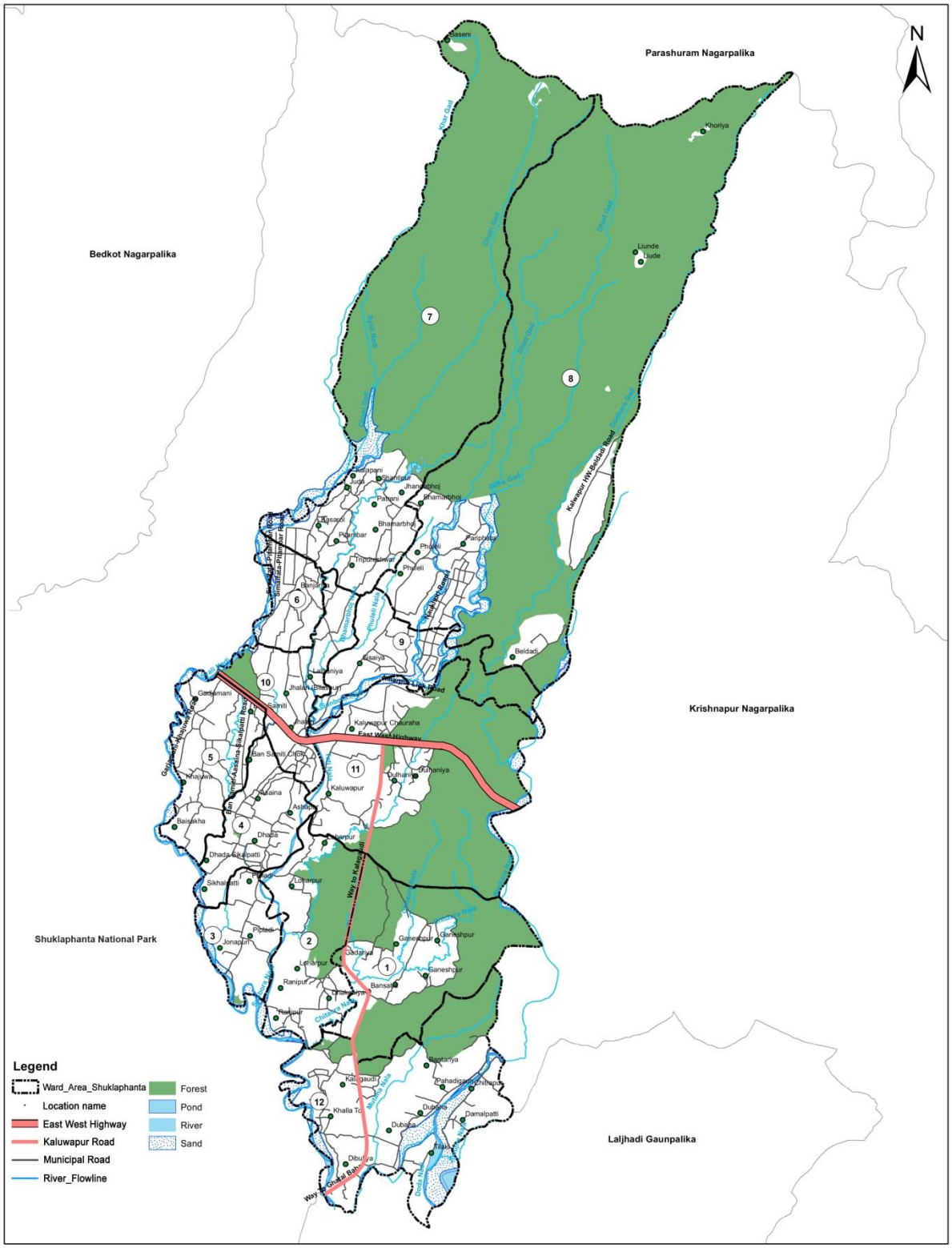


Figure 3.14 Existing Road and Transportation Network



RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Batajoo Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Road	**Infrastructure Master Plan (Urban Road)** **Shuklaphanta Municipality** **Existing Road Network**	DRG NO: **9**

3.5.2 Drainage

The Municipality lacks a proper drainage system. Department of Roads has constructed few kilometers of road with side drainage along the highways. Except this, no other drainage system exists within the Municipality.

3.5.3 Sanitation and Waste water

The country was declared Open Defecation Free (ODF) on 30th September, 2019. This implies that all the households in Shuklaphanta municipality also have full toilet coverage. The Technical Assistance Consultant's Report states that Jhalari Pipaladi-a major constituent municipality during integration of Shuklaphanta, had 55% open pit, 17% private toilets and 28% Private VIP toilet citing municipality data of 2015.

There are two public toilets in Shuklaphanta Municipality located at Jhalari Bazar, ward no.10 and Kaluwapur Bazar, ward no. 11. These toilets were constructed with the financial assistance DDC, VDC and Bazar Management Committee. The operation and maintenance of these toilets is under jurisdiction of the Bazar Management Committee.

Shuklaphanta Municipality does not have a water-borne sewerage system. The current practice of human excreta management and disposal is on-site sanitation consisting of individual household or institutional septic tanks often without a proper effluent disposal system. The sludge from the septic tank is periodically withdrawn manually or by vacuum tankers and disposed to nearby streams. There is no municipal service offered for removing septage (septic sludge) from the septic tanks when they get full. Usually, households will contact a local contractor who will arrange to empty the tank manually. The collected septage is usually sold to farmers untreated as fertilizer. Frequently, the septic tanks are not properly maintained or are under capacity resulting in the septage flowing over into the soak pit. In many cases the soak pit does not work, or not constructed, and the septic tank overflows into the surface water road drainage or into vacant plots or fields, resulting in a public health risk.

3.5.4 Water Supply

The source of water for drinking purpose in Shuklaphanta Municipality is groundwater either from shallow or deep aquifers. There is no surface drinking water schemes existing in the municipality. Most individual households rely on shallow wells and hand pumps all of which can easily be susceptible to contamination.

Piped water supply services covering about 25% of the population is available in the Shuklaphanta Municipality. Piped water is supplied mainly to bazar area in ward nos. 10 and 11. The existing systems are small scale water supply systems managed by Water Supply User Committees (WSUC). These schemes are named as "Jhalari Khanepani Aayojana" and "Amarpur, Kaluwapur, Deepnagar Khanepani Tatha Sarsafai Aayojana". Most of the people of southern belt of municipality rely on shallow wells. However, the level of service in terms of quality, quantity, coverage and reliability is very poor in all the systems. Still a considerable size of population is without piped water supply services.

There are few water supply systems under construction in the Shuklaphanta Municipality. Banshah Khanepani Aayojana is under construction to serve ward no. 1. Baijanath Jhallari

Khanepani Upobhokta Tatha Sarsafai is about to implement water supply system soon to serve ward 5, 6 and 7. Two water supply systems to serve ward 7 are under proposal stage.

3.5.5 Solid Waste

Municipal solid waste (MSW) comprises waste generated from HHs, commercial and institutional establishment. It also includes medical and industrial wastes as hazardous waste. According to the conceptual plan for integrated solid waste management (ISWM) in Shuklaphanta municipality (2019), the composition of MSW includes organic (39.7%), reusable/recyclable e.g. paper, plastics, glass and metals (23.8%), inert materials e.g. sand, stone, dust, construction debris etc. (31.9%) and others including hazardous waste (4.6%).

The average HH waste generation in Shuklaphanta Municipality is 0.163 kg/capita/day. Taking effective population of the municipality as 58,923 in 2017, the total HH waste generated in the total municipality appears to be 9.6 tons per day. The average MSW generation in the municipality is 0.217 kg/capita/day (assuming 75% of the MSW is generated by HHs only). There by, total MSW generated in the municipality is12.78 tons/day in 2017. The conceptual plan estimates the rate of coverage of SW collection as 1.5 tons/day (11.74% of the total MSW generation).

Table 3.15 Municipal Solid Waste Generation

S.No.	Average per capita HH waste (kg/capita/day)	Total HH waste generation (ton/day)	Average per capita MSW waste (kg/capita/day)	Total MSW generation (ton/day)
1.	0.163	9.6	0.217	12.78

Source: (1) - PPTA, 2015; (2) - Conceptual plan ISWM, 2018

The municipality does not have a functioning solid waste collection and disposal system in the current situation. In addition, an organized solid waste treatment and disposal site also does not exist. Municipality seems to have put some effort to manage solid waste from Bazaar area in coordination with local CBOs. It was found during the site visit that regular solid waste collection by roadside pick-up service is practiced along the main and side roads in the core areas of wards 5, 6, 10 and 11. Waste is collected in the commercial areas along the main highway arranged by a Bazar Management Committee, which also collects waste from houses in the core area by charging a solid waste collection fee. A hydraulic tipper of 6 m3 capacity is deployed to collect solid wastes with one trip per day in working day and about 2-3 trips/day during festivals and holidays. About 50 - 60 waste bins of half oil-drums were found installed along main roads in the core area. These bins were provided, reportedly by the local clubs. The rural wards are managing their wastes by themselves, and no ‘Tole Lane Organization’ or any groups are active in those areas.

There are no formal information and documents regarding the existing practices on composting and recycling of solid waste in the municipality. However, during field visits, it has been observed that valuable sorted-out materials such as glass and metal are collected from households by local scrap dealers. Such waste materials are then transported to the

respective factories in the neighboring Bheemdatta Municipality. Depots of bottles (mainly beer bottles) are to be seen at the junctions along the highway near Ban Samiti and the proposed M1 road, from where the beer bottles are transported to the big dealers in Dhangadhi and further to Nepalgunj, as reported.

The problem of industrial solid waste problem is not observed as there are no big factories and big hospitals in Shuklaphanta Municipality. There are only health-posts and few clinics. Although special wastes are generated even by health-post and clinics, quantities of such waste are not significant. Presently, these wastes are also collected along with the other municipal solid waste) and disposed of at the site within the Krishna Community Forest.

The collected wastes are dumped haphazardly along the river bank and within the forest area. In order to improve the situation, the RUDP has also proposed the installation of an Integrated Waste Processing Sites (IWPS) to add facilities for waste separation, organic waste composting, recycling facilities and disposal sites for non-reusable waste. This is planned to be carried out in phases. The proposed site for processing (i.e. treatment and resource recovery) of solid waste collected from the municipal area and proper final disposal management of the residual wastes (after optimum resource recovery) is located within the Krishna community forest in ward no.11 of Shuklaphanta Municipality of Kanchanpur District, and lies on the western bank of Banhara Khola. The proposed site has an elevation ranging from

3.5.6 Electricity

A per the municipal report 2015 in Shuklaphanta, 85% HHs have access to national grid, 1% to solar power but 14% do not have access to electricity. Renewable energies such as solar and biogas is encouraged at the local level.

Figure 3.15 Existingand Under Construction Drainage Network

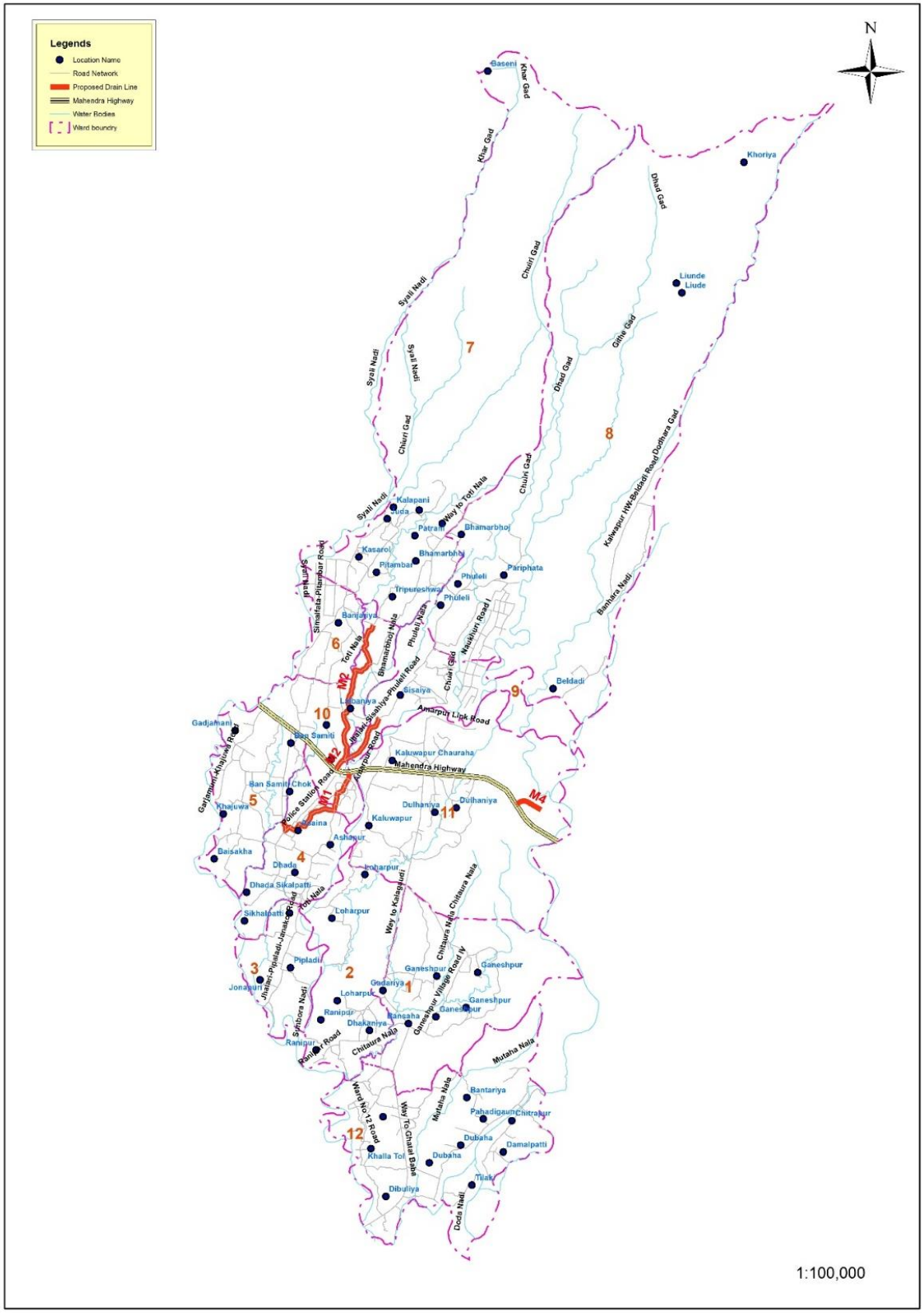


Figure 3.16 Water Supply Schemes in Shuklaphanta

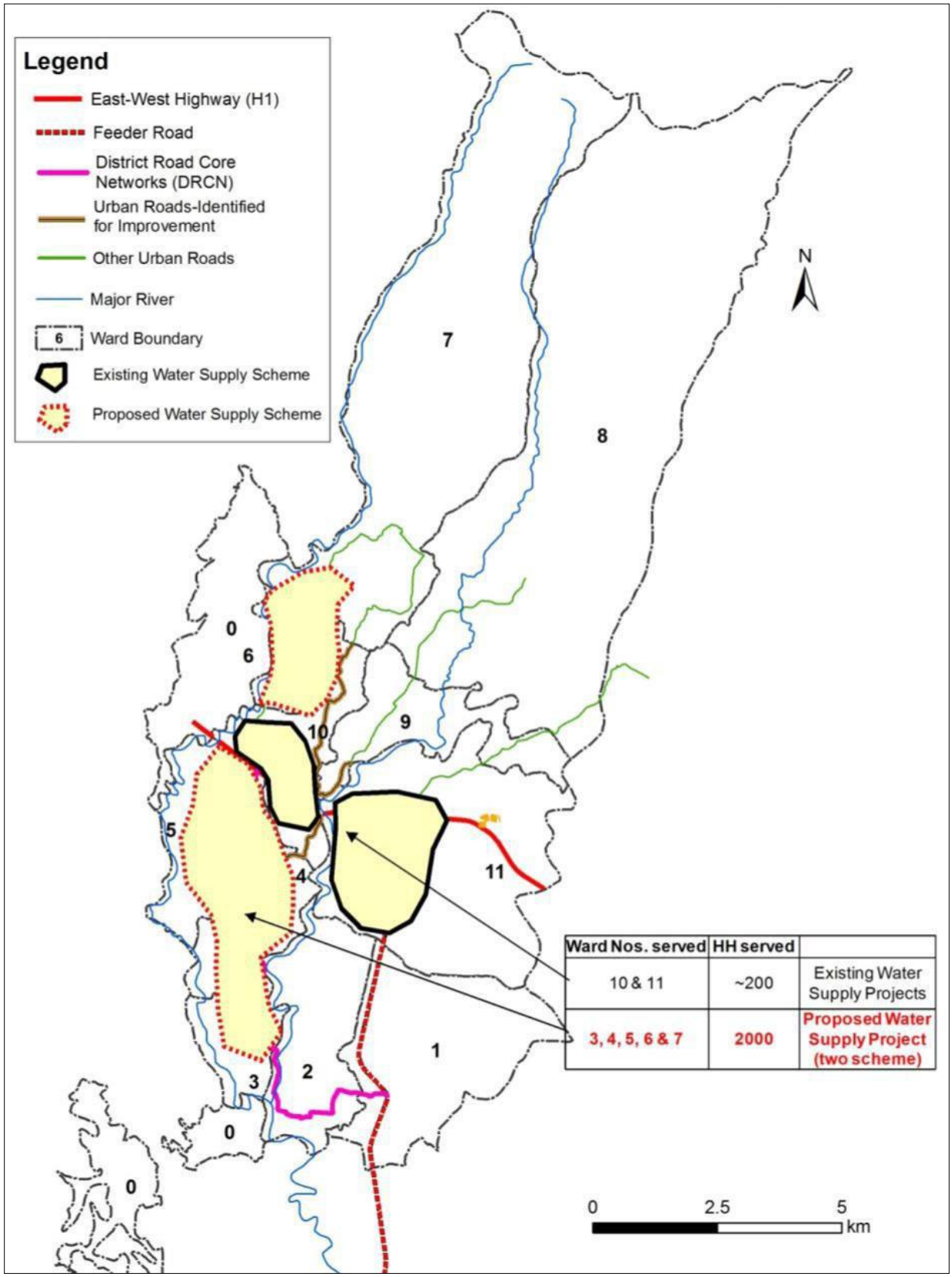
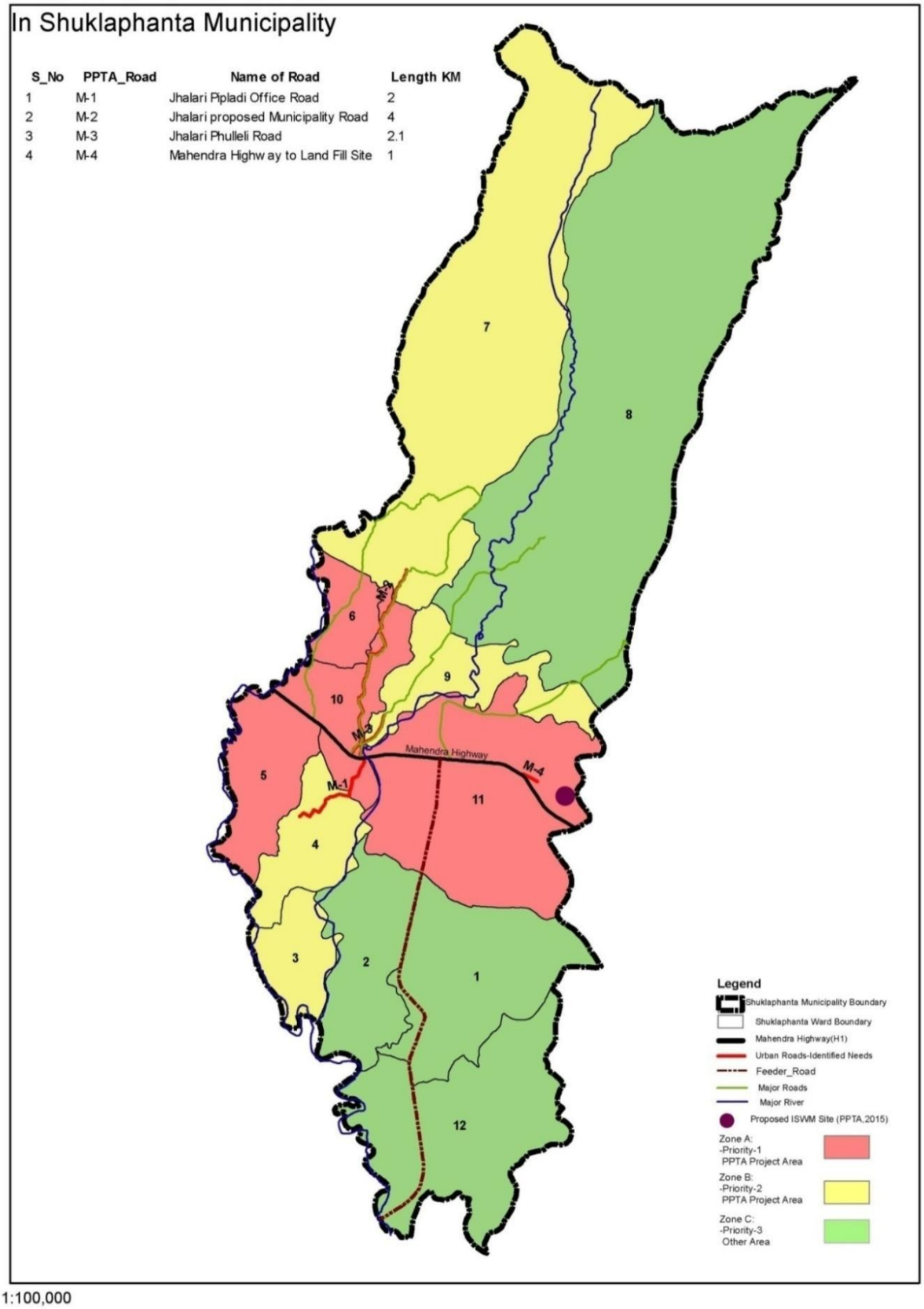


Figure 3.17 Solid Waste Management Project Area



3.6 Social services and Amenities Analysis

3.6.1 Education

Education establishment in the municipality is shown in the **Table 3.16**.

Table 3.16 Education Establishment

Educational institution	Type	Number
Child Development Center	Community	26
Primary School	Community	14
Lower Secondary School	Community	6
Secondary School	Community	12
Higher Secondary School	Community	6

Source: Shuklaphanta Municipality Profile 2017

3.6.2 Health

Three health posts are currently operational in Shuklaphanta municipality, one each in Wards 4, 7 and 10.

3.6.3 Parks and Recreational Facilities

There are two playgrounds in the municipality, one at Ward 10 and other at Ward 1. There are no sport complexes like stadium, covered hall etc. There are no provisions for public open spaces**.**

3.7 Economic Analysis

3.7.1 Historical Context

This area occupied by the municipality is relatively a new settlement. The Jhallari and Pipaladi areas, which were turned into Shuklaphanta Municipality later in 2071 BS (2014), started to grow after the resettlement of the displaced families from Shuklaphanta National Park 25 years back. Although urbanisation trend picked up in the area due increasing migration from the adjoining hilly districts e.g. Dadeldhura, Baitadi, Darchula, Doti, Bajura and Achham, still the municipality retains a largely rural characteristics except the few urban clusters at Wards 10 & 11. Hence, the municipality exhibits a rural economy dominated by agricultural and animal husbandry activities in addition to its service centre functions for the adjoining areas of the district. The proximity to the emerging urban centers – Bhimdatta and Dhangadhi-Godawari -could be a deterrent to its growth if it fails to look for a distinct role and identity for itself.

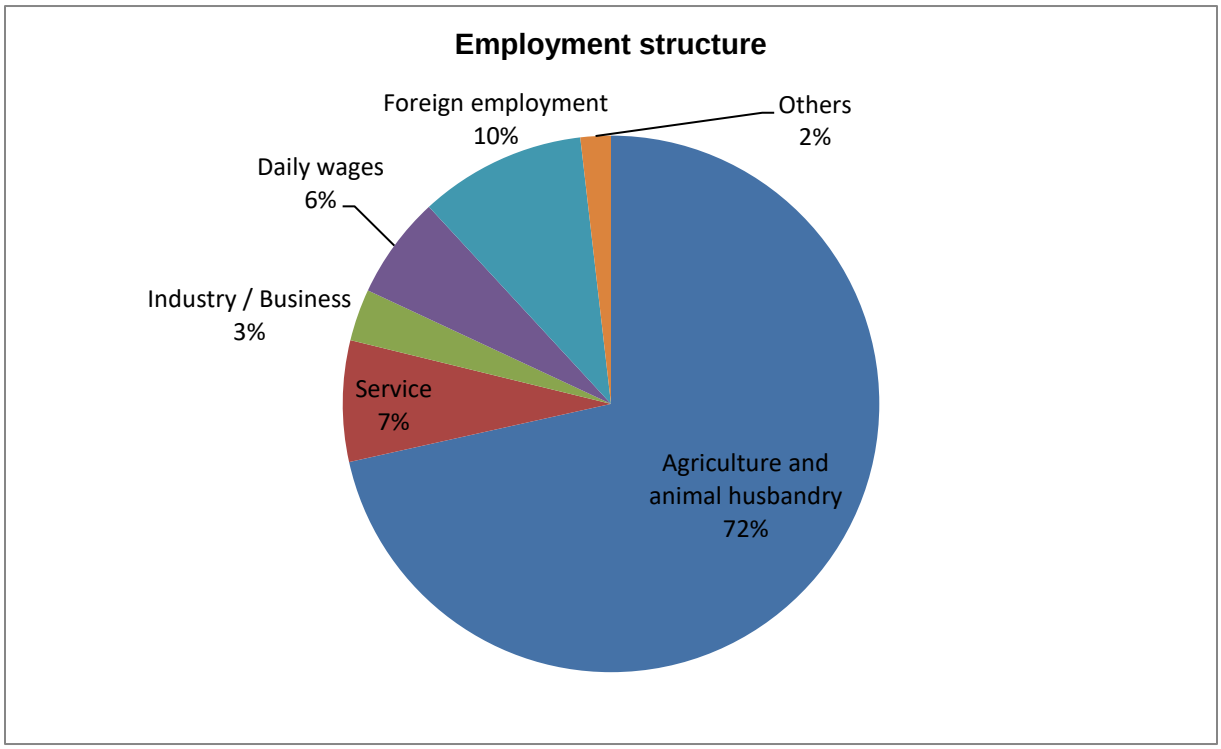
3.7.2 Economic Conditions

Larger area of the municipality still bears rural setting. Majority of population is dependent upon agriculture. Major crops are rice, wheat, vegetables, potatoes, maize, mustard etc. No large-scale industries have been established. It was reported more than 3500 business enterprises have been reportedly registered within the municipality. About 20 financial institutions and commercial banks are in operations within the municipality. Most of them are concentrated in urban core area in ward 10. Besides numerous Co-operatives are in operations in every wards.

3.7.3 Economic Structure Trends

According to the latest information agriculture is the dominant sector with 71.5% of the working population engaged in agriculture / animal husbandry. As in other parts of Nepal, remittance has been playing important role in local economy of the service area with 10% of population employed in foreign land. 7.2% of population is employed in service sector, 6.1% population employed in basis of daily wages while only 3.1% population is employed in industry/business sector. Opportunities for commerce is very limited in the municipality as there are no big industries; however more people are taking loans from banks and cooperatives to start small scale industries such as brick kilns, rise mills, saw mills, mechanical workshops, bamboo furniture etc. Employment structure of Shuklaphanta is shown in **Figure 3.18**

Figure 3.18 Employment Structure



Source: Shuklaphanta Municipality Profile 2017

3.7.4 Shuklaphanta's Economic Growth Prospects

As the employment structure indicates, Shuklaphanta municipality has not yet developed any particular urban identity. However, this area could be developed as a demonstration centre for community initiatives for the promotion of non-timber forest products (NTFP) as most part of the municipality is covered by forests. Support to community development and income generation activities with forward linkages would help strengthen the community initiatives in the region.

1. **Proximity of Shuklaphanta National Park**

   Municipality shares almost its entire eastern and southern boundary with prestigious and world renowned Shuklaphanta national park. National park is particularly famous for black bucks and deers. It has the largest herds of deer, besides wild elephants, tigers, leopards are also found.

2. **Organic farming and Agro–forestry products**

   Large part of area is covered by forest and agro-forestry products like cane, bamboo are found plenty. It could be exploited for production of non timber forest product (NTFP). Municipality also possesses large agriculture area and has potential for organic farming

   The Municipality also has a potential for organic farming. Development of ground/surface water for irrigation will immensely help increase productivity of agricultural products.

3. **Culture and tourism**

   Community forests, religious sites, lakes, waterfall located inside the municipality have a potential for tourism. Preservation and promotion of various cultural elements especially of the indigenous Rana Tharus can also boost in tourism.

3.8 Key Overall Findings

1. The urban growth rates of Shuklaphanta as per the Census 2001 &2011 are 4.09% & 3.57% respectively. The national UGR of 3.43% is slightly less than the Shuklaphanta UGR as per the 2011 Census. Growth during 1991 to 2001 in P7 municipalities-3.6%.
2. The economically active population falling within the age group (15-9) forms the higher proportion of municipal population up to almost 55% with the elderly and younger segments occupying approximately 7% and 38% respectively.
3. The lower sex ratio (75.15%) in the economically active age group indicates a selective outbound migration of males in the municipality and also especially visualizes the changing roles of female in the households.
4. The caste/ethnic distribution in the municipality indicates 67.04% of HHs occupied by Brahman/Chhetri- Hill followed by other ethnic groups.
5. Ward wise population density of Shuklaphanta shows that wards 3, 4, 5, 6 & 10 are urbanizing with densities between 5 – 10 ppha while remaining wards incorporate rural character with densities below 5 ppha.
6. While assessing Land use change from the year 2011 up to 2017 in Shuklaphanta, it has been found that most of the agriculture and forest area have remained intact, whereas the built up area have increased from 0.5% to 4.15% within the same time period.
7. The dominant land use is forest with 56.04% coverage of municipal area followed by agriculture area with 33.34% in 2017 indicating the availability of a plenty of space for urbanization.

8. Ward 10 and 11 can be considered as urban core wards with more construction activity in future as indicated from the building permit data (Table 3.10). Most of the commercial activities are also taking place in ward 10 and 11 along the highway.
9. Disaster risk analysis indicates, the potential areas of disaster risk in Shuklaphanta municipality owing to the various factors: land slide, flood, rive bank erosion, fire, electric high tension line, wild life intervention in the buffer zone at the proximity of Sukhlaphanta National Park.(dealt with in detail in Sub-Section 3.4.2)
10. The Risk Sensitive Land Use Plan (RSLUP) needs: to incorporate all the potential areas of disaster risk as stated above; and to be guided by the broad principles as put forward by the National Land Use Policy 2015 (Details in Sub-Section 3.4.4).
11. The Risk Sensitive Land Use Map as an important component of RSLUP, would be based on urban growth trend and multi-hazard assessment, and does indicate the areas to be protected, controlled and promoted.
12. The RSLUP needs to be integrated with the final physical development plans and proposals for Shuklaphanta municipality.
13. The total road network of Shuklaphanta Municipality which comprises of SRN, DRCN and Urban road totaling 188.95 km is mostly earthen up to 91%, followed by black topped (8.14%) and gravel (0.80%).
14. Except few kilometers of road side drainage along the highways, no other drainage system exists within the municipality.
15. The Technical Assistance Consultant's Report states that Jhalari Pipaladi-a major constituent municipality during integration of Shuklaphanta, had 55% open pit, 17% private toilets and 28% Private VIP toilet citing municipality data of 2015.There are two public toilets in Shuklaphanta Municipality located at Jhalari Bazar, ward 10 and Kaluwapur Bazar, ward11.
16. Piped water supply services covering about 25% of the population is available in the Shuklaphanta Municipality. Piped water is supplied mainly to bazar area in ward nos. 10 and 11. Majority of HHs are dependent on tube well/ hand pump. Baijanath Jhallari Khanepani Upobhokta Tatha Sarsafai is about to implement water supply system soon to serve ward 5, 6 and 7. Two water supply systems to serve ward 7 are under proposal stage.
17. Average MSW generation in the municipality is 0.217 kg/capita/day. There by, total MSW generated in the municipality is 12.78 tons/day in 2017.
18. 85% of HHs are connected to the national grid.

3.9 SWOT Analysis

SWOT analysis is a framework to identify internal factors (micro environment) - strength and weakness; and external factors (macro environment) - opportunity and threat. It is being carried out with stakeholders consultation/workshop, field visits, possible potentials and probable risks of the municipality.

Table 3.17 SWOT Analysis

Internal environment	
Strength	**Weakness**
• Proximity of Shuklaphanta National Park. • Good connectivity – East West highway, Kaluwapur road. • Enough land resources for urban development. • Plenty of agricultural fertile land and forests for agro forestry products. • Diversified ethnic and cultural community. • Restructuring of the state – stable and empowered local level.	• Existing settlements are dispersed. • Lack of basic urban infrastructures even in urban core. • Municipal roads need to be upgraded into all weather roads. • Drainage only limited to certain section of highway need, no sewerage network. • Concept of planned urbanization has not been introduced yet. • Lack of integrated development approach. • Weak institutional capacity of the municipal government.
Opportunity	**Threat**
• Potential for green tourism through provision of tourist friendly facilities. • Potential to develop as an agricultural hub for the sub-region and the potential university town in the fields of agriculture and forestry. • Potential for promotion of community driven establishment of agro and forest based cottage and small scale industries. • Potential for planned urban development as it is a new municipality. • Potential for greater urban hinterland connectivity through road construction contributing to efficient public transport system within the municipality.	• Haphazard urbanization and urban sprawl triggered by land speculation. • Encroachment of forest and Chure areas. • Prone to disaster risks further aggravated by climate change. • Might not be able to compete with already established market centers nearby (Bheemdatta and Attaria) in terms of commercial activities. • Lack of investment in agriculture and forestry sector.
External environment	

CHAPTER IV: DEVELOPMENT PLANNING FRAMEWORK OF THE MUNICIPALITY

4.1 Prognosis

4.1.1 Population Growth Trend

The population of the area now covered by Shuklaphanta municipality experienced significant growth in population as migration from nearby hilly districts like Dadeldhura, Doti, Baitadi, Darchula and Bajhang took place. The population of municipality was 22,094 in 1991 and found increased during the decade of 1991 – 2001 with a growth rate of 4.09% per annum and reached 32,993. However, with the comparatively lower per annum growth rate of 3.57% for the next decade 2001 – 2011 population reached 46,834 in 2011.

Table 4.1 Decadal Change in Population

S.No	Year	Population	Population density (pph)	Population growth rate (%)
1	1991	22094	1.36	
2	2001	32993	2.03	4.09
3	2011	46834	2.88	3.57

Source: CBS, 2011

4.1.2 Population Projection (Low, Medium and High growth rate)

An attempt is made to project population till 2043 AD. Three types of growth rates (high, medium and low) are considered. The decadal population growth rate of 1991-2001 &2001-11 is 4.09 & 3.57% respectively, thus higher growth rate is kept as high as 4% and lower growth rate is kept at 2.5%. Based on the followings, population projections are carried out for 20 years.

- The design period of DSC is one year (September 2017 to September 2018)
- 6 months period may be required for procurement of contract (March 2019)
- Project completion period is 5 year i.e. 2023
- Hence, 2023 is taken as a base year and population is projected for next 20 year i.e. 2043.

Table 4.2 depicts the populations in three growth rates.

Table 4.2 Population Projection in Three Cases

S. N	Growth type and Rate (%)		Year / Population Projection							
			2011	2017	2021	2023	2028	2033	2038	2043
1	High Growth	**4**	46,834	59,260	69,326	74,983	91,228	110,993	135,040	164,296
2	Medium Growth	**3.25**	46,834	56,742	64,485	68,745	80,666	94,655	111,069	130,330
3	Low Growth	**2.5**	46,834	54,313	59,951	62,987	71,263	80,628	91,223	103,211

Source: CBS, 2011

4.1.3 Selection of Realistic Growth Rate

Population dynamics of a town depends upon number of factors such as function of the towns, socio-economic activities, migration, urban development trend, government policies, private land developers, zoning by laws, land use plan etc. These will act as push and pull factors to the population dynamics.

Ward wise growth rates are calculated based on CBS census records of 1991, 2001 and 2011. Accordingly growth rates for each ward are adopted considering the various factors. **Table 4.3** summarizes the strength and localities of wards.

Table 4.3 Assumptions for adopted Growth rates

Wards	Adopted Growth Rate	Remarks
1, 2, 3	Same as before	Lies in the southern side, relatively far from Highway, flood prone area, adjacent to Shuklaphanta National Park.
4, 5, 6	Increased	Priority road of RUDP passes, adjacent to highway, fair access, relatively highland.
7, 8	Same as before	
9	Increased	Priority road of RUDP passes, could also be accessed from Municipality.
10, 11	Same as before	Already high growth rate
12	Increased	

Based on the Table 4.3 and the geometric growth rate formula the population projections for all wards were carried out. The realistic growth rate of the municipality as a whole has been determined as **3.90%** per annum which tends to correspond, more or less; to the high growth rate as depicted in the **Table 4.2**. Ward wise adopted Growth rates & Population Projections of the municipality is shown in **Table 4.4**.

Geometric growth rate is applied for population projection
Geometric growth rate formula Pn=P0 (1+r) n
Where, Pn= Population after the projected year
P0= Present population
r= Growth rate per annum
n = Number of years

Based on the **Table 4.3** and above formula Ward wise adopted Growth rates & Population Projections of the municipality is shown in **Table 4.4**.The realistic growth rate of the municipality has been determined as **3.90%** per annum.

Table 4.4 Ward wise adopted Growth rates & Population Projections

Ward No.	Population		Growth Rate Per Annum	Adopted Growth Rate Per Annum	Population		
	2001	2011	2001 – 2011		2017	2023	2043
1	3,484	5,217	4.12	4.12	6,647	8,469	18,990
2	1,541	1,967	2.47	2.47	2,277	2,636	4,295
3	1,609	2,030	2.35	2.35	2,334	2,683	4,271
4	2,578	3,256	2.36	3.00	3,888	4,642	8,384
5	4,094	5,151	2.32	3.00	6,151	7,344	13,264
6	1,538	1,841	1.81	2.50	2,135	2,476	4,057
7	3,234	5,283	5.03	5.03	7,092	9,520	25,406
8	3,177	4,650	3.88	3.88	5,844	7,345	15,734
9	1,941	2,519	2.64	3.00	3,008	3,591	6,487
10	2,619	4,130	4.66	4.66	5,428	7,134	17,740
11	3,417	5,924	5.66	5.66	8,241	11,465	34,460
12	3,761	4,866	2.61	3.20	5,878	7,101	13,333
Total	**32,993**	**46,834**	**3.57**	**3.90**	**58,923**	**74,406**	**166,421**

Source: CBS, 2001 & 2011

4.1.4 Future Land Requirements

As the city grows built up area goes on increasing because of various construction activities of building such as residential, industrial, institutional etc. Such construction activities take place on all the wards converting the agricultural land into built up area. As the urbanization take places, population increases resulting change of agricultural land into built up area; which depends upon the extent of urbanization process and development activities within the municipality.

The Ward wise land use (**Table3.11)** shows different land uses of built up area, forest, water body, agriculture land. Based on present ward wise population, current net density, adopted density and projected population, attempts being made to project future land requirement for the next 20 years based on the density assumption for the various wards. The assumed densities are based on the urbanization trends and expected urban development activities.

The expected density is assumed density based on present urbanization trend. On the higher side net residential density of **150 PPH** is assumed for **Ward 10 (urban core)** and **Ward 11** as East-West highway pass through it. Medium density of **100 PPH** is assumed for **Wards 2, 3, 4, 5, 6 and 9** as these wards are close to the urban core and has potential for growth in the future. A very Low density of **50 PPH** is assumed for rural **Wards 1 and 12** which are located on the southern side far from East-West highway and also for **Wards 7 and 8** which lie in the northern side with most part of the area covered by forest. In residential areas of several hundred hectares, a reasonable assumption is that road, walkways, buffer space, open space/parks, institutions etc. amount to 29% of the Net residential area. Thus the following equation provides a reasonable approximation for future land requirements.

Gross Density = 0.71 x Net Residential Density

Gross Land Requirement (Including Roads etc.) = Net Residential Land Requirement + 29% of Net Residential Land Requirement.

The future land requirement in different Wards based on assumed density and population projection is shown in **Table 4.5**. The adopted gross densities range from 50 to 150 persons per Hectare (pph), and the higher densities 100 to 300 pph are based on Planning Norms and Standard 2015). The net residential land requirement for accommodation of projected population is estimated to be **2225** ha and gross land requirement (including road, walkways, buffer space, open space/parks, institutions etc. is estimated to be **2870** ha. by the year **2043**.

Table 4.5 Future Land Requirements of Shuklaphanta

1	2	3	4= (3/2)	5	6= (3/5)	7	8=(7-3)	9	10=(7/9)	11=10+(29%*10)	12	13=12-11	14=7/2
Ward No.	Area ha.	Popn. 2017	Population Density pph 2017	Residential built up area ha. 2011	Net Residential Density pph 2011	Popn. 2043	Popn to be absorbed	Proposed Net Residential density pph 2043	Net Residential Area required ha. 2043	Gross Land Requirement 2043	Available agricultural land 2017	Agricultural Land Remained 2043	Population Density 2043
1	1132.38	6,647	5.87	52.5	126.61	18,990	12,343	50	379.8	489.942	338.89	0	16.77
2	758.22	2,277	3	50.53	45.06	4,295	2,018	100	42.95	55.4055	402.39	346.98	5.66
3	372.33	2,334	6.27	30.62	76.22	4,271	1,937	100	42.71	55.0959	275.95	220.85	11.47
4	487.05	3,888	7.98	55.27	70.35	8,384	4,496	100	83.84	108.1536	401.39	293.24	17.21
5	582.07	6,151	10.57	64.44	95.45	13,264	7,113	100	132.64	171.1056	482.81	311.7	22.79
6	274.78	2,135	7.77	42.68	50.03	4,057	1,922	100	40.57	52.3353	202.96	150.62	14.76
7	3284	7,092	2.16	61.58	115.17	25,406	18,314	50	508.12	655.4748	481.09	0	7.74
8	4869.97	5,844	1.2	61.9	94.41	15,734	9,890	50	314.68	405.9372	678.24	272.3	3.23
9	598.64	3,008	5.02	28.51	105.53	6,487	3,479	100	64.87	83.6823	322.29	238.61	10.84
10	551.81	5,428	9.84	59.91	90.6	17,740	12,312	150	118.27	152.564	402.44	249.88	32.15
11	1849.84	8,241	4.45	90.61	90.95	34,460	26,219	150	229.73	296.356	541.71	245.35	18.63
12	1496.26	5,878	3.93	75.4	77.95	13,333	7,455	50	266.66	343.9914	890.06	546.07	8.91
Total	**16,257.35**	**58,923**	**3.62**	**673.95**	**87.43**	**166,421**	**107,498**		**2224.84**	**2870.04**	**5420.22**	**2875.61**	**10.24**

4.2 Demand Analysis for Urban Infrastructure

As per the Planning Norms and Standard 2015 (PNS 2015) urban infrastructure is classified into 3 components: physical infrastructure, social infrastructure and economic infrastructure which is dealt with in the Sections 3.5, 3.6 & 3.7 depicting the present situation in Shuklaphanta. For those sectors a detailed demand analysis and gap analysis is being carried out as per the PNS 2025 so as to find out the required infrastructure on the basis of current and projected population up to the year 2043. As per the hierarchy of urban areas as specified in the PNS 2015 Shuklaphanta falls within the Sub Metro City category with population more than 100,000 and below 300,000. The required infrastructure, as covered by the Tables 4.6, 4.7 & 4.8, would be presented as the development projects/programs under the Multi-sector investment program Chapter 6.

Table 4.6 Demand Analysis of Physical Infrastructure

S.No.	Types	Norms	Standards					Existing Infrastructure	Supply Forecast 2043	Deficit	Remarks
1	Road	**Road density: 7.5 km/sq.km**		ROW	Set back	Foot path	Cycle Track	1.01 km/sq.km	7.5 km/sq.km	6.49 km/sq.km	7.5 km/sq.km shall be achieved
		Express way, Arterial, Sub Arterial, Collector street and Local Street	Express way								
		All or 90% of household are within 0.5 km from motorable road.						164. 76 km*	1220 km	1055 km	No additional, only 208.01 Km. of existing Urban Road shall be upgraded as prioritized by RUDP,Infrastructure Master Plan (Urban Road), Shuklaphanta , 2019
			Arterial	50	1	2	2	0% Black top	100% Black top	100%	Urban road as mentioned above (208.01 Km.) shall be black topped.
			Sub Arterial	30	1	1.5	1.5				
			Collector	20	1	1.5	1.5				
			Local	10	1	-	-				
2	Water Supply System (with storage and treatment facilities)	Metered house connection and distribution.	Quantity: 80-100 lpcd					NA	2 ha per site (treatment plant and storage)		Identify water sources
		Treatment Plant (lab, dosing and guard house) with storage facility:	Min. diameter of distribution pipe: 80mm								
			10 x10^6liter = 10 million liter per day (MLD)								
		Reservoir (24 hrs requirement)	Storage capacity: 25% of total treatment capacity					NA			Use rainwater harvesting
		Provision of Rain water Harvesting in public buildings (catchment area, storage and treatment facility)	Storage facility: 5-7 Thousand liters					NA			**To be planned by the Local Level**
3	Sanitation (Sewerage System)	Public sewer system (septic tanks)	Min. diameter of trunk line: 200mm					NA			Fecal Sludge Management shall be as per RUDP, Integrated Solid Waste Management (ISWM) Shuklaphanta
		Sewage Pumping Station (SPS)	0.2 hectare/MLD – 0.75 hectare/MLD								
		Treatment Plant (TP)	5 ha – 7 ha per site (2 Nos)					No treatment plant	2 no	2 nos.	
		Provision of public latrines (male, female, universal)	1 public toilet at a distance of 5km along the main road.					0	20	20 nos.	To be planned
4	Integrated Solid Waste	Collection Point (0.3 kg/person/day)	Separation of waste at household level.					Each day collection			Add dustbins on roadside

	Management	Total waste = Around 33 tons/day	Community collection/ Door-to-Door collection. 1 collection point/container/road side pickup point serves as a radius of 200m.	0.217 kg/person/day (28.5 ton/d)	0.11kg/person/ day	-0.107 kg/person/day	Reduce waste by 50%
		Transfer Station (TS)	1 transfer station if the final disposal is at a distance of more than 10 km. Only 30% of total waste should go to landfill site.	--	1 no.	1 no.	Plan a new (As per RUDP, ISWM, Shuklaphanta)
		Sanitary Landfill Site	Medium (> 25 and <500 tons/day)	No sanitary landfill	1 no.	1 no.	
5	Electricity	National grid supply line and Alternative energy	Power access to 100% coverage. Electric Sub Station: 3 ha. Transmission Tower: 80 - 100 sq. m Distribution Tower: 20 - 25 sq. m	85% (2011)	100%	15%	Nepal Electricity Authority
		Alternative Energy (panels, battery)	Solar Home System	Some Private residence	All buildings		Promote solar energy in all building through bye laws
6	Tele-communication	Landline/mobile	100 % coverage	NA	100% coverage		Addition of points by Nepal Telecom
			1 exchange with a capacity of 6500 line capacity (0.02 ha. per site)				
			Telephone Transmission tower (ROW: 5m)				
		Public telephone booth (TB)	1 TB per 5000 population at a distance of 2.5km along the main road (Standard booth)	NA	1 TB @ 2.5 km		New to be planned by Nepal Telecom

Source: Planning Norms and Standards 2015, DUDBC

Table 4.7 Demand Analysis of Social Infrastructure

Types	Norms	Standards	Existing Infrastructure	Supply Forecast 2043	Deficit	Remarks
Educational Institution	Primary	1 per 3000 population at a distance of 0.4–0.8 km – 0.2 ha per site	32	.43 nos.	11 nos.	Plan and add for new schools
	Higher Secondary	1 per 7500 population at a distance of 30min in public transportation – 0.65 ha per site	6	17 nos.	11 nos.	
	Graduate/Post Graduate	1 per 25,000 population at a distance of 45min in public transportation	No	5 nos.	No	Upgrade only
	University	1 per 40,000 population at a distance of 1hr in public transportation	No	4 nos.	No	No additional upgrade only (Far west university)
Health Institution	Primary Health Care Center	1 per 20000 population (5 – 15 beds)	HP - 3			Upgrade existing
	District Hospital	1 per 50,000 population (25 – 50 beds)	No			Add new and upgrade existing
Open Space	5% of total city area		1% (including tree cluster)	5% of city area	3%	Add new and upgrade existing
	Neighborhood park (with play equipment)	1 @ 800 population (0.4 ha per site)				
	Local Park	1 @ 10000 population (1 ha per site)	2 nos.	1 park in each ward	14 nos.	New to be planned
	Community Park	1 @ 20000 population (2 ha per site)	Community forests	8	No	New to be planned
Library	Community level	Library with community hall	NA	1 nos	1 nos	Plan and add new
	Central level	Community room	NA	1 community room in each ward	12	New to be planned

Fire Station	City level (5 to 7 km radius)	1 fire station @ 1,00,000 population (10,000 sq m per site)	NA	1 nos.	1	Plan and add new
Religious Institution	Incineration /cremation areas	0.4 ha per site	NA	1 no	1 no	Plan new
Museum and Art gallery	Regional Level	0.5 ha per site	No	1 no	1 no	Plan and add new
Old age home, orphanage, center for differently able people, sanatorium	Local Level	1 per 20,000 population (0.3 ha per site)	No	1 no.	1	Plan and add new
Security	Police post	1 per 10,000 population (0.1 ha per site)	-	Police postsin all wards	12	Plan and add new
	Police Station	1 per 40,000 population (0.5 ha per site)	1 District Police office (ward 18)	2	2	Plan and add Police stations
Science and Innovation Center (Exhibition Centers)	Regional Level	1 per 50,000 population (4 ha per site)	No	2 nos.	2 nos.	Plan and add new

Source: Planning Norms and Standards 2015, DUDBC

Table 4.8 Demand Analysis of Economic Infrastructure

Types	Norms	Standards	Existing Infrastructure	Supply Forecast 2043	Deficit	Remarks
Convention Hall	City hall (Multipurpose)	1 per 100000 population (2 ha per site)	NA	1 nos.	1	Plan and add new
Sports Complexes	City level	1 per 100000 population (3 ha per site)	NA	1 nos.	1	Plan and add new
Movie Hall	City and local level	5 seats per 1000 population	1 nos.	3 nos. with 200 capacity	3 nos.	Plan and add new
Vegetable Market	Neighborhood level	1 wholesale, 1 retail and 1 Slaughter house for 2 neighborhood (0.5 ha per site) 1 Neighborhood = 3000 population				Plan and add new
Parking space	Public parking (two/ three /four wheeler) (Bus and Taxi park)	1 parking lot for each neighborhood (1 neighborhood = 3000 population)	No	1 public parking space for 2 wards	1 public parking space (2/3 wheeler for 2 wards	Plan and add new
Transportation system	Inter City Bus Terminal (Linking with other cities) along with urban service centers/ motels/ gas stations	1 parking lot for 100 buses and 100 trucks (4 ha per site)	No	1 nos.	1nos.	Plan bus park

Source: Planning Norms and Standard 2015, DUDBC

4.3 Review of Past Development Plans

4.3.1 Past Development Plans

As the municipality is a newly formed one, very few development plans and documents are available. The available documents are as follows:

a) Periodic Plan of then Jhalari - Pipaladi municipality, prepared in 2016 has the main features: defining vision, and identifying development challenges, opportunities and problems. It was approved by the then Jhalari –Pipaladi municipality.
b) The Municipal Transport Master Plan (MTMP) is prepared covering all the wards of then Jhallari-Pipaladi municipality. The Ward 12 of Shuklaphanta municipality is not covered by this report. Main output of this report focused on proposing the RoWs for the different hierarchy of roads, future traffic forecast and prioritization of roads.
c) Annual Town Development Plan is mainly a financial statement of income and expenditures of previous and upcoming financial year (FY 020/021).

4.4 Long Term Development Vision of the Municipality

4.4.1 Framing up of Development Vision

Visioning is the process of developing consensus among stakeholders on what the strategic development priorities of the city are within a timeframe, and to help stakeholders align their priorities and investments accordingly (S.C. Sandhu and R.N. Singru 2014). It is further elaborated as:

- Articulating the guiding principles on which the city will base decisions that will shape key issues such as the size, composition, and look of the city, the focus of its economic and cultural activities, and its quality of life today and in the years to come;
- Providing a framework within which decision makers and planners can set priorities;
- Guiding the goals/objectives formulation that the land use plan should aim at over its period of implementation.

The Vision Workshop deliberations at several occasions, guided by the above premises, and conducted with the participation of the broad range of the stakeholders came up with following proposals:

- The periodic plan already approved by then Jhalari - Pipaladi municipality has come up with following vision statement:

Agriculture, Tourism, Culture and Development

A Basis for Prosperous Jhallari- Pipaladi

- However, one day planning workshop organised on the month of May 2019 at Shuklaphanta, widely participated by the stake holders from the various fields, did revisit and discuss the already set development vision, and did finalise the following vision statement:

Agriculture, Tourism, Culture and Nature Conservation:

A Basis for Green and Prosperous Jhallari- Pipaladi

In Nepali, it could be presented as given below:

कृषि, पर्यतन, सांस्कृतिक विकासएवं हरियाली प्रवर्धन

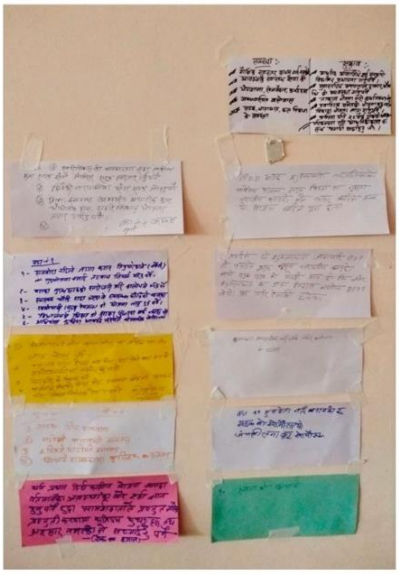
शुक्लाफाँटानगरको मुल आधार

The above vision statement along with the adoption of the Sustainable Development Goals (SDG) and national slogan seems to cover all the concerns and aspirations of the local stakeholders voiced at the workshop. The stated vision also is in conformity with the envisaged functional role of Shuklaphanta as the "Agro-forestry research hub and University town" as proposed by the PPTA (Vol. 2) to comply with the 'Broader Economic Development Vision for Far Western Terai Region'.

The SDG: 'Make cities and human settlements inclusive, safe, resilient and sustainable'.

National Slogan: 'Prosperous Nepal, Happy Nepali'

Figure 4.1 Images of one day planning workshop organized on May 2019



4.4.2 Planning goals and objectives

Planning Goals

a) To contribute to development of Shuklaphanta as an 'Agro-forestry research & development hub' with innovations and commercialization in agriculture and forestry sectors.
b) To serve as a guide for the orderly physical development of the city in the short, medium and long term plan periods.

c) To accommodate total projected population of 166,421 by the year 2043 with provision of basic urban services and facilities so as to uplift their living standard and bring about qualitative improvement in their lives.

The objectives of the plan are outlined below:

a) To serve as a guide for planned urban expansion and development on a phased manner.
b) To provide a planning framework for phased infrastructures development related to the roads, drainage, sanitation and waste disposal.
c) To provide a planning framework for local plans in terms of the location and development of the land pooling schemes, urban amenities and services, and places of tourist attractions.
d) To come up with the concrete proposals for the investment programs and projects based on the study findings and the stakeholders consultations.
e) To provide a guiding framework for development control in terms of the framing up of the effective land use regulations including the zoning and building by-laws for application in the areas to be controlled, protected and promoted as depicted in the proposed land use/zoning plan.
f) To serve as a planning instrument for protection of the environmentally sensitive and risk prone areas within the municipal boundary.
g) To strive for the optimal utilization of the agriculture land as a main economic base of the city accompanied by the controlling measures.

4.5 Summary of Key Findings

a) The realistic growth rate of the municipality as a whole has been assumed to be **3.90%** per annum which is more than 3.43% growth rate of national urban population (2001-2011), and growth rate of 2.7% for the Sudurpaschim Province municipalities (2001-2011).
b) The total population of the municipality is being projected to increase up to **74,406** and **166,421** by the years 2023 and 2043 – a plan period from the estimated 2017 population of **58,923**.
c) The net residential land requirement for accommodation of projected population is estimated to be **2225 ha** and gross land requirement (including road, walkways, buffer space, open space/parks, institutions etc. is estimated to be **2870** ha. by the year **2043** on the basis of the adopted gross densities ranging from 50 to 150 persons per Hectare (pph).
d) Demand analysis of urban infrastructure presents a summary of infrastructure requirements related to social, economic and physical components up to the year 2043 to be included in chapter related to multi-sector implementation program (MSIP).
e) A long term development vision for the city is being adopted as "**Agriculture, Tourism, Culture and Nature Conservation as a Basis for Green and Prosperous Shuklaphanta Municipality**" that would help set planning goals/objectives to guide the planning and development initiatives within the plan period (2023-2043).

CHAPTER V: PHYSICAL PLANNINGDEVELOPMENT PLAN PROPOSALS

5.1 Plan Determinants: A Basis for Physical Development Plan for Shuklaphanta

It has already been stated that the main objective of Shuklaphanta Long Term Urban Development Plan (LTUDP) is to guide its urban growth and development within a plan period of coming 20 years up to 2043. The realistic spatial (or physical) development framework forms an important component of the LTUDP. The development planning framework (Chapter IV) has presented the basic planning parameters in terms of the population growth by the year 2043 to be accommodated, a review of the past development plans and the PPTA Report (2017), urban infrastructure needs and the basic planning principles (development vision, planning goals and objectives), which would serve as a basis for the spatial development concept or strategies for the city to guide its planned development. However, the various physical aspects, both the positive factors as well as the constraints, the existing settlement pattern and growth trends, and the envisaged planning and development initiatives as stated in the PPTA, need to be taken into account as the determining factors for conceiving and formulating the physical development strategies (development concept/pattern, phasing of urban expansion, land use policy and zoning proposals) for the city.

PPTA Report states that, as the municipality bears rural character and large portion of land is agricultural and forest, Shuklaphanta has a potential to develop as the agricultural centre (agricultural, forestry research hub) and University town. There are altogether nine community forest committees under Buffer Zone Management Committee, of which two committees lie in Shuklaphanta municipality. It provides opportunities to develop demonstration centre to do pilot experimentation and community initiatives for the promotion of non-timber forest products (NTFP). Commercialization of agriculture and forestry would create much needed employment opportunities in the municipality which would strengthen the community in the region. A more detailed elaboration of the above statements as the plan determinants are;

a) A strategic location of the municipality along the east west highway which links Bheemdatta and Attaria crossroad, thereby providing the access to Dhangadhi – Godawari urban complex;
b) Presence of the numerous river system flowing from north to south, and its watershed areas consisting of a large chunk of forest lands as a part of Chure-Bhavar Eco-system (Table 3.2).
c) Presence of Shuklaphanta National Park as a physical threshold or barrier towards the eastern border.
d) Consideration of risk sensitive land use considerations classified as protected, controlled and promoted (Refer Sub-section 3.4.4, Figure 3.12).
e) As Shuklaphanta Municipality does not have a prominent market centre, hence, a proposal of a market centre of about 300ha along the E-W Highway, through land pooling (PPTA, 2017) could be an important element of the plan determinants. The facilities, such as petrol pumps, public toilets, bus, vegetable markets along with residential plots in the inner areas can be developed within the market centre.

f) Proposed RUDP infrastructure interventions within the project phase (2017-23) e.g. urban infrastructure works – road and drainage works, solid waste management (ISWM), land pooling, municipal building, and PBSEDP programs.
g) Road construction by the municipality under Municipal Transport Master Plan (MTMP 2019) within the different wards. (BDA 2019. Urban Roads of Shuklaphanta Municipality).
h) Possibility of the connectivity to India border via Bellauri, which lies towards the south of Shuklaphanta, as an alternative to Gauriphanta in Dhangadhi.

5.2 The Concept Development Plan (CDP) for Shuklaphanta as proposed by the PPTA

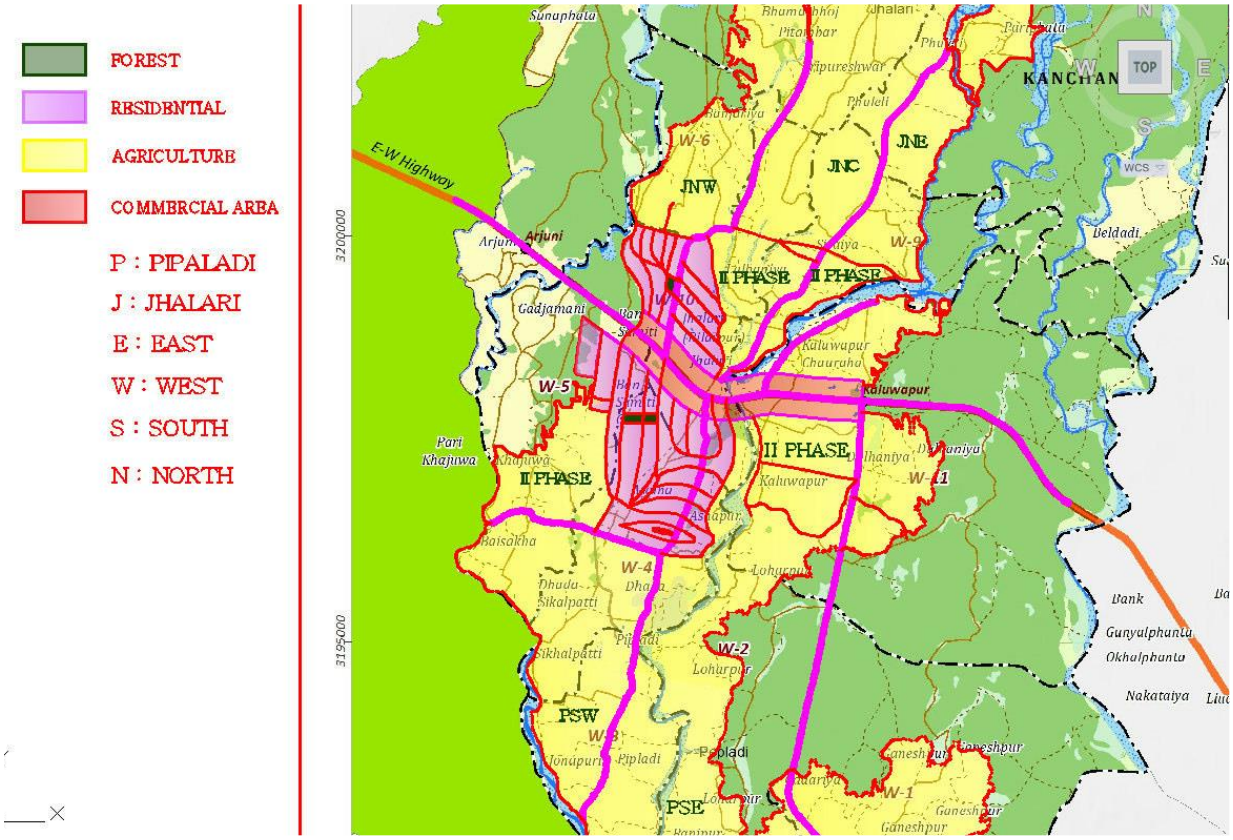
The PPTA has outlined the following elements to be focused upon by the Shuklaphanta CDP:

1) Preparation of a legitimate land use plan through participatory process based on: the assessment of potential hazards, risks and vulnerabilities; and designating the areas to protect, control and promote in accordance with the potential risk and vulnerabilities;
2) Identifying the areas for urban services and utilities (such as bus park, sanitary land fill site, waste water treatment site etc.) on the basis of future development vision;
3) Exploring a possibility of executing a community land pooling scheme with the mandatory provision of at least one economic activity;
4) Identifying the priority projects on the basis of development concept plan;
5) Prohibiting development activities in the flood plains and forest land except those complementing 'nature and environment'.

Considering the above elements, the PPTA has forwarded the following aspects to be considered for the CDP proposals as illustrated by the Figure 5.1:

- 250 m strip on either side of the 3km stretch of East-West highway would be developed phase-wise for commercial activities through land pooling.
- As none of the roads on the inner settlements have been planned and most of them are earthen, widening and improvement of two north south roads on either side of the East-West highway is prioritized. Transverse linkage connecting the north south roads could be provided at every 2km.
- Provision for small cottage and small industry promotion centre may possibly help local people to develop entrepreneurship skill and explore markets for their products. Similarly, a centre for learning may be developed on the North West for the production and promotion of non-timber forests products (NTFP).
- Principle of planning is to focus the initial development in the highway proximity in order to protect the agriculture land in the rest of the municipality.

Figure 5.1 Conceptual Development Map of Shuklaphanta as Proposed by PPTA



Source: Far Western RUDP (Vol 2), IUDP 2 PPTA, DFR, 2015

5.3 Spatial Development Strategy: Proposed Concept and key Proposals

A realistic spatial development strategy to be adopted within a plan period for Shuklaphanta has to take account of the proposals of the past development plan, the set development vision and the adopted planning principles (goals/objectives) and also the plan determinants as stated in Section 5.1. It also needs to reconcile the three pertinent aspects of the population growth, economic development and spatial dimensions including risk sensitive land use considerations (Sub-section 3.4.4).

Guided by the plan determining factors (Section 5.1) and building upon the Concept Development Plan developed by the Far Western RUDP, PPTA, DFR (Vol.2), a realistic spatial development strategy is being proposed for Shuklaphanta in the form of the Mono-centric Development Model which implies consolidation and peripheral expansion of the urban core with main economic, services and administrative functions to serve the population of the municipality. At this stage of urban development, the city will have to manage a large chunk of forest land, a large rural agriculture hinterland, and the residential, both rural and urban settlements in between. The updated conceptual development model is presented in the **Figure 5.2**, which builds upon the Concept Development Plan (CDP) for Shuklaphanta as proposed by the PPTA (Figure 5.1). The key attributes of the updated spatial development concept is presented below.

The Key Planning Proposals: (Please refer Fig.5.2)

a) Shuklaphanta would be developed as an emerging urban centre with a total population of **166,421** by the year 2043 (additional population increase of 107,498by year 2043 from the year 2017 estimated population of 58,923).
b) The East-West highway and the areas adjoining it holds its immense potential for development of commercial activities. Hence, 100 m strip on either side of the 3km stretch of East-West highway would be developed phase-wise for commercial activities through land pooling and private sector participation. It implies, the areas on either side of the EW highway from Kaluwapur chowk to Ban samiti chowk, and the current bazzar area north side of the EW highway near western bank of Sunbora River are proposed as a **commercial zone**. The proposed net density would be 150 pph (**Table 4.5**). It would be designated as Zone A.
c) The parts of **Wards 5, 9, 10 & 11** which are adjacent to the commercial zone would be the areas for urban expansion in Phase 2 with **Mixed use** but with predominantly residential activities. It would also be playing a vital role towards expansion of the urban core and consolidation of Central Business District (CBD). The proposed gross density would be 150 pph for Ward10 & 11 and 100 pph for wards 5& 9. (Table 4.5). It would be designated as Zone B.
d) As per the outcome of the planning workshop held earlier, a Ring **Road** is being proposed linking **Wards 4, 5 & 11** south of EW highway and **Wards 6, 9, 10 & 11** north of EW highway. The Ring Road will not only enhance mobility of population, but also the circulation of goods and services within the municipality. It would also be playing a vital role towards expansion of the residential activities for accommodation of increased population growth. It would be a Bio-road to promote green tourism – one of the potentials of the municipality.
e) Area between the Mixed used zone and Ring Road on either side of the EW highway would be designated as moderately a low density residential zone and would be developed through land pooling. This would include portions of **Wards 4, 5, 6, 9, 10 & 11**. The proposed gross density for this zone would be 100 pph. It would be designated as Zone C.
f) The land pooling sites, one each in the **wards 10&11** within the Residential zone (C) are proposed for planned urban development. New market center along with other urban facilities and residential plots would also be developed in **Ward 11** near East-West highway and Kaluwapur road through land pooling. Feasibility of land pooling schemes could be explored in **Wards 5 & 9** also.
g) Two north-south roads on either side of the East West Highway is proposed with transverse linkage at every 2km. Road Network also would be developed in four phases and will drastically improve the connectivity within the municipality.
h) Southern portion of **Ward 7 & 8** at the foot hill of Siwalik hill along with **Wards 1, 3, 12** and portion of **Ward 2** would be declared as Agriculture zone. Development activities except those complementing agriculture activities would be discouraged. It would have very less built up area with limited infrastructure and thin settlements of rural character.

The proposed gross density for **wards 1, 7, 8, & 12** would be 50 pph. It would be designated as Zone D.

i) Northern part of **ward 7**, northern and eastern part of ward 8 along with portions of **ward 1, 2 & 11** are proposed to be declared as the protected Nature Conservation Zone. Religious and touristic road is proposed to enhance the circulation and green tourism which is one of the potentials of the municipality. It would be designated as Zone E.

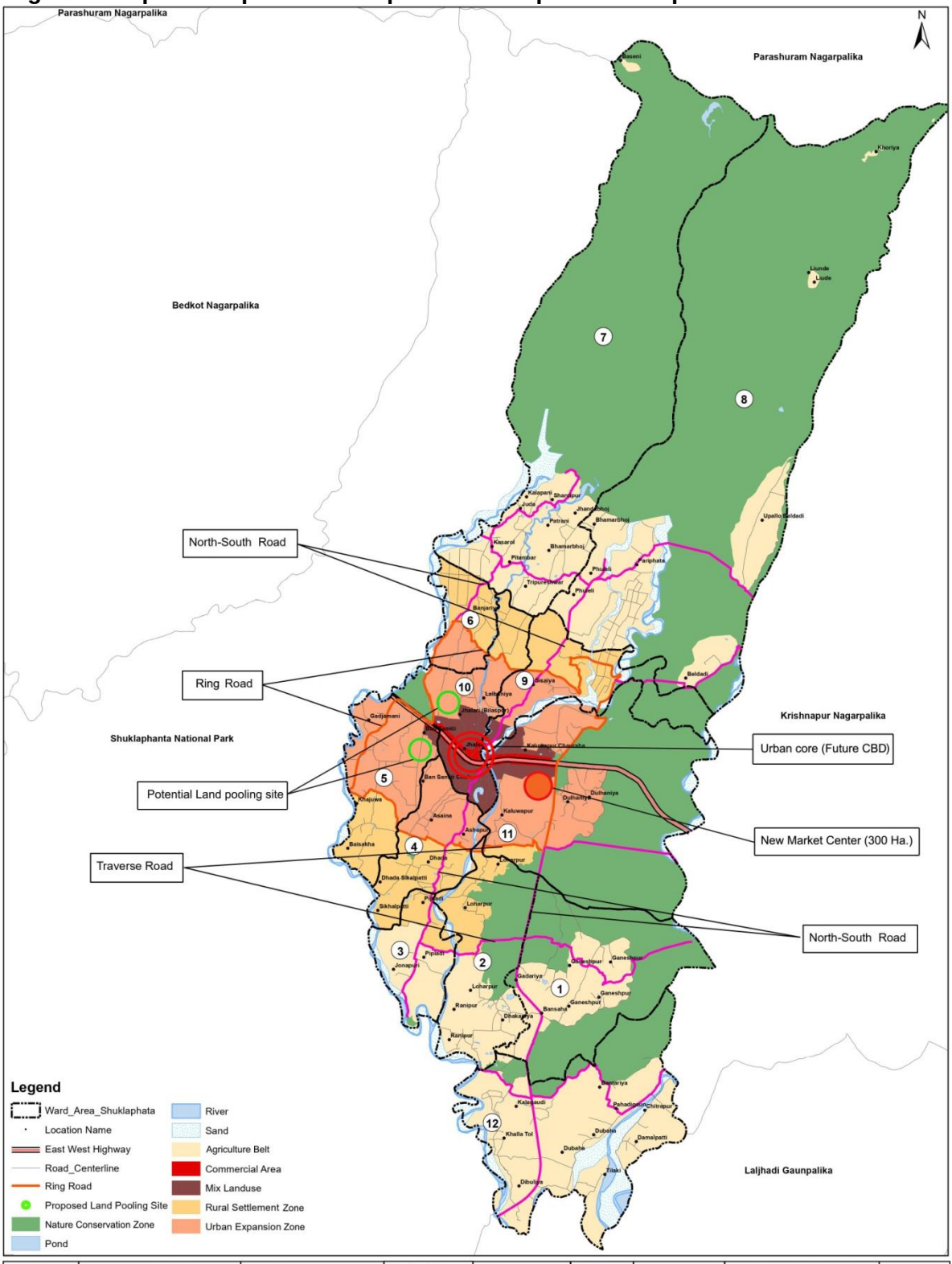
j) In order to protect the fragile eco-system of Churia Bhabar range (Shivalik belt) on the northern belt, a general policy would be adopted for promoting only environmental friendly activities in the areas north of East West Highway. This would include education, health, administrative functions, organic farming, green tourism and industries based on non-timber forest products. This would pave the way for localising the President's national level Churia Belt conservation program. The Shivalik Belt is also a watershed zone being the source of numerous rivers and rivulets flowing north to south within the Municipality.

k) Similarly, as a general policy measure, more intense urban activities (Transportation related activities, polluting industries; etc would be located towards the southern areas south of the East West Highway.

l) The whole emphasis of the spatial development strategy is to create a compact urban core with emphasis on preservation of agricultural land and on bio-diversity conservation with focus on protection of forest areas.

Those proposals are presented in the Updated Conceptual Development Map of Shuklaphanta (**Figure 5.2**).

Figure 5.2 Updated Spatial Development Concept of Shuklaphanta



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Updated Conceptual Development Map**	DRG NO: **10**

5.4 Phase wise Urban Expansion Proposals

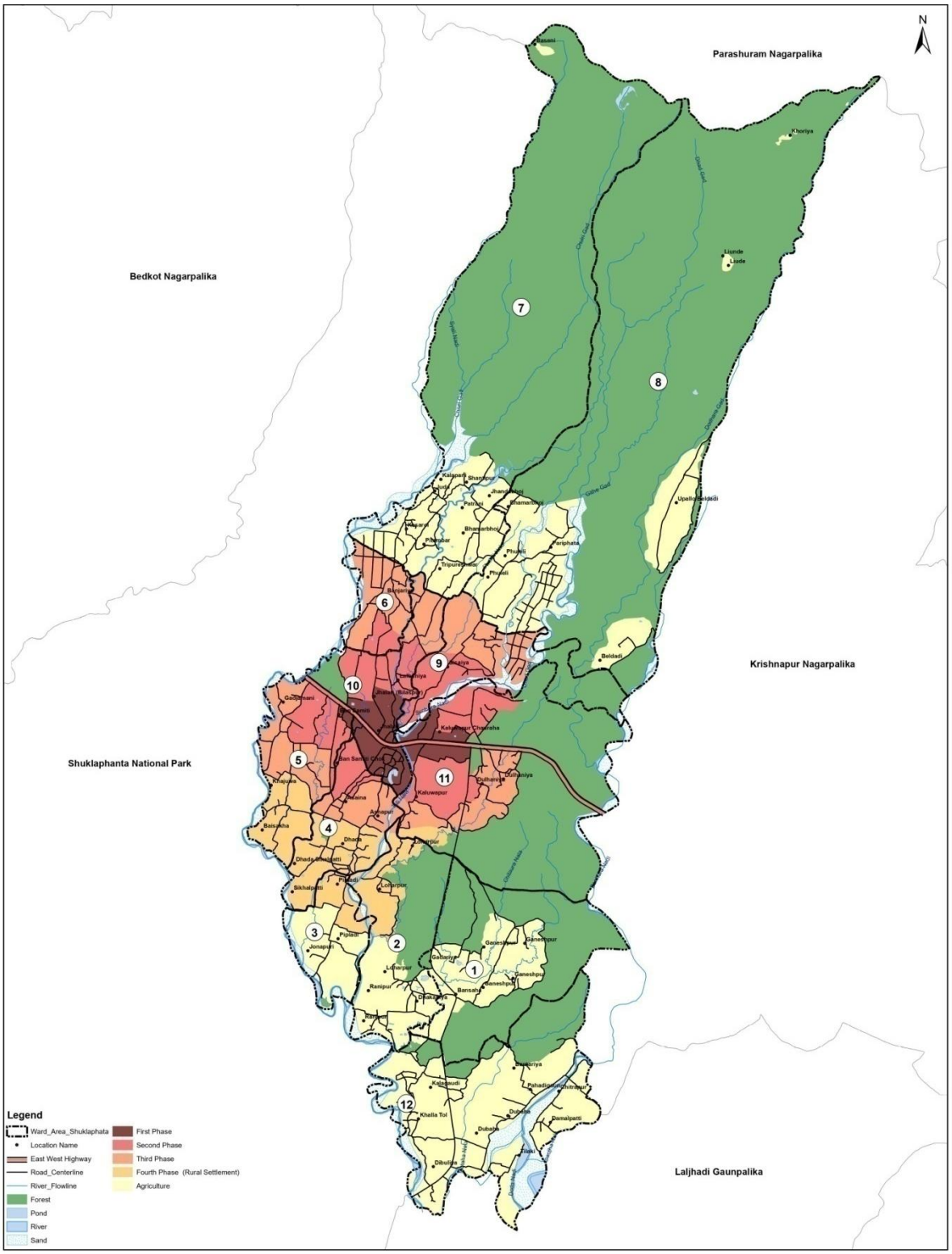
Within a framework of the various factors as Plan determinants (Chapter 5.1) and the Concept Development Plan (Chapter 5.2) a Phase wise Urban Expansion is being proposed in order to achieve rational and planned development which is based on growth trend, provision of infrastructure and settlement pattern. **Table 5.1** shows the criteria for the development of Phase wise Urban Expansion areas and phasing of urban expansion areas is shown in **Figure 5.3**

Table 5.1 Priority of Urban Expansion

S.N	Urban Expansion Areas	I	II	III	IV
	Criteria for Priority				
1.	Infill development areas, close or within existing urban areas	*			
2.	Already converting to urban use	*	*		
3.	Infrastructure available	*			
4.	Infrastructure partially available and extendible from adjacent		*	*	*
5.	Land transaction as an indication of development trend	*	*	*	

- **Phase I:** Areas which are already being converted into urban use, very close to urban settlements and infrastructure available are identified as primary urban expansion area. It includes portions of **Ward 10 & 11** which are adjacent to the EW highway. RUDP – SudurPaschim is also carrying out improvement of road and drainage as priority infrastructure projects within the area. The existing and proposed municipality office is located in ward 10 and maximum construction activities are also taking place in this area.
- **Phase II:** Areas where infrastructure is partially available, but the locations are close to the established urban area and have potential for urban expansion being categorized as Phase II. It includes portion of Ward 5 adjacent to the EW highway and portion of **Wards 4, 6, 9, 10 & 11** which are close to the established urban area.
- **Phase III:** Areas where available infrastructure is limited but there is the possibility of extending infrastructure services from adjacent expansion area (with land transaction moderate), settlement is sprawl and of rural character but the pace of urbanization is gradually increasing and is categorized as Phase III urban expansion area. It includes southern portion of **wards 4, 5& 11** and northern portion of **wards 6, 9 &10.**
- **Phase IV:** Areas where infrastructure is limited but can be extended, settlement is sprawl and of rural character, with very less built up area and is categorized as Phase IV. It includes **Ward 2** (western part), **ward 3** (northern part) and **wards 4& 5** (southern part).

Figure 5.3 Phasing of Urban Expansion Areas



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Phasing of Urban Expansion Areas**	DRG NO: **11**

5.5 Proposed Land Use Zoning

Based on the key proposals of Spatial Development Strategy, the proposed land use categories are being presented as follows:

Table 5.2 Proposed Land use

S.No.	Land use Zones	Area ha.	Percent
BUA	**Built-up Area**		
1.	Commercial Zone including CBD (residential, commercial, touristic activities)	76.20	0.47
2.	Residential/ Commercial Mix Zone	315.16	1.94
3.	Urban Expansion	1469.93	9.04
4.	Rural Settlements Area	1229.07	7.56
	Sub-Total (Settlements) A	**3090.37**	**19.01**
5.	Institutional Zone (Government Offices)	7.81	0.05
6.	Open Spaces and Recreational Zone	1.44	0.01
7.	Cultural and Religious Zone	5.70	0.04
	Sub-Total (Others) B	**14.95**	**0.09**
8.	Transport Zone		
8.1	Highways	53.53	0.33
	Sub-Total (Transport) C	**53.53**	0.33
	Total BUA= A+B+C	**3158.85**	**19.43**
NBUA	**Non-Built Up Area**		
9	Forest (Nature Conservation) Zone	9075.52	55.82
10	Agriculture Zone	3201.88	19.69
11	Riverine and Lake Zone (including canal)	821.10	5.05
	Total NBUA	**13098.50**	**80.57**
	Grand Total= BUA+NBUA		

Source: GIS Base Map, 2017 & Field visit

Built-up Zones

In Built-up Zones, usages developments, and structures are permitted as prescribed. Land shall only be developed and used in accordance with the permitted use(s) prescribed for each Built-up Zone in the following sections.

1. **Highway Commercial Zone (Zone C)**

   Land plots adjoining the EW highway and within the 100m depth beyond the ROW on either side of the EW highway from Kaluwapur chowk to Ban samiti chowk is proposed as Commercial zone. Jhallari chowk in ward 10 acts as the commercial hub of the municipality whereas small market has also developed at Kaluwarpur chowk and other commercial activities are coming up along the East West highway. It includes small portions of **Wards 5, 10 & 11**.

2. Mix Use Zone (Zone MC)

Residential and Commercial mix Zone has been proposed for areas adjoining the Commercial zonewhich includes portions of **wards 10 & 11**. In ward 11 it is bounded by road B3-B15 on the north and the road A19-A22 on the south; whereas whole of ward 10 in the south and up to area bounded by road D1-D2 on the north is considered.Residential and Commercial mix activities are starting to come up in these areas.

3. Urban Expansion Zone / Residential Zone (Zone UR)

The area beyond Mix-use Zone and bounded by the proposed Ring Road in north and south as shown in **Figure 5.4** is proposed as Residential zone. In includes north portion of **ward 4** bounded by road A13-A17-A53 (Asaina & Ashapur) and **ward 5** by road A13-A28-A29-A30(Gadjamani) on the southern side of the EW highway; south portion of **ward 6** bounded by road A25-A32-A34, **ward 9** by road A36-A40 (Sisaiya), **ward 10** by road A34-A36 (Jhalari & Lalbaniya) on the northern side of the EW highway and whole of **ward 11** excluding Commercial and Mix use zone.New construction and residential activities are growing in **ward 10 & 11** while it is expected to pickup in other wards as well.

4. Rural Settlement Zone (Zone RS)

Rural Settlement Zone include north portion of **ward 2** bounded by traverse road A25-A55 (Loharpur), **ward 3** by traverse road A55-A64 (Pipaladi); south portion of **ward 4** (Dhada & Sikalpatti) & 5 (Khajuwa & Baisakha) beyond the ring road. It also includes north portion **wards 6** (Banjariya), 9 & 10 beyond the ring road. These areas bear rural character and are not likely to urbanize in near future. They are comparatively far from EW highway and infrastructure development projects like road and drainage under RUDP are not planned for initial phase. Settlements with very low density along with agricultural activities would be promoted in this zone. Agro-forestry industries could also be established in this zone.

5. Institutional Zone (Zone IZ)

Municipality office is located in Jhalari Bilashpur in **Ward 10**; a new building for municipality office is also being constructed near the existing office. Telecommunication office, health posts are also nearby. Similarly police post is also likely to come adjacent to it and there are lands available for future expansion also. Ban samiti office is located in **Ward 5** adjacent to the highway. Thus these areas are proposed as Institutional Zone as indicated in Proposed Land use Map.

NonBuilt-Up Zones

Non Built-up Zones are reserved to protect nature any usage, is restricted as prescribed. Developments and structures are limited accordingly.

6. Agriculture Zone (Zone AZ)

Agriculture Zone includes plain areas like Tripureshwar, Pitambar, Kasarol, Bhamarbhoj, Patrani, Shantipur, Juda, Kalapani in **ward 7** and Phuleli, Pariphanta, Upallo Beldadi in **ward 8** up to the Churia hill in the northern side of the municipality. Agriculture zone also includes south portion of **ward 2** (Ranipur, Dhakaniya, Ranipur & Loharpur) & **ward 3** (Jonapuri & Pipaladi) beyond traverse road and whole of **ward 1** (Bansaha, Ganeshpur &

Gadariya) & **ward 12** (Chitrapur & Bantariya) except the forest area in the southern side of the municipality. There is limited opportunity for further development in these areas due to the physical characteristics and lack of services. Development is in rural nature, and availability of water due to nearby river provides scope for commercial and sustainable agriculture. Infrastructure development projects under RUDP are proposed for the later phase which will control the construction activities and help preserve agriculture land.

7. Open / Green Space (Zone GZ)

Large playground is adjacent to Municipality office located in **Ward 10** and Shuklaphanta Local Park is located in **Ward 9** near the bank of Sunbora River. Thus these areasare proposed as green space for Public useas shown in map. Green buffer space is also proposed for 30m and 50m setback from the edge of the major rivers (Syali nadi, Sunbora nadi and Banhara nadi) for hill and terai (plain) areas respectively. Any kind of permanent construction is prohibited in the green buffer while recreational spaces such as parks and playgrounds could be developed after leaving 30m setback in these rivers. In case of other rivers 20m and 30m of setback is proposed as green buffer for hill and terai (plain) respectively.

Buffer zones is kept to protect the ecosystem of the river from the impact of adjacent land uses or sources of pollution and also to protect lives, property and environment from river flooding. Greenery would be promoted and any kind of permanent construction would be prohibited in the Green zone however it could be used for agricultural purpose (farming, grazing, fishing etc) and also for recreational uses (public parks, playgrounds etc).

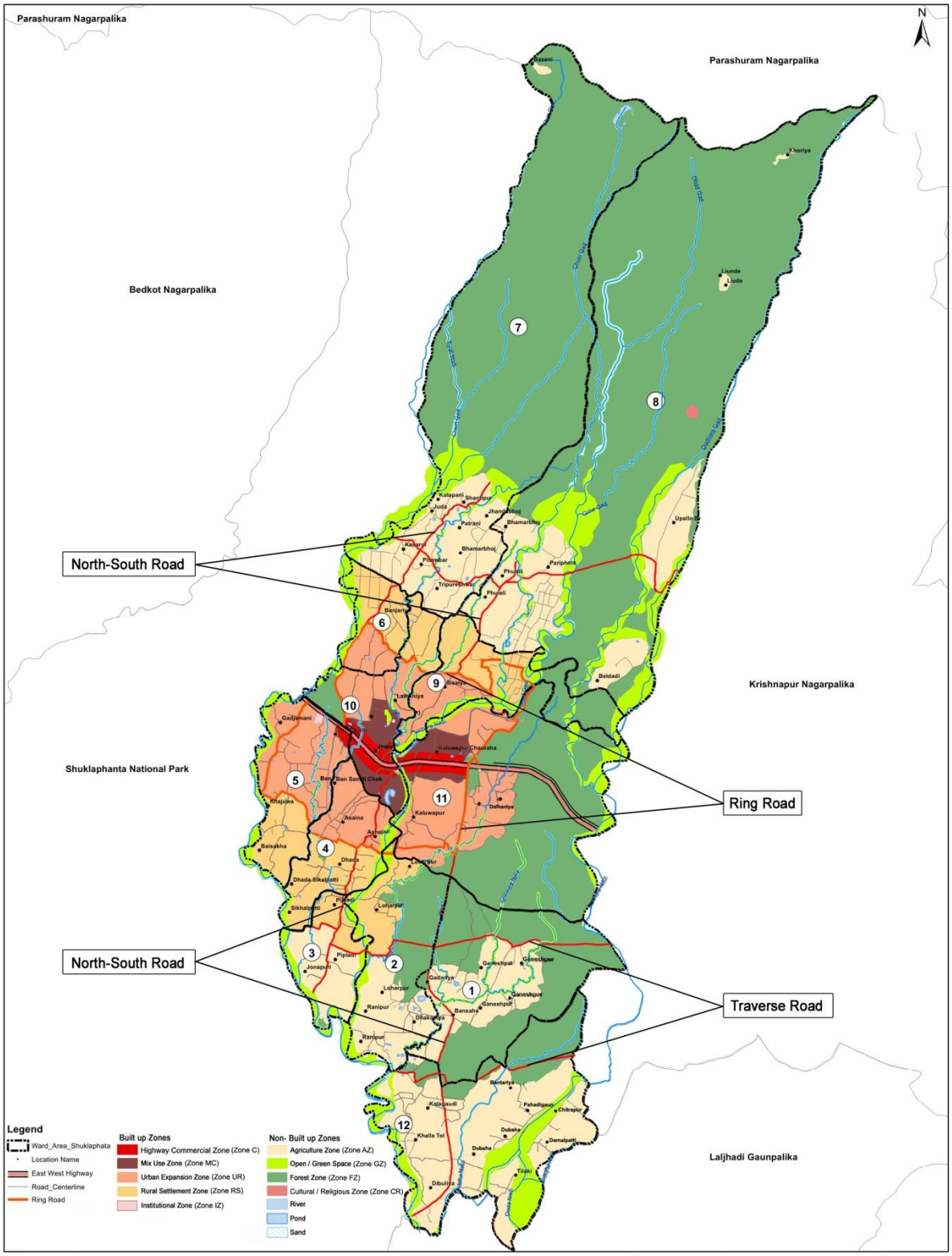
8. Cultural / Religious Zone (Zone CR)

Manika Dham area in **ward 8** along with the pond and other prominent cultural / religious area in the municipality are proposed as Cultural / Religious Zone.

9. Forest Zone (Zone FZ)

Large part of **Ward 1, 7, 8 & 11**and small part of **ward 2 & 12** are occupied by forest and thus proposed to be protected as Forest Zone. Northern part of the Municipality where Shivalik range starts is proposed to protect as “Water Shade Zone”. This help to ensure continuous availability of water as well as protecting from water induced disasters.

Figure 5.4 Proposed Land use Zoning



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Proposed Land Use Zoning**	DRG NO: **12**

5.6 Proposed Road and Transportation Network

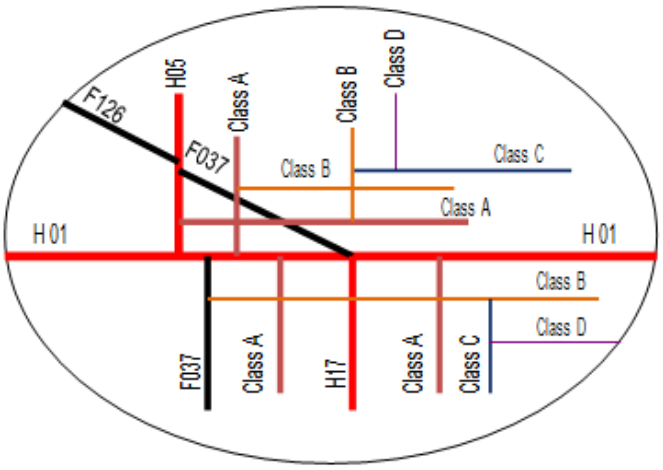
The direct access between certain classes of road is to be restricted to maintain the road hierarchy (residential streets and arterial roads). Access between similar orders of streets is to be made (as arterial to arterial) or different order streets are separated by one order in the hierarchy (as arterial to highway and collector to arterial.). The hierarchy with basic parameters of road network is shown in **Table 5.3**. Municipality has a complete road network hierarchy consisting of National Highways, Feeder Roads, District Roads and Urban Roads of all four classes. The conceptual layout of hierarchy of Road network is clearly seen in **Figure 5.5**. This hierarchical distinction of road types becomes more essential to enable urban design principles such as accessibility, connectivity, efficiency, amenity and safety. Urban/ municipal road network is being categorized with functional hierarchy such as Class A, Class B, Class C and Class D. Non motorized transportation is considered for all of the municipal roads.

Table 5.3 Road network hierarchy and features

Road Network	Road Class	Descriptions	Minimum RoW (m)	Minimum Setback (m)	Remark
Strategic Road Network (SRN)	NH	National Highways	50	6.0	Federal level
	FR	Feeder Roads	30		
Local Road Net work (LRN)	DRCN	District Roads	20	6.0	Provincial level
	A	Main Collector	12	2.0	Urban Road/ Local level
	B	Secondary Collector	12		
	C	Feeder Road (Main Tole Road)	12		
	D	Other Tole Road	6 to 12		

Source: Urban Road Master Plan, 2019

Figure 5.5 Conceptual Layout of Hierarchy of Road network



The **Class A** road (minimum RoW 12 m) serves as Major Collector road and starts either from the Arterial or Sub-Arterial road and connects to National Highway. It forms the major transportation corridor (east-west, north-south) with higher traffic volume. Functionally, it covers relatively long distance and leads to major market/ settlements, tourist area to the SRN linkages. (Carriage way width 7m)

The **Class B** Road (minimum RoW 12 m.) serves as secondary Collector Road from relatively small market/ settlements with less traffic flow. (Carriage way width 7m, relatively low geometric standard).

The **Class C** Road (minimum RoW 12 m.) serves as Neighbourhood Street in residential, small industrial or public places. It serves mainly small/light vehicular movement for low traffic volume. If the road connects two or more residential areas it is referred as Class C road.(Carriage way width 5.5m).

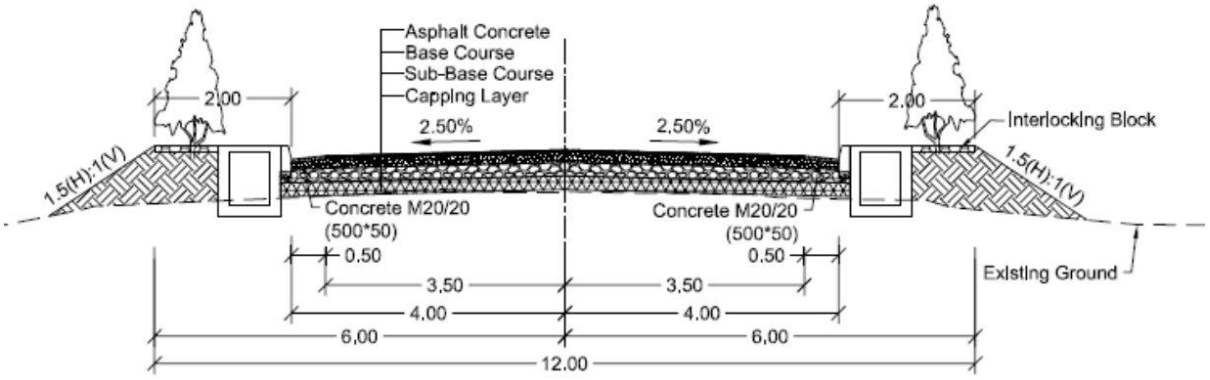
The **Class D** Road (minimum RoW 6-12 m) serves sub Neighbourhood Street in residential areas. However, RoW for new/ planned Class D road (residential road) shall be at least 6 m. If the road connects to the single residential it is referred as Class D road. (Carriage way width 3.75 m).

(Typical cross sections of urban roads is shown in Figure 5.6 below).

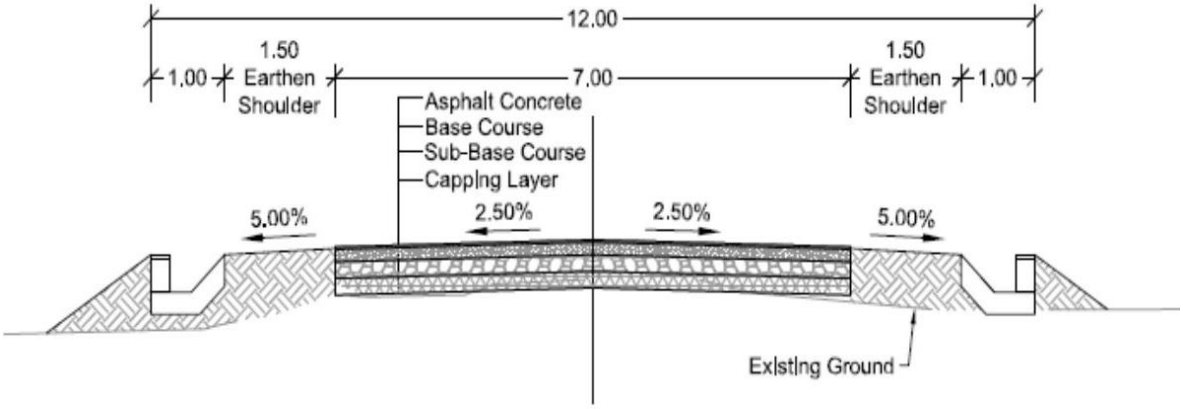
Proposed East-West Railway alignment

The East-West railway line or the Mechi-Mahakali Railway is anupcoming project in Nepal. The railway will be the longest in Nepal stretching 945.244 km expanding from the Eastern Indo-Nepal border of Kakarbhitta to the Western Indo-Nepal border of Kanchanpur. Subsidiary lines will be added expanding the total project to 1,376 km. The proposed alignment of Mechi-Mahakali railway also passes through Shuklaphanta Municipality south of EW highway (Figure 5.7).

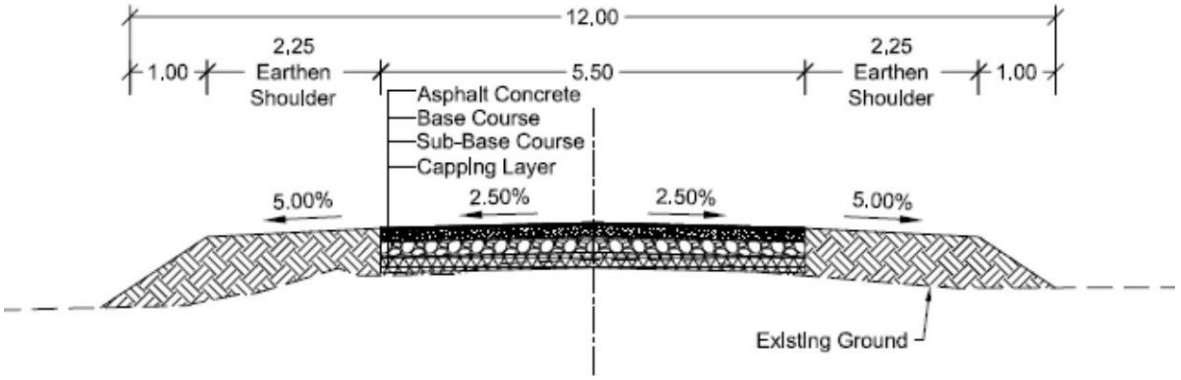
Figure 5.6 Typical Cross Section of Urban road



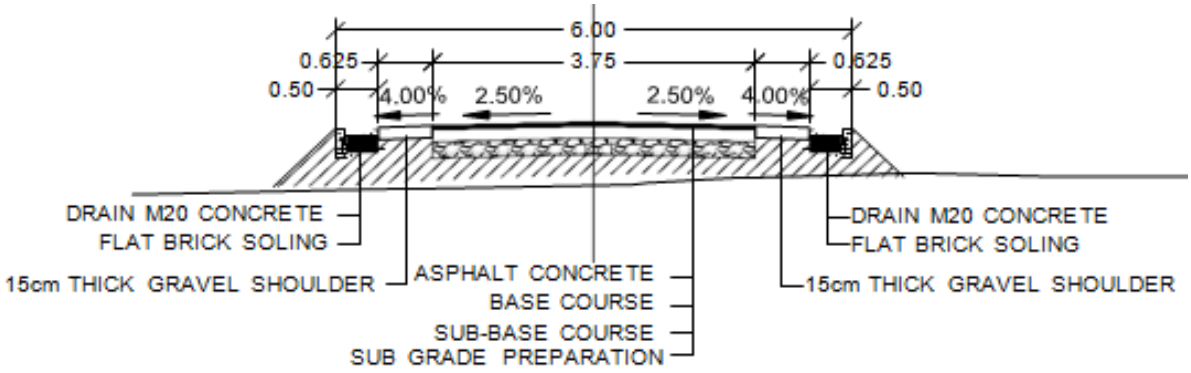
Road Class A for 12 m.



Road Class B for 12 m.

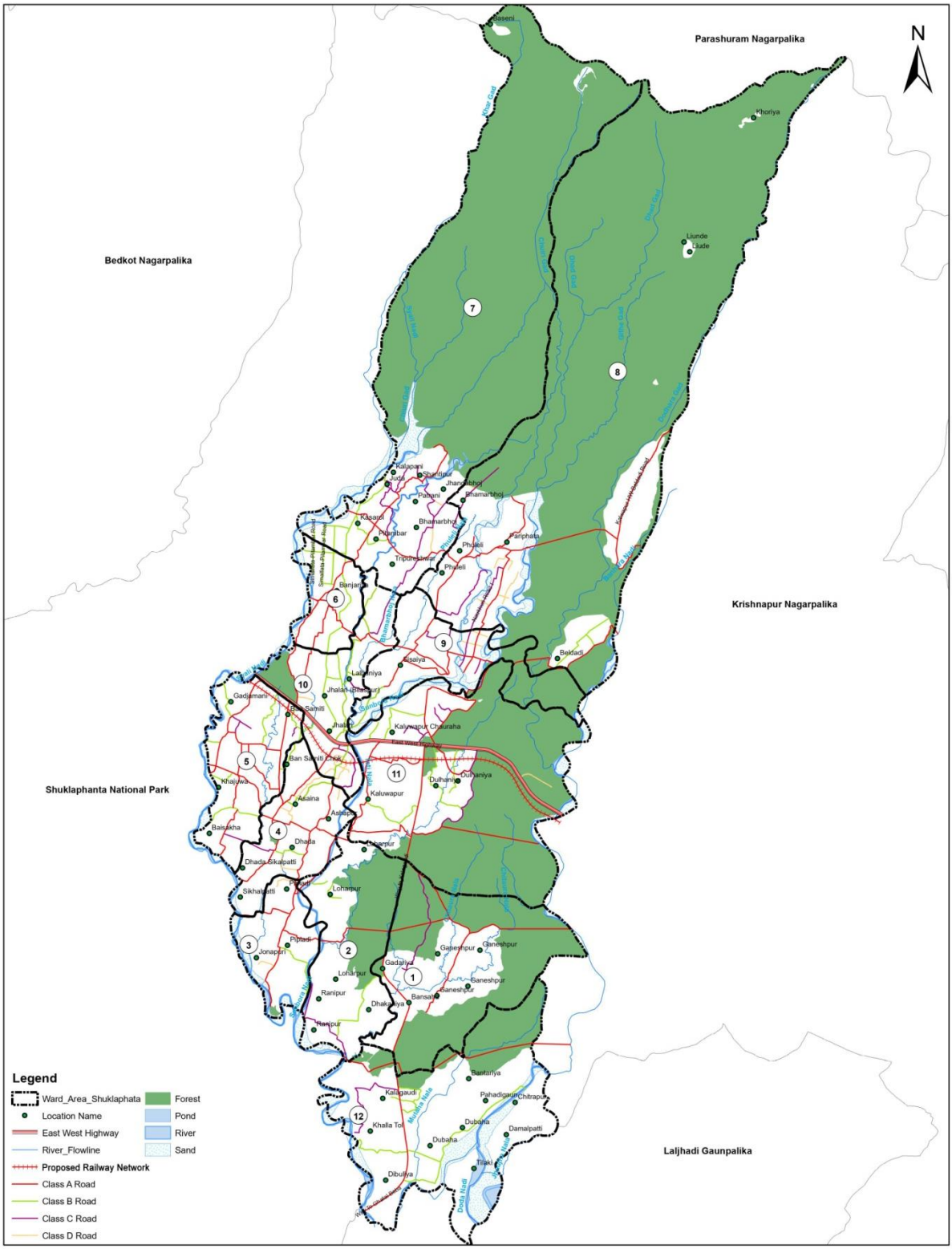


Road Class C for 12 m.



Road Class D for 6 m.

Figure 5.7 Proposed Road and Transportation Network



RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:-4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Batajoo Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:72000	COMPONENT: Urban Road	**Shuklaphanta Municipality** **Proposed Road Network**	DRG NO: **13**

5.7 Key Policy Proposals for Physical Plan Implementation

The planning policies perform the important role of translating the spatial development strategy (Refer Section 5.3, and Fig. 5.2) and land use proposals into the concrete programs/projects to be implemented within the plan period. In the context of Shuklaphanta, as the deliberations in the previous sections indicate, the planning policies need to respond to the developmental, regulatory and conservation aspects of the planning activities within the municipality. The Policy Components are presented below.

1. **Population Distribution Policy** (guided by density standards)

   Out of the envisaged total population growth of 166,420 and with the additional population increase of 107,500 by year 2043 from the year 2017 (pop.58,920).the population distribution would be as follows:

   i. Proposed commercial area and Mix use zone (Portion of Wards 9, 10 and 11) will accommodate the additional population of 30,000 by the year 2043 on a basis of the density 150 pph.

   ii. The urban expansion areas including the residential & rural settlement areas (Portions of Wards 4, 5, 6, 9, 10 and 11) would be accommodating additional 65,000 population with density100 pph.

   iii. The Agriculture zone (portions of Ward1, 2, 3, 7, 8 and 12) would be accommodating additional 12,500 population with density50 pph.

2. **Spatial Development Policies**

   i. Application of land development techniques (e.g. sites & services, guided land development & Land Pooling/Readjustment) would be the core elements of the spatial policies for development of new township and the satellite towns.

   ii. A series of physical development plans prepared at the Ward level and sub-ward levels would define the spatial development policies for development as well as for conservation/protection of environmentally sensitive areas prone to disaster and risk.

3. **Infrastructure Development Policies**

   i. Application of the DUDBC 'Planning Norms and Standards 2015' did provide the policy guidance 'for development and management of physical, social and economic infrastructure services in a planned manner', as well as for the identification of infrastructure development projects/programs (see Demand Analysis of Physical Infrastructures, Section 4.2 , and Norms and Standard Tables 4.6- 4.8).

   ii. The outputs and recommendations of the Infrastructure Master Plans related to Urban Roads and drainage did also provide a basis for formulation of infrastructure development policies for Shuklaphanta Municipality.

4. **Regulatory Policies**

   Provision of advisory support to Institutional Development Consultant (IDC): to review and amend the land use regulations (zoning, building byelaws and land sub-division regulation); and to come up with the implementation and monitoring mechanism for risk sensitive land use plan.

CHAPTER VI MULTI SECTOR INVESTMENT PROGRAM (MSIP)

6.1 General

The multi-sector investment projects/programs are being derived at on the basis of:

1) Urban development Projects within the Project Phase (2017-2023) as included in the Far Western RUDP (Vol. 4), PPTA, DFR, 2015
2) The outputs from the interactions during the planning workshop from the stakeholders representing the various sectors
3) Infrastructure Master Plan (Urban Roads) of Shuklaphanta Municipality, 2019
4) Storm water Drainage Master Plan of Shuklaphanta Municipality, 2019
5) DUDBC Planning Norms and Standards, 2015
6) The field visits and interactions

The execution of the RUDP consists of 5 phases including the project phase, and the other four phases consist of 5 years each covering the 20 years period from the year 2023 up to 2043.

6.2 Urban Development Projects within the Project Phase (2017-2023)

The RUDP project itself has a number of urban development subprojects to be executed within the project period e.g. urban roads, storm water drainage improvement, integrated solid waste management (ISWM), land pooling, and on site waste water management as well as fecal sludge management. These are given in the **Table 6.1** below.

Table 6.1 Urban Development Projects within the Project Phase (2017-2023)

S. N.	Sub-Projects/Programs	Ward Coverage	Remarks
1.	**Roads and Drainage Works**[2] Length 8 km Targeted Program 8 km urban roads, Foot Path 16 km, Storm Water Drainage 16 km	Wards 4, 9, 10 & 11	Targeted Program Under implementation Urban Roads 4.77 km; Roadside Drainage 5.07 km. Footpath 5.07 km Drainage 5.12 km
2.	**Waste Water Management** • Improvements of existing on-site waste water management • Small bore sewerage in centre	Serving households approximately 400 hh, Wards 10 & 11	
3.	**Integrated (3 R) Solid Waste Management** Integrated solid waste management (ISWM) system with landfill site	Serving 3400 households approx. 3, 4, 5, 6, 7, 10 & 11	Identified site for Landfill Site, located at less than 1km from East-West highway at Ward 11.
4.	Land Pooling Schemes	One Scheme	Approval of DPR*

Source: The PPTA Report ,Vol.4. 2015

Notes: *

- Proposed Sub-Projects for Group C (P7) Municipalities as of December 2019.
- See the details in Annex 2.1.Upgradation of Roads by RUDP.

Bio-road: A road connecting greens and forest around the municipality " Bio-Road" is proposed to enhance the circulation, green tourism which is one pf the potential of the municipality. The road is proposed to connect Kalapani- Pariphanta – KaluwapurChauraha - Kalagaudi road – RanipurBaisakha-Khajuwa- Kasorol

6.3 Investment Program for Urban Roads

6.3.1 Criteria for Selection of Urban roads

Infrastructure projects are prioritized based on availability of resources, time management and need of local people. After interaction/ consultation with Local level and communities, the basis for criteria of priority of roads connectivity is considered and as outlined below (**Table 6.2**).

- Provide connectivity to large settlement areas or population.
- Provide connectivity to high potential areas for agriculture, livestock and horticulture production etc.
- Provide access to commerce and business centers, market areas, tourism attractioncenter and agro-based and cottage industries etc.
- Provide service to health centers, education centers offices and communication centers.
- Provide service to the potential future development of hydropower, mines etc. as indicated in the IDPM.
- Provide connectivity to main Highway and DDC level roads.

Table 6.2 Criteria for selection of Priority Road Projects

Priority	Criteria		
	Connectivity	Services	Settlement
Priority1 (P1)	SRN, DRCN	• Existing Commerce and business centers, Market areas, Tourist areas and having agro-based and cottage industries. • High potential area for Agriculture, Horticulture, Livestock production and another necessary service	Large settlement or populated
Priority2(P2)	SRN, DRCN	• Existing commerce and business centers, market areas, tourist areas, and having agro-based and cottage industries • Potential areas for future development sites for hydropower development and mines etc.	Large settlement or populated
Priority3(P3)	SRN, DRCN	• Special social consideration centre. • Population served by service centers.	Large settlement or populated
Priority4(P4)	SRN, DRCN	• Future development sites for hydropower development and mines etc.	Large settlement or populated

Source: RUDP, Infrastructure Master Plan (Urban Road) of Bheemdatta Municipality, 2019

6.3.2 Prioritized Urban Road on Phase wise Basis

Infrastructure Master Plan (Urban Roads) of Shuklaphanta Municipality 2019 prioritizes urban roads of different classification on the phase wise basis (P1-P4) according to the Urban Expansion Areas (Section 5.4 & Fig.5.3) and **Table 6.2** shows the criteria for priority road projects. Prioritized urban roads are shown in Table 6.3 and the Figures 6.1- 6.4.

Table 6.3 Prioritized Urban Roads: Total Lengths

S. N.	Urban Road Classification	Priority/ Year				Total length km	Remarks
		P1 2023-28	P2 2028-33	P3 2033-38	P4 2038-43		

1	Class- A	29.97	38.45	34.60	7.98	111.0	Figure in parenthesis refers to the roads construction to be completed during the Project Phase (2017-22)
2	Class- B	15.68	14.82	12.20	7.57	50.27	
3	Class- C	8.08	10.72	16.36	2,43	37.59	
4	Class- D	3.79	4.52	0.84	0.00	9.15	
	Total	**57.52**	**68.51**	**64.00**	**10.00**	**208.01**	

Source: RUDP, Infrastructure Master Plan (Urban Road) of Shuklaphanta Municipality, 2019

6.3.3 Prioritized Urban Roads: Investment Requirements

The Investment Program for the Priority Urban Roads extends for twenty years in four phases as shown in **Table 6.4**. The Kachanpur District Rate (F/Y 2018/19 as the base year) is being applied for the estimation of the priority roads. The Municipality will have to collaborate with the concerned line agencies/ Development Partners for allocation of resources as well as for efficient implementation of the project.

Table 6.4 Investment requirements for Priority Urban Roads

S. N	Activities	Unit	Qty.	Rate/ unit NRs. M.	Amount NRs. M.	Investment Year			
						P1 2023-28	P2 2028-33	P3 2033-38	P4 2038-43
A.	**Up gradation of Urban Road**								
1	Class- A	km	111.0	113.67	7,891.76	2130.77	2733.68	2459.95	567.35
2	Class- B	km	50.27	77.96	1,904.65	594.09	561.51	462.24	286.82
3	Class- C	km	37.59	31.84	1,066.53	229.25	304.16	464.18	68.95
4	Class- D	km	9.15	22.60	230.95	95.66	114.08	21.20	0.00
	Total		**208.01**		**11,093.89**	**3049.78**	**3713.42**	**3407.57**	**923.11**

Source: RUDP, Infrastructure Master Plan (Urban Road) of Shuklaphanta Municipality, 2019

6.4 Investment Program for Storm Water Drainage

The Storm Water Drainage Master Plan of Shuklaphanta Municipality, 2019 prioritizes storm water drainage network on the phase wise basis (P1-P4) according to the Urban Expansion Areas (Section 5.4 & Figure 5.3), and the **Table 6.5** given below shows the priority storm water drainage network (length and sizes) for the municipality. The proposed drainage network is shown in **Figure: 6.5**.

Table 6.5 Prioritized Urban Drainage: Total lengths

S. N	Drain Width m.	Priority/ Year				Total length km.
		P1 2023-28	P2 2028-33	P3 2033-38	P4 2038-43	
1.	0.6	92.62	75.57	51.24	18.68	238.17
2.	0.8	34.48	26.27	15.93	5.48	82.16
3.	1	29.11	18.26	13.36	5.83	66.57
4.	1.2	17.36	13.04	12.95	5.34	48.76
5.	1.5	6.69	3.50	4.03	4.17	18.39
6.	1.8	2.80		0.61	5.95	9.27
Total		**183.09**	**136.65**	**98.15**	**45.52**	**463.32**

Source: RUDP, Storm Water Drainage Master Plan of Shuklaphanta Municipality, 2019

The RCC rectangular section is proposed for the open channel storm water drainage. The proposed projects are grouped into four priority levels (P1-P4). Priority projects are anticipated to be implemented for a period of next 20 years as P1 (5 years), P2 (5-10 years), P3 (10-15 years) and P4 (15-20) years. The total length of proposed storm water drainage is about 463.32km.Out of the total length P1 (225km) in Phase 1, about 135.65Km. Drain proposed in PPTA Storm Water Drainage Projects is given in **Table 6.6.**

Table 6.6 Proposed drainage (P1)in PPTA Road Projects

S. N	Name of Road	Drain Name	Length km.	Under Implementation
1	Pipladi Road	M1	5.06	
2	Kalapani Road	M2	6.5	
3	Phuleli Road	M3	2.7	
4	Landfill side access road	M4	1.3	
Total Drainage			**15.56**	**5.07 km**

The Investment Program for priority Strom water drainage Network is shown in the **Table 6.7** and comes out to **NRs. 10,621.73** Million.

Table 6.7 Proposed drainage: Lengths and Investments required

S. N	Description	Investment Year				Total Cost
		P1 2023-28	**P2 2028-33**	**P3 2033-38**	**P4 2038-43**	
1.	Length km.	183.09	136.65	98.15	45.52	
2.	Cost NRs. (M.)	4,154.977	3,014.967	2,250.433	1,201.351	10621.728

Source: RUDP, Storm Water Drainage Master Plan of Shuklaphanta Municipality, 2019

6.5 Proposed Other Urban Infrastructure Development Programs

Apart from the Investment Programs in the Urban Roads and Drainage sectors presented above (Sections 6.2-6.4), the other infrastructure components are equally important for Shuklaphanta LTUDP Implementation. Those program components are being derived at from the 'Demand Analysis of Physical, Social and Economic Infrastructures' (**Table 4.6 - Table 4.8**) and is given in **Table 6.8** (based on DUDBC Planning Norms and Standards, 2015). The detail design and estimation of other infrastructures would be done during the implementation of the LTUDP, hence investment required is calculated on the basis of random estimation and might not be entirely correct. The details are given in **Annex 3**: Proposed Urban Development Features/ Proposed Infrastructure, and in the **Figure 6.6:** Proposed Urban Development Features.

Table 6.8 Proposed Other Urban Infrastructure Development Components

S.N.	Proposed Other Urban Infrastructure Sub-Projects/Programs.	Investment Required in million	P1 2023-28	P2 2028-33	P3 2033-38	P4 2038-43	Remarks
A	**Physical Infrastructure + Land Development.**						
A.1	Initiating Land pooling Schemes (4 Nos)	25 M	X	X	X	X	
A.2	Bus Park (1 No)	15 M	X	-	-	-	
A.3	Bio-Road (Ring Road)	25 M	X	X	X	-	
A.4	River Training / Flood control	20 M	X	X	X	X	
B	**Social Infrastructure**						
B.1	Hospital (1 No)	30 M	-	X	-	-	
B.2	Open spaces / Recreational areas (4 No)	40 M	X	X	X	-	
B.3	Fire brigade station (1 No)	6 M	X	-	-	-	
B.4	Cremation / Ghat (1 No)	15 M	X	X	-	-	
B.5	Police Post (1 No)	6 M	X	-	-	-	
B.6	Senior Citizen home / Orphan / Sanatorium (1 No)	10 M	-	X	-	-	
C.	**Economic Infrastructure**						
C.1	Sports complex (1 No)	30 M			X	-	
C.1	Vegetable market (1 No)	10 M	X	X	X	-	
C.2	Cold storage (1 No)	15 M	X	X	-	-	

Table 6.9 Investment Requirement for Urban Infrastructure (NRs.M.)

S.N.	Description	Amount (NRs.) M.	Amount (US$) M.
1	Priority Urban Road	11,093.89	93.09
2	Storm Water Drainage	10,621.728	89.13
3	Other Physical Infrastructure	85	0.55
4	Social Infrastructure	107	0.89
5	Economic Infrastructure	55	0.46
	Total	**21,962.62**	**179.30**

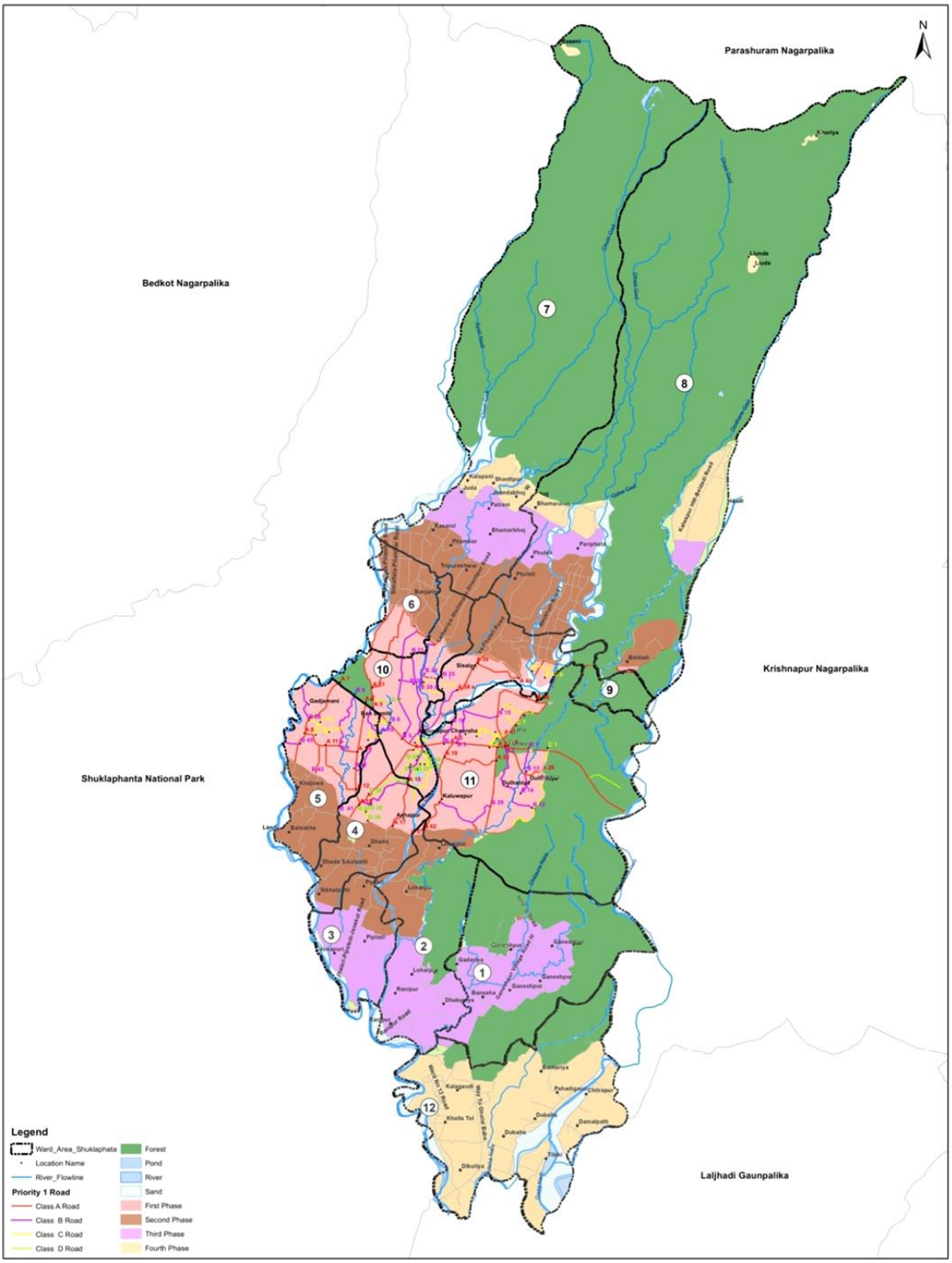
6.6 Responsibility Matrix

The Responsibility Matrix indicates the activities and a list of the responsible organizations entrusted with financing, making land available and monitoring and given in **Table 6.10**.

Table 6.10 Responsibility Matrix

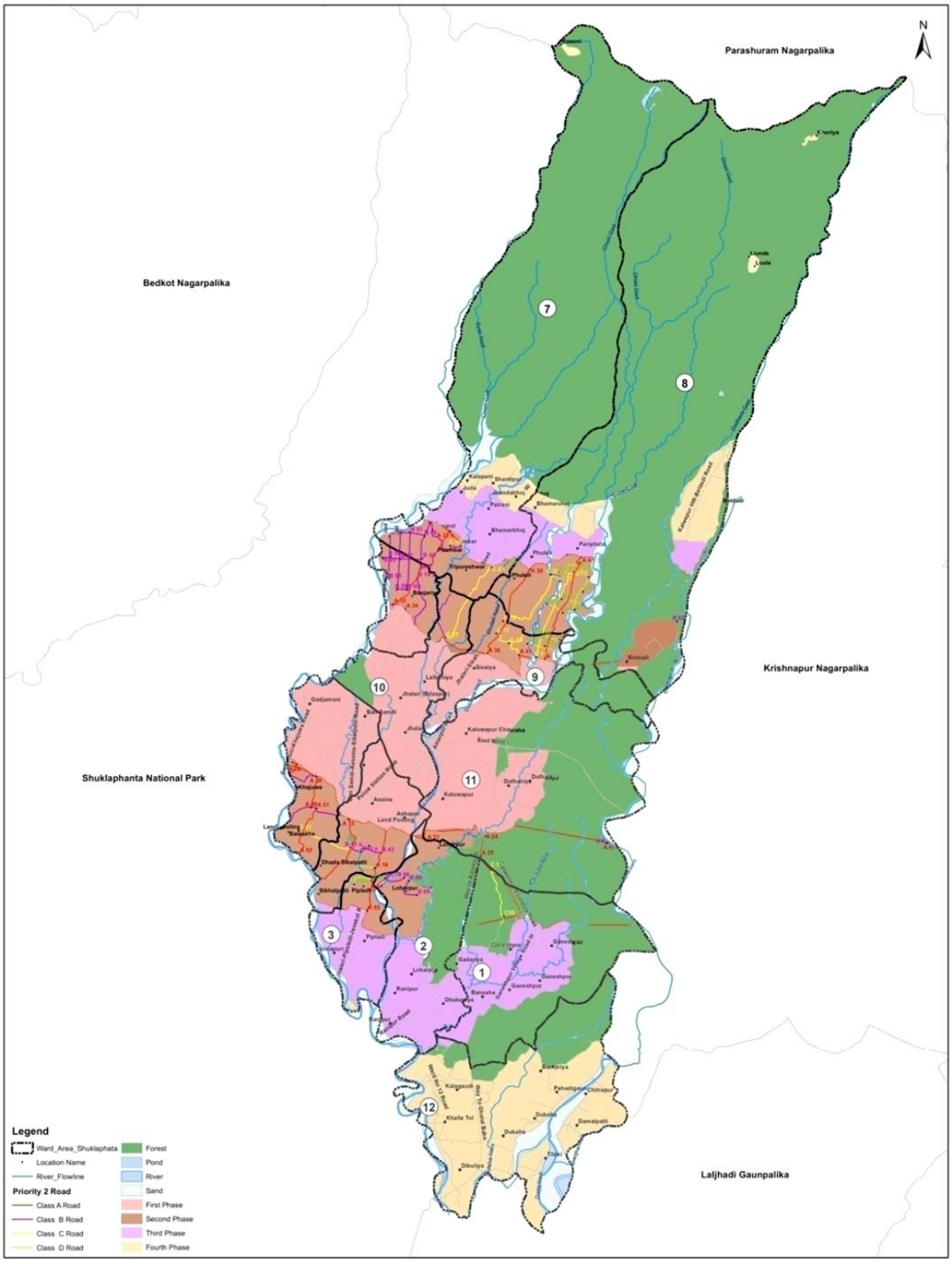
S.N.	Activities	Responsible organization		Remarks
		Making Land available	Funding	
1.	Bus Park	Municipality	TDF / MoFGA	
2.	Up gradation of Roads	Municipality	Municipality, DUDBC	
3.	Bio-Road	Municipality	Municipality, TDF	
4.	Land Pooling programme	Municipality	RUDP - Sudurpaschim Province,	
5.	Municipality office building	Municipality	RDUP-Sudurpaschim Province, MoFALD, Municipality	
6.	Open Spaces/Parks	Municipality	MoFGA, Municipality	
7.	Fire Brigade	Municipality	MoFGA	
8.	Hospital	Municipality	Department of Health	
9.	Integrated Solid Waste Management	Municipality / Forest Office	Municipality / DUDBC	
10.	Vegetable Market	Municipality	Municipality / TDF	PPP model can be adopted in association with Chamber of Commerce
11.	Cold Storage	Municipality	Municipality/TDF	-do-
12.	Funeral Place	Municipality	Municipality/TDF	
13.	Police Post	Municipality	Department of Police	
14.	Erosion reduction and control	Municipality	Water induced disaster risk prevention office / municipality	
15.	Senior Citizen Home	Municipality	MoFALD	

Figure 6.1 Proposed Road Network P1



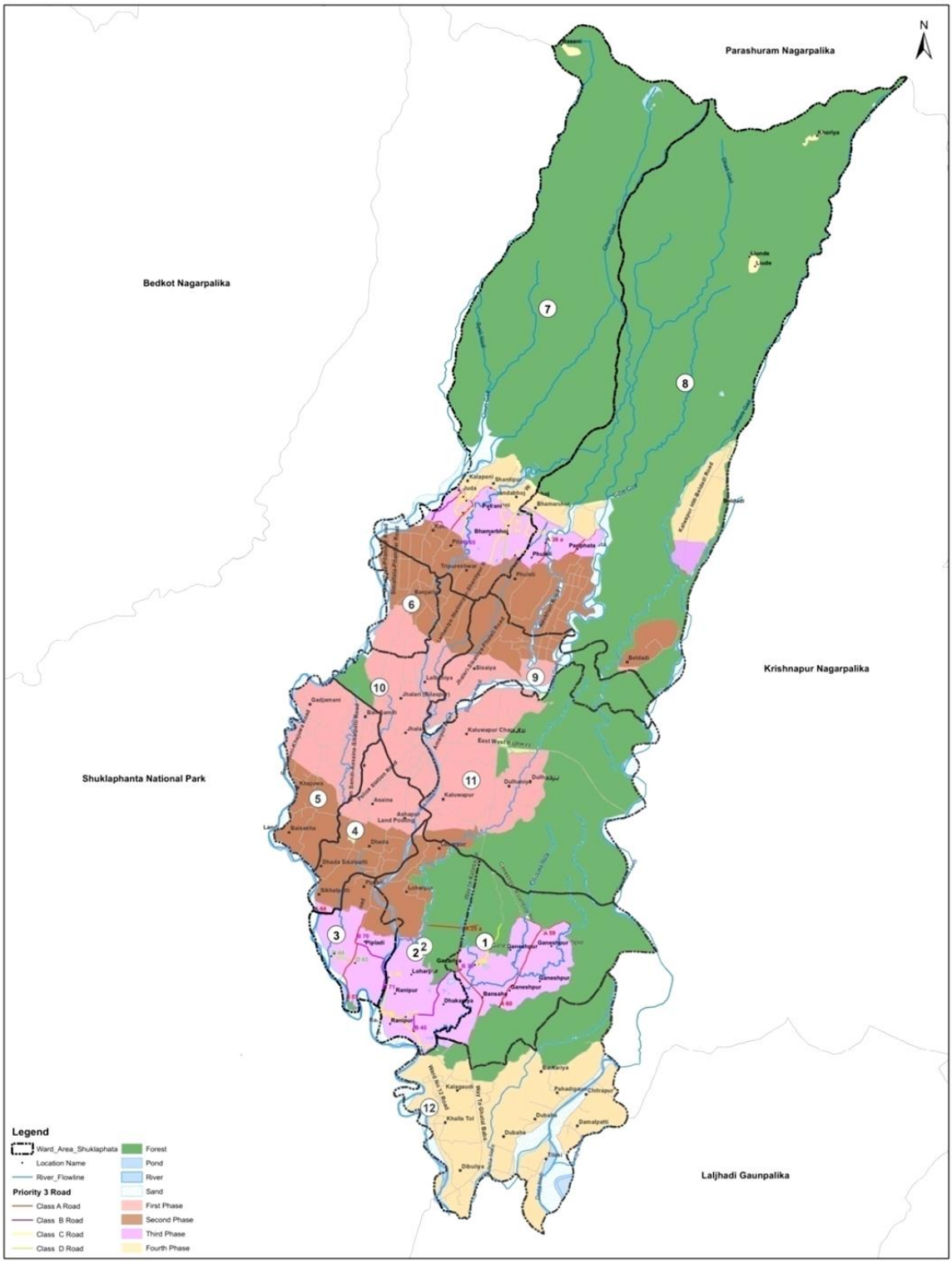
RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Road Expert: A.K.Bataj00 Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Road	**Infrastructure Master Plan (Urban Road)** **Shuklaphanta Municipality** **Priority 1 Road**	DRG NO: **14**

Figure 6.2 Proposed Road Network P2



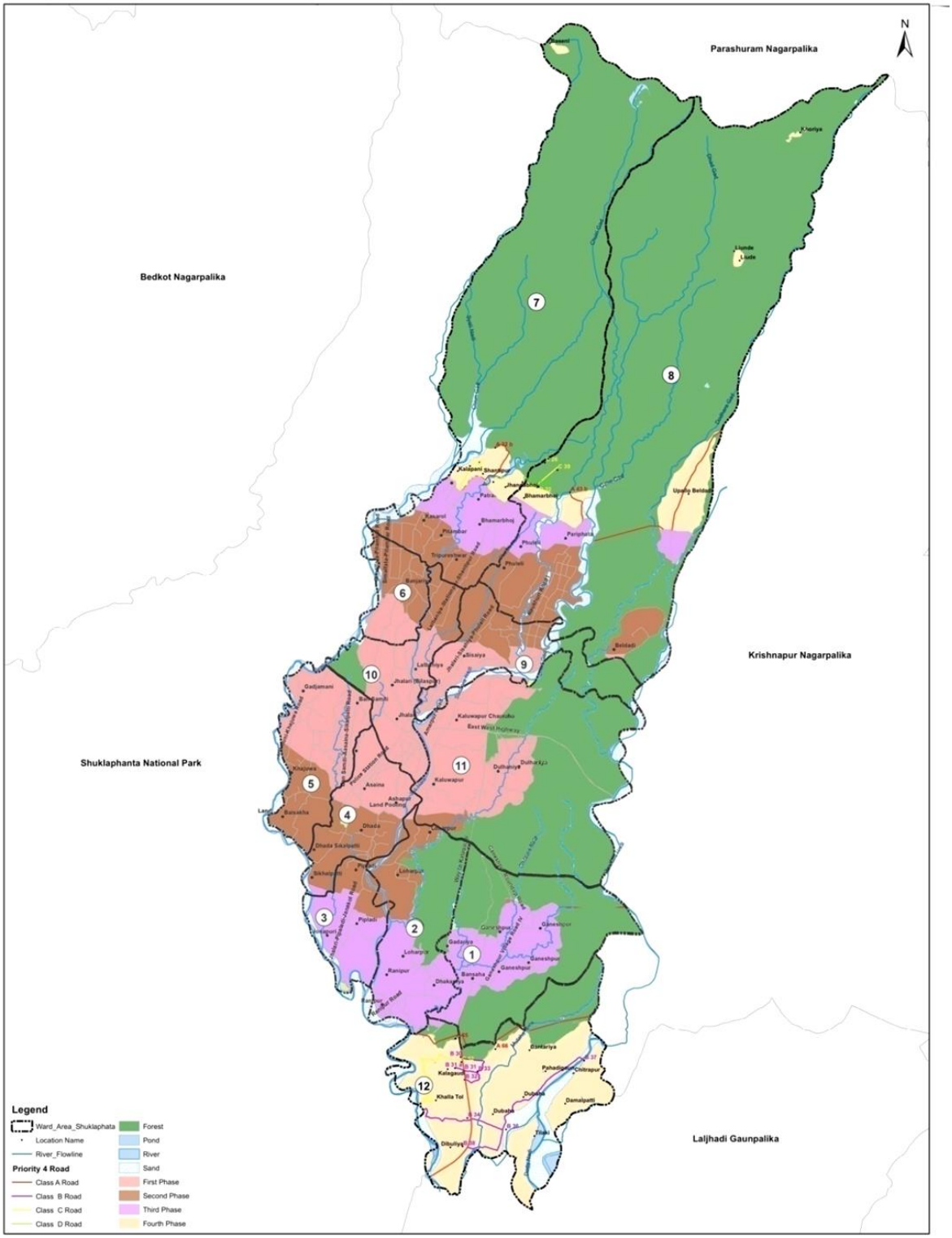
RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Bataj00 Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Road	**Infrastructure Master Plan (Urban Road)** **Shuklaphanta Municipality** **Proposed Road Network - Priority 2 (P2)**	DRG NO: **15**

Figure 6.3 Proposed Road Network P3



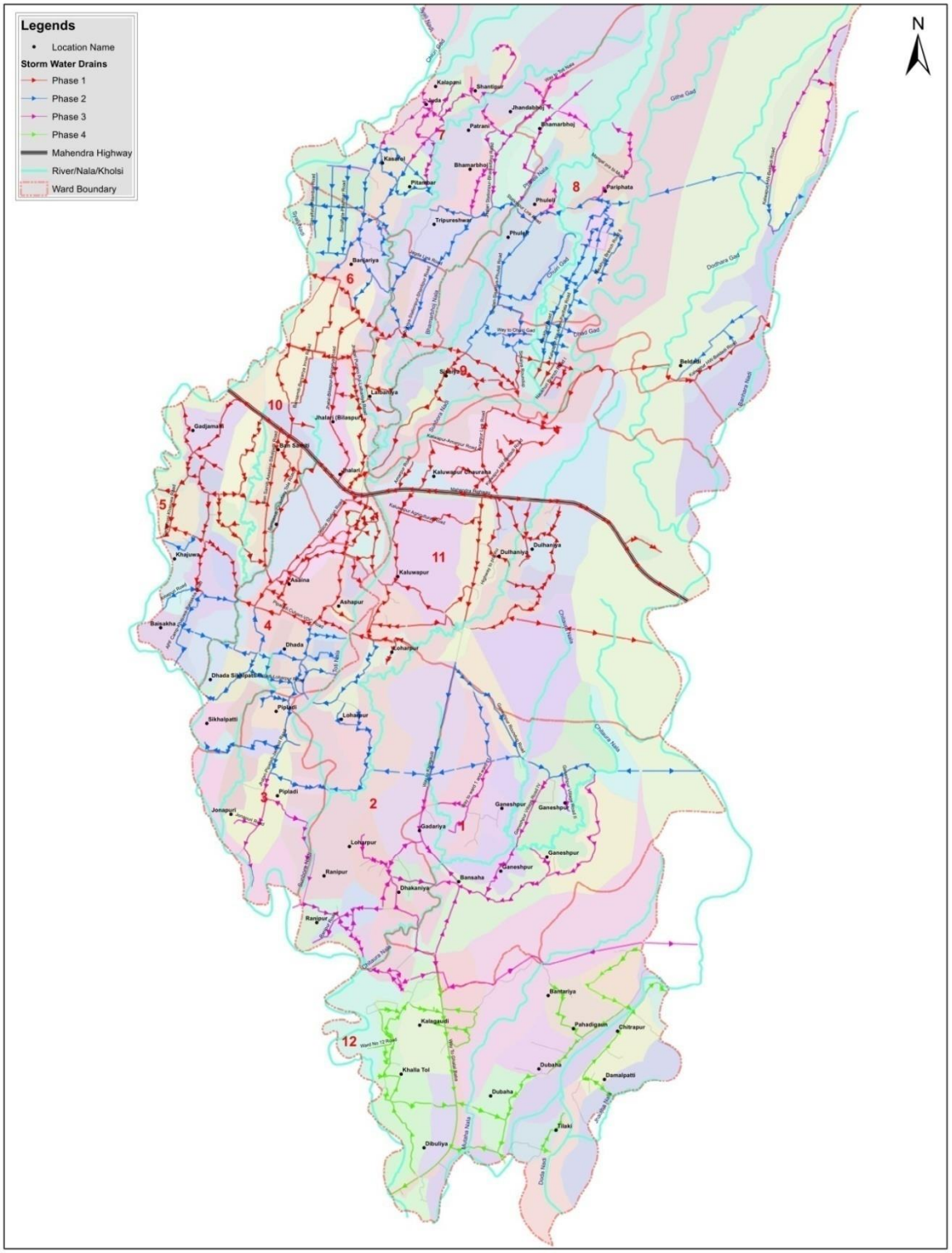
RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Bataj00 Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Road	**Infrastructure Master Plan (Urban Road)** **Shuklaphanta Municipality** **Proposed Road Network - Priority 3 (P3)**	DRG NO: **16**

Figure 6.4 Proposed Road Network P4



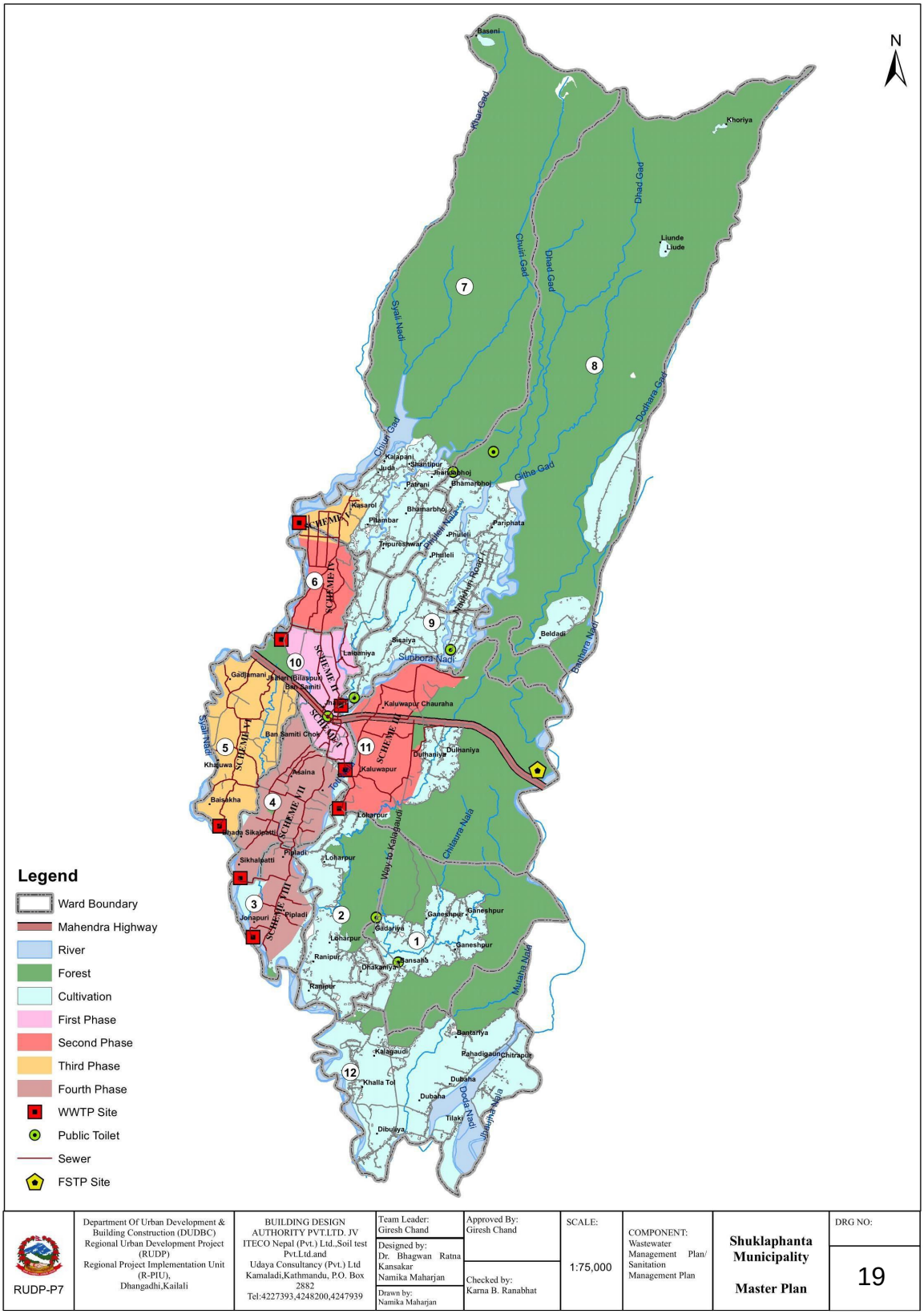
RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227593,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Batajoo Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Road	**Infrastructure Master Plan (Urban Road)** **Shuklaphanta Municipality** **Proposed Road Network - Priority 4 (P4)**	DRG NO: **17**

Figure 6.5Proposed Priority Drainage Network- P1, P2, P3 and P4



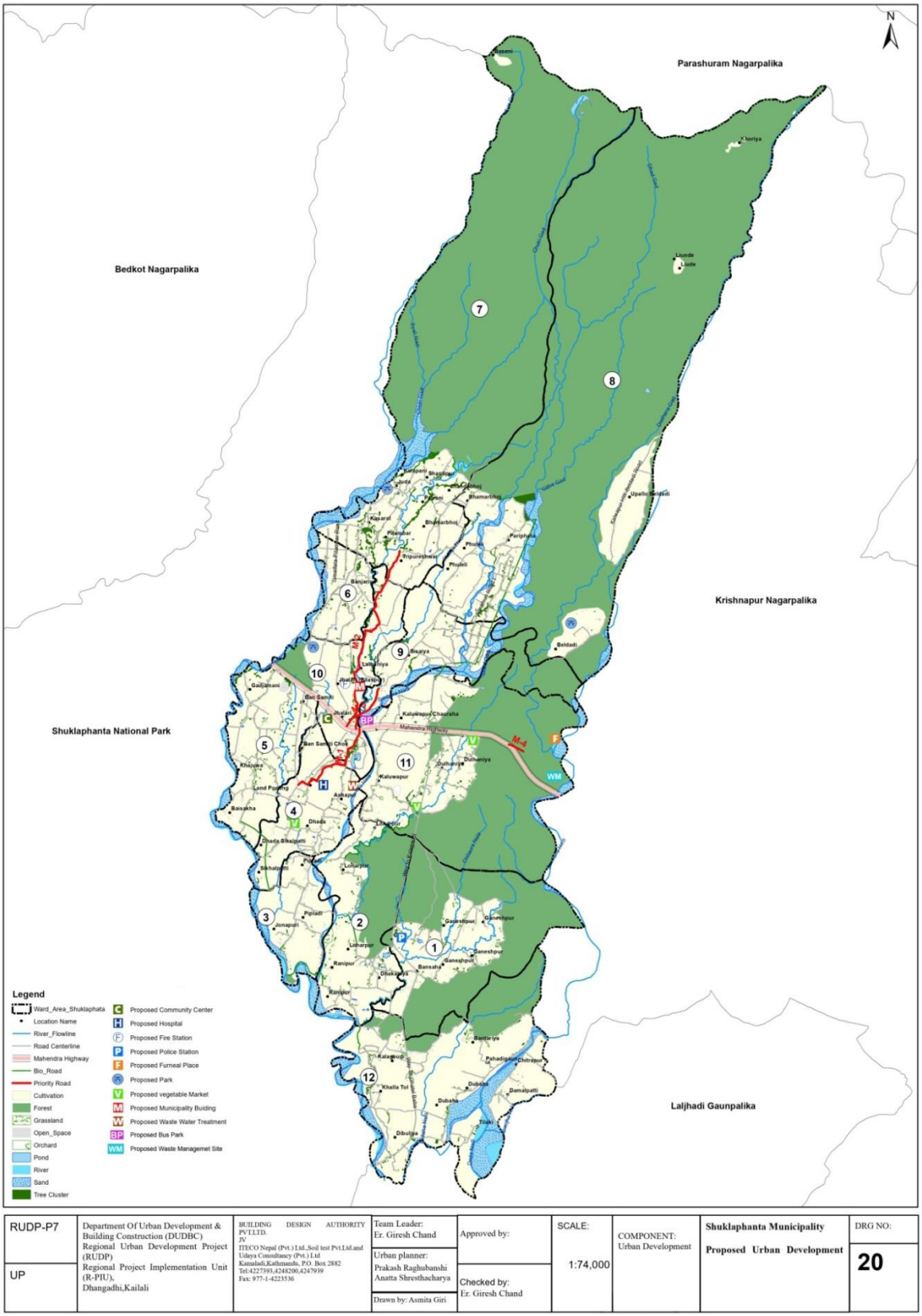
RUDP-P7 SWD	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Shuklaphanta, Kanchanpur	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd., Soil test Pvt.Ltd. and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Prepared By: Lakshmi Nath Nepal Sanjay Khadka Drawn by: Ranjita	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:48,000	COMPONENT: Master Plan of Storm Water Drains Drawing Title: Phasing of Drain	**Infrastructure Master Plan (Urban Drainage)** **Shuklaphanta Municipality** **Phasing of Drainage Network**	DRG NO: **18**

Figure 6.6Proposed Priority Drainage Network- P1, P2, P3 and P4



RUDP-P7	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939	Team Leader: Giresh Chand Designed by: Dr. Bhagwan Ratna Kansakar Namika Maharjan Drawn by: Namika Maharjan	Approved By: Giresh Chand Checked by: Karna B. Ranabhat	SCALE: 1:75,000	COMPONENT: Wastewater Management Plan/ Sanitation Management Plan	**Shuklaphanta Municipality** **Master Plan**	DRG NO: 19

Figure 6.7 Proposed Urban Development Features



CHAPTER VII PLAN IMPLEMENTATION, MONITORING PROPOSALS & RECOMENDATIONS

7.1 Plan Implementation: Proposed Programs

The 'Physical Development Plan' proposals (Ch.5) and the 'Multi-sectoral Investment Programs' (Ch. 6) provide a basic policy and program/project framework for Shuklaphanta LTUDP implementation covering a period of 20 years up to 2043. Supported by the key planning policy, phasing and land use/transportation proposals the plan implementation essentially need to focus on the execution of the following programs which cover the developmental, regulatory and conservation aspects:

a) Land Development Programs focused on execution of land pooling projects.
b) Integrated Urban Infrastructure Development Programs which could be a continuation of the present RUDP program.
c) Planning and Building Bye-Laws Design and Execution as a Regulatory Framework Component.
d) Environment Conservation Program focused on Shivalik Belt and Rivers/Lakes.

7.2 Plan Implementation: Institutional and Legal Mechanisms

The Constitution of Nepal, 2015 outlines exclusive and concurrent competencies of Local Government. Local level are being categorized as Metropolitan, Sub metropolitan, Municipality and Rural municipality and their functional roles have been defined in the constitution through Local Government Operation Act (LGOA), 2018 and local governments' laws. Functional role of the Local level includes law making for the function assigned by the constitution 2015, policy making, planning, budgeting, implementing and monitoring of priority programs.

As per the provision of LGOA, implementation of the development plan (LTUDP) and its monitoring are within the jurisdictions of the concern municipality. The municipality could reconstitute the Town Development Committee (TDC) under the chairmanship of the Mayor through the provision of the Town Development Act 1988 and Amendments. However, considering the present capability of the municipality it is suggested to provide technical support/guidelines/standards from DUDBC. During the project phase the Project Implementation Support Unit (PISU) and RPIU office with the technical support from Institutional Development Consultants (IDC) could be activated to provide needed technical assistance to the reconstituted TDC. A monitoring mechanism is suggested to form in association with DUDBC, respective province and the municipality.

7.3 Outputs of Institutional and Financial Management Component of RUDP

Out of the 14 outputs entrusted to Institutional Development consultants (IDC), the following outputs (ADB, 2017) seem related to the program implementation as stated above:

1. Organization and management survey report **(Output 5)** which gives due emphasis to strengthening and development of the technical section within the restructured municipal organization.

2. Implementing building bylaws and national building code to strengthen urban planning in the municipality **(Output 6).**
3. Develop environmental management capacity in the municipality **(Output 11).**
4. Execution of Revenue Improvement Action Plan **- RIAP (Output 1 & 2)**

Those IDC outputs need to be given due consideration for successful execution of the program components as stated in 7.1 which is directly related to the LTUDP implementation,

7.4 Monitoring

A monitoring body consisting of the municipality's related section, DUDBC's regional office and the concerned stakeholders could be constituted to overlook the progress of the LTUDP implementation. The approved LTUDP has to link with annual plan and program and budget to make LTUDP happen. The body would be required to report to the municipality about the findings and present the constructive suggestions regarding the implementation of the LTUDP.

Following table suggests the tentative framework for monitoring of the prime activities. The activities could be refined and modified as required in the implementation process.

Table 7.1 Proposed monitoring Plan and Frequency

S. No.	Description	Monitoring / Review
1	Approval of Land use Policy from Municipality	Every 5 years
2	Implementation and revision of planning bye laws	Every 5 years
3	Implementation and revision of building bye laws	Every 5 years
4	Numbers of Building permits and status	Bi annually
5	Coordination with stake holders	Quarterly, as required
6	Provision of budget in planned area	Bi annually
7	Progress of physical works	Quarterly
8	Other activities	As required

7.5 Concluding Remarks

1. Since the Municipality is likely to experience the population influx within the next few years to come, due process is to be undertaken to give a formal approval to the LTUDP after a review by the Municipal Board for its speedy execution. The land development programs as included in the Investment programs (Chapter 6) need to be given urgent priority for execution.
2. The Municipality has a potential of organic farming, green tourism and industries based on non-timber forest product (NTFP). Thus, it is suggested to capitalize on above mentioned potentials with proper coordination among concerning agencies.
3. Since Northern area of the municipality, being located in the Siwalik range with the presence of the forest is very vulnerable. Thus this belt should be protected preserved as the watershed area. Similarly, the river protection works need to be given due priority as disaster prevention measures.
4. Due emphasis need to be given to institutional reforms and strengthening particularly, in urban planning and implementation, of the municipal government. As the municipality is

new, its institutional capacity is very weak. The IDC's role and/or technical assistance would be very crucial.

5. The cooperation with, and setting up of a consultative mechanism with DUDBC, the national planning commission and the concerned ministry of the provincial government would be highly desirable in the implementation process of the LTUDP. This seems very crucial for the realization of the development vision set for the municipality.
6. There is a need of an Apex body at the sub-regional level (Bheemdatta – Dhangadhi Growth Corridor) in coordination with the provincial government (Sudurpaschim Pradesh) that could be entrusted with the overall coordination and technical assistance to the project municipalities for the LTUDP implementation.

REFERENCES

1. ADB (2017). Project Administration Manual (PAM). Nepal Regional Urban Development Project (Project No. 47252-002). AND/GoN, Kathmandu.
2. Burby, R. J. (1999).**Unleashing the Power of Planning to create Disaster-resistant Communities.** Journal of the American Planning Association.
3. Building Design Authority -BDA (2019). Infrastructure Master Plan (Urban Roads) of Shuklaphanta Municipality: Final Report. RUDP/DUDBC/MoUD/GoN, Kathmandu.
4. Building Design Authority -BDA (2019). Storm water Drainage Master Plan of Shuklaphanta Municipality: RUDP/DUDBC/MoUD/GoN, Kathmandu
5. Building Design Authority -BDA (2018). Conceptual Plan of Integrated Solid Waste Management of Shuklaphanta Municipality: RUDP/DUDBC/MoUD/GoN, Kathmandu.
6. Central Bureau of Statistics - CBS, (2013). **National Population and Housing Census 2011**, **(Caste, Ethnicity & Language**) NPHC 2011. National Planning Commission Secretariat, Kathmandu.
7. Central Bureau of Statistics - CBS, (2014). **National Population and Housing Census 2011**, **(Village Development Committee/ Municipality**) Volume 6, National Planning Commission Secretariat, Kathmandu.
8. Central Bureau of Statistics- CBS (2014). **Population Monograph of Nepal, Volume III**, National Planning Commission Secretariat, Kathmandu.
9. Central Bureau of Statistics (2017).**Local Level Profile**.Statistics office, Kanchanpur.
10. Choe, K. and Pradhan, P. (2010). Unleashing Economic Growth: Region-Based Urban Development Strategy for Nepal. Asian Development Bank, Manila.
11. CEM/METKON/APTEC (2014). 'Mainstreaming Climate Change Risk Management in Development (MCCRMD): Urban Sector Synthesis Report' (TA 7984 NEP). MOSTE/GoN/ ADB, Kathmandu.
12. Dahal R.K., (2010), **Engineering Geology of Nepal**, published in personal home page www.ranjan.net.np.
13. Department of Housing and Urban Development (1994). Integrated Action Plan of Dhulikhell Municipality, Kathmandu.
14. Department of Urban Development and Building Construction (DUDBC) - (2015) **Planning Norms and Standard, 2015**. DUDBC/MoUD/GoN. Kathmandu
15. DUDBC (2016). Periodic Plan of Jhalari – Pipaladi Municipality. GoN, Kathmandu.
16. DUDBC (2010). **Urban Environmental Management Guidelines**. (In Nepali). MPPW/GoN, Kathmandu.
17. Dr. Bikram Tamang (NA). 'Looking into Chure ecosystem: Science –based understanding. The Himalayan Times, Kathmandu
18. Earthquakes and Megacities Initiative- EMI (2010).Mainstreaming Disaster Risk Reduction in Megacities: A Pilot Application in Metro Manila and Kathmandu, Risk Sensitive Land Use Plan, Kathmandu Metropolitan City, Nepal.
19. EMI (2011). Risk Sensitive Land Use Plan, Kathmandu Metropolitan City: A Draft Consolidated Report. GoN/KMC/UNDP/NSET, Kathmandu.
20. Jha, A.K., T.W. Miner and Z. Stanton-Geddes, (2013). **Building Urban Resilience: Principles, Tools and Practice.** The World Bank

21. Mark R. Stevens, Philip R. Berke, &Yan Song,(2010). **Creating disaster-resilient communities: Evaluating the promise and performance of new urbanism.** Landscape and Urban Planning, International Journal, Vol. 94, Elsevier,

22. Ministry of Land Reform and Management (MoLRM)(2015).**National Land use Policy 2015**. Government of Nepal (GoN), Kathmandu.

23. Ministry of Home Affairs – MoHA (2015). **Nepal Disaster Report 2015.**Government of Nepal (GoN), Kathmandu,

24. Ministry of Urban Development (MoUD) (2017).**National Urban Development Strategy, 2017**. Government of Nepal (GoN), Kathmandu.

25. Moonligt Civil Solution P. Ltd, (2016). Municipal Transport Master Plan (MTMP) of JhalariPipaladi Municipality, Kathmandu,

26. NPC/ADB (2007). Regional Development Strategy; Draft Final Report (Region 1: Dhangadhi.)GoN, Kathmandu

27. Tara Gaon Development Board (2000). Feasibility Study on Developing Mahendranagar as Tourism Hub-Center including Land Use Plan. Ministry of Tourism & Civil Aviation, Kathmandu.

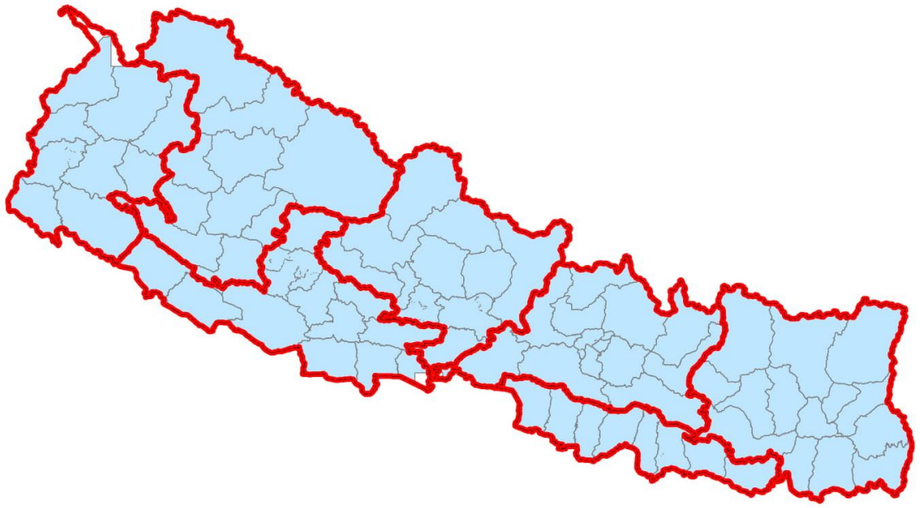
28. The PPTA Team (2017). Technical Assistance Consultant's Report - Nepal: Far Western Region Urban Development Project, Volumes 1 & 2. (PPTA 8817-NEP). DUDBC/MoUD/ADB, Kathmandu

29. *UDLE (1995). Integrated Action Plan. DHPP/UDLE/HMGN, Kathmandu.*

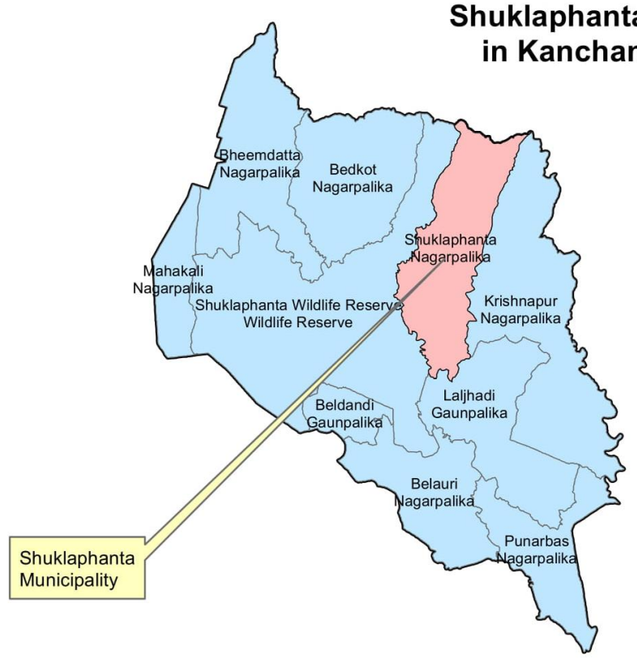
30. World Bank and EMI 2014. **Risk-Sensitive Land Use Planning Guidebook**. Bangladesh Urban Earthquake Resilience Project.

Annex A: Maps

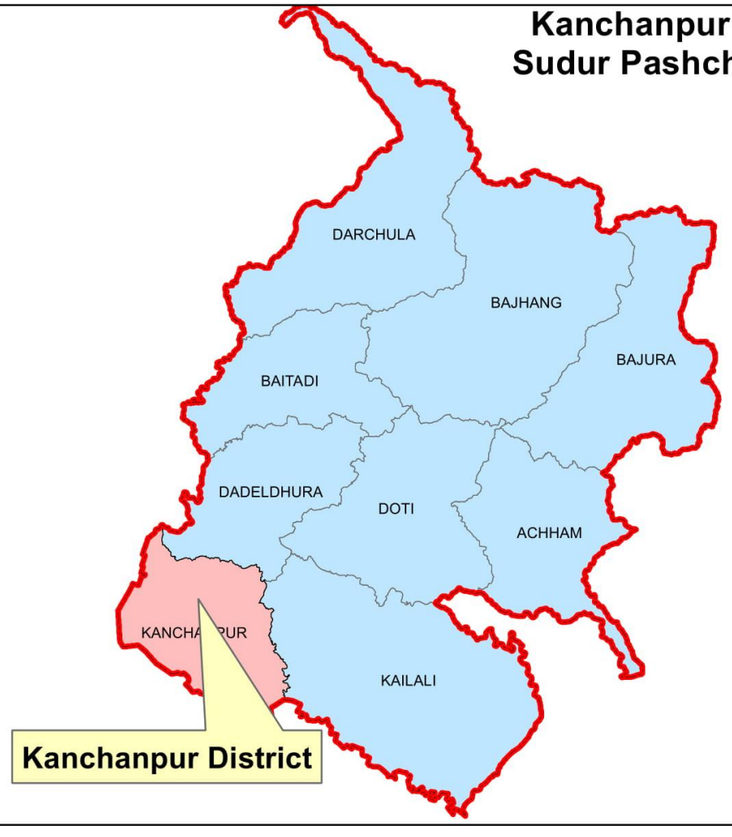
Province with District



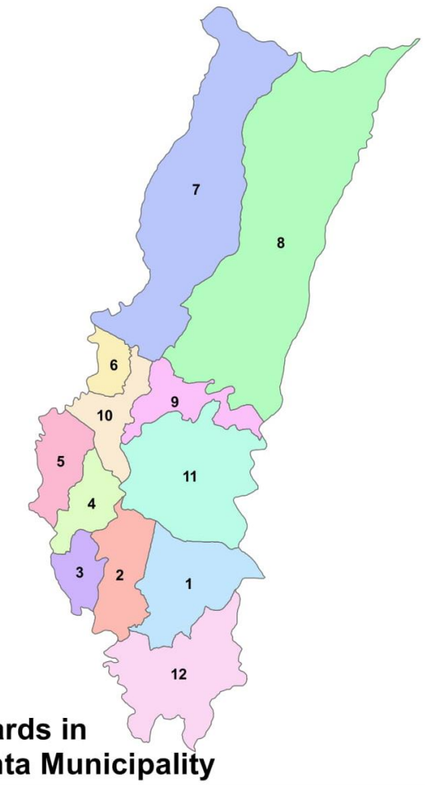
Shuklaphanta Municipality in Kanchanpur District



Kanchanpur District in Sudur Pashchim Pradesh



Wards in Shuklaphanta Municipality



RUDP-P7

UP

Department Of Urban Development & Building Construction (DUDBC)
Regional Urban Development Project (RUDP)
Regional Project Implementation Unit (R-PIU),
Dhangadhi,Kailali

BUILDING DESIGN AUTHORITY PVT.LTD.
JV
ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and
Udaya Consultancy (Pvt.) Ltd
Kamaladi,Kathmandu, P.O. Box 2882
Tel:4227393,4248200,4247939
Fax: 977-1-4223536

Team Leader: Indra Paudyal

Urban planner:
Narayan Pd. Khanal

Drawn by:
Asmita Giri

Approved by:

Checked by: Indra Paudyal

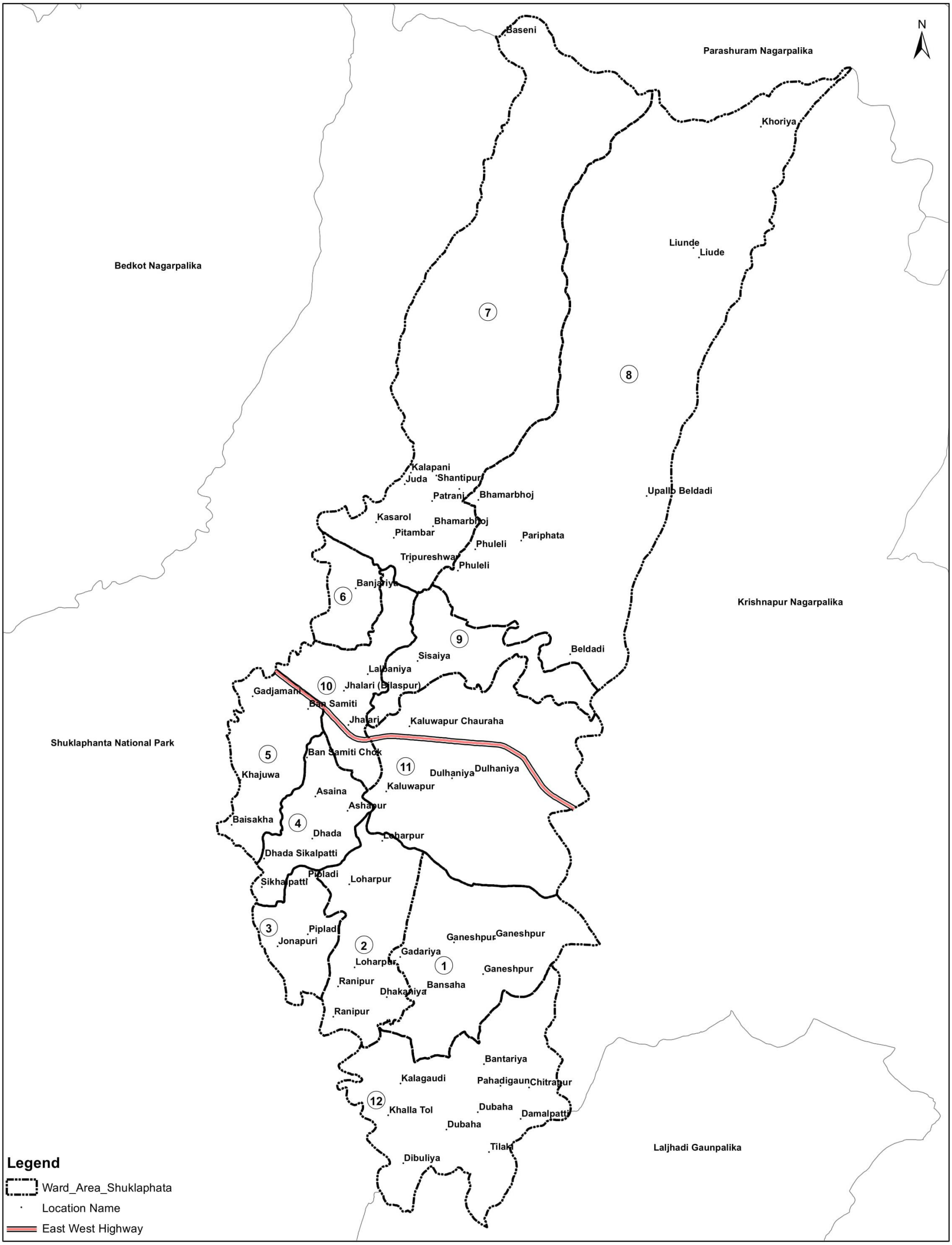
COMPONENT:
Urban Development

Shuklaphanta Municipality

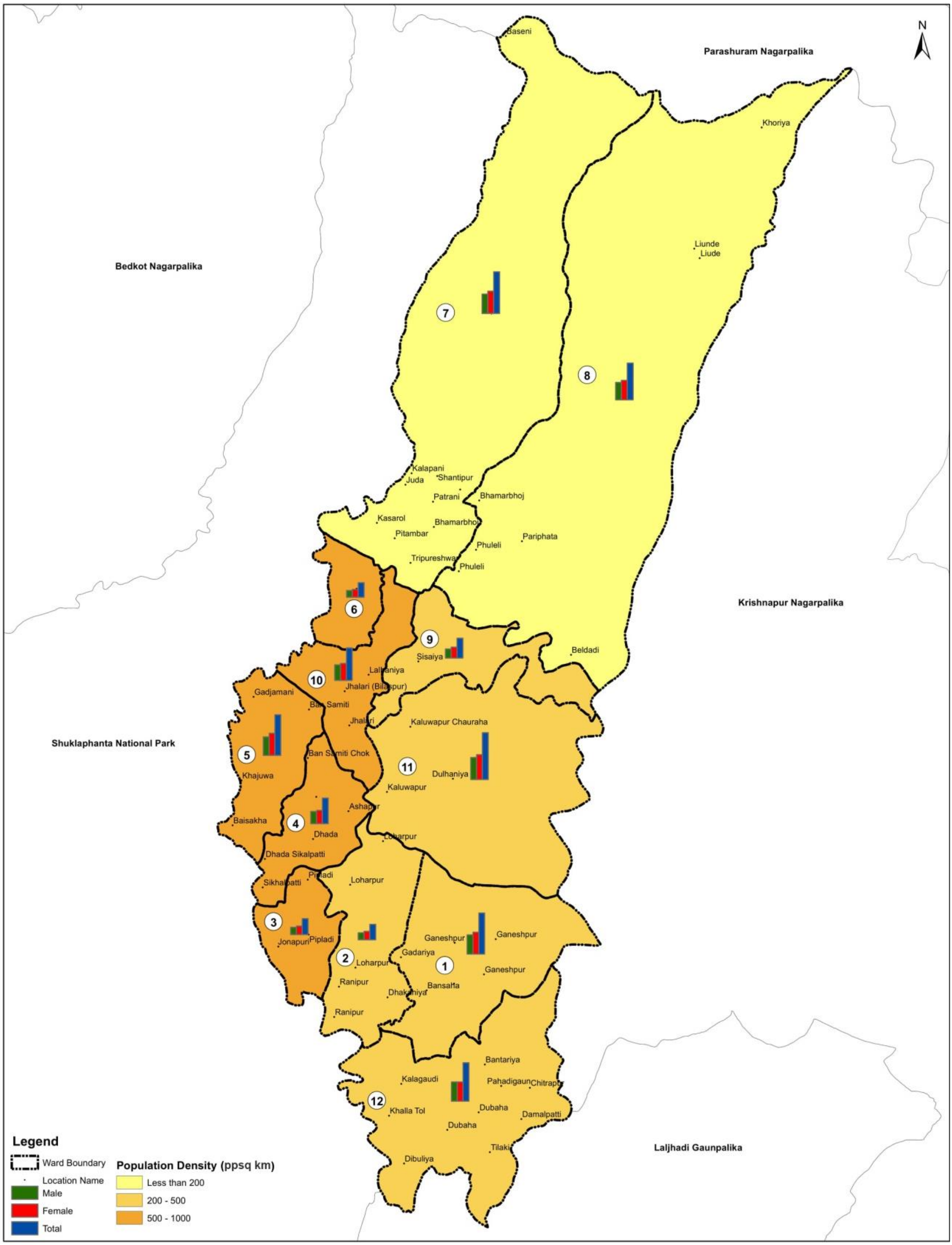
Regional Setting

DRG NO:

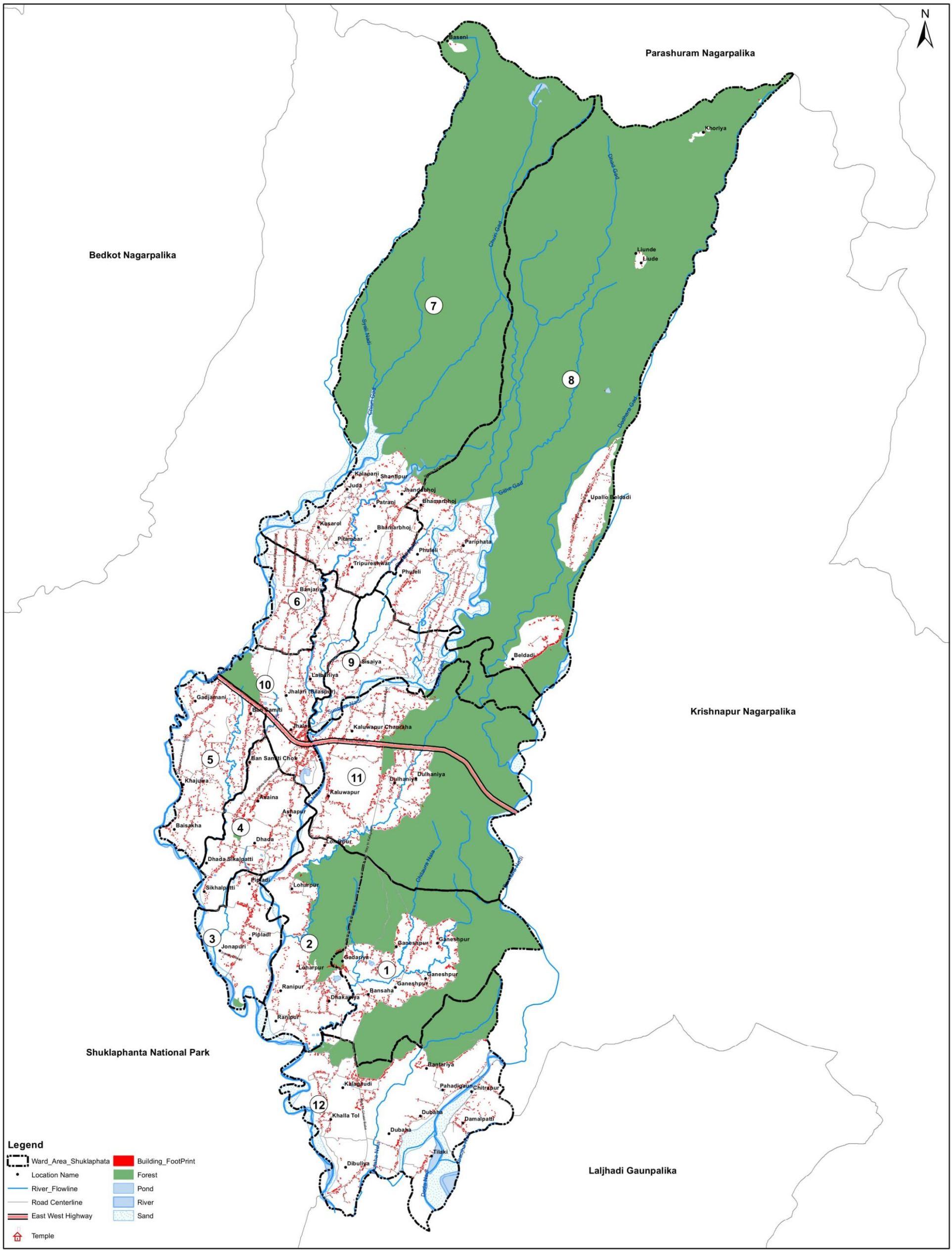
1



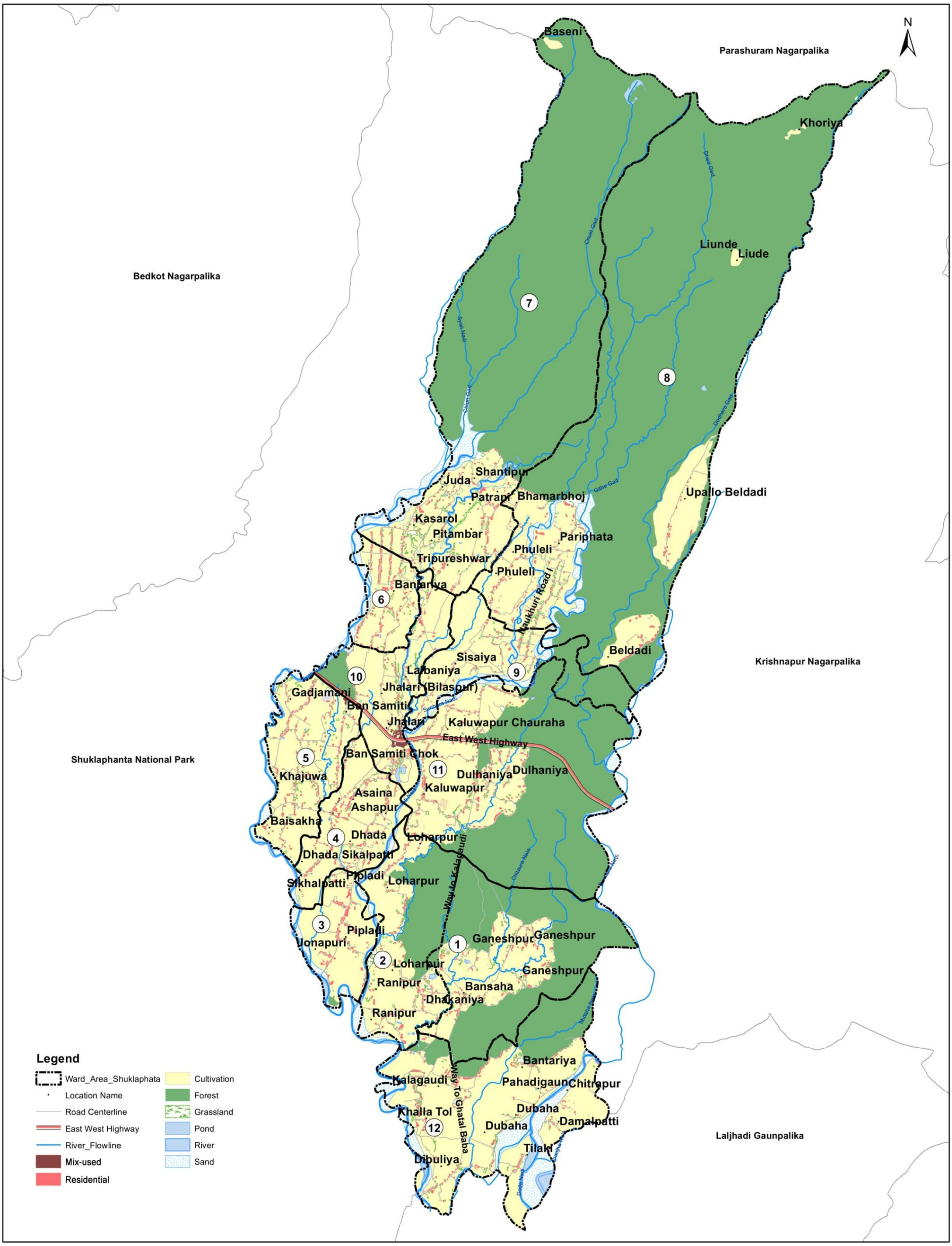
RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Place Name and Ward Boundary**	DRG NO: 2



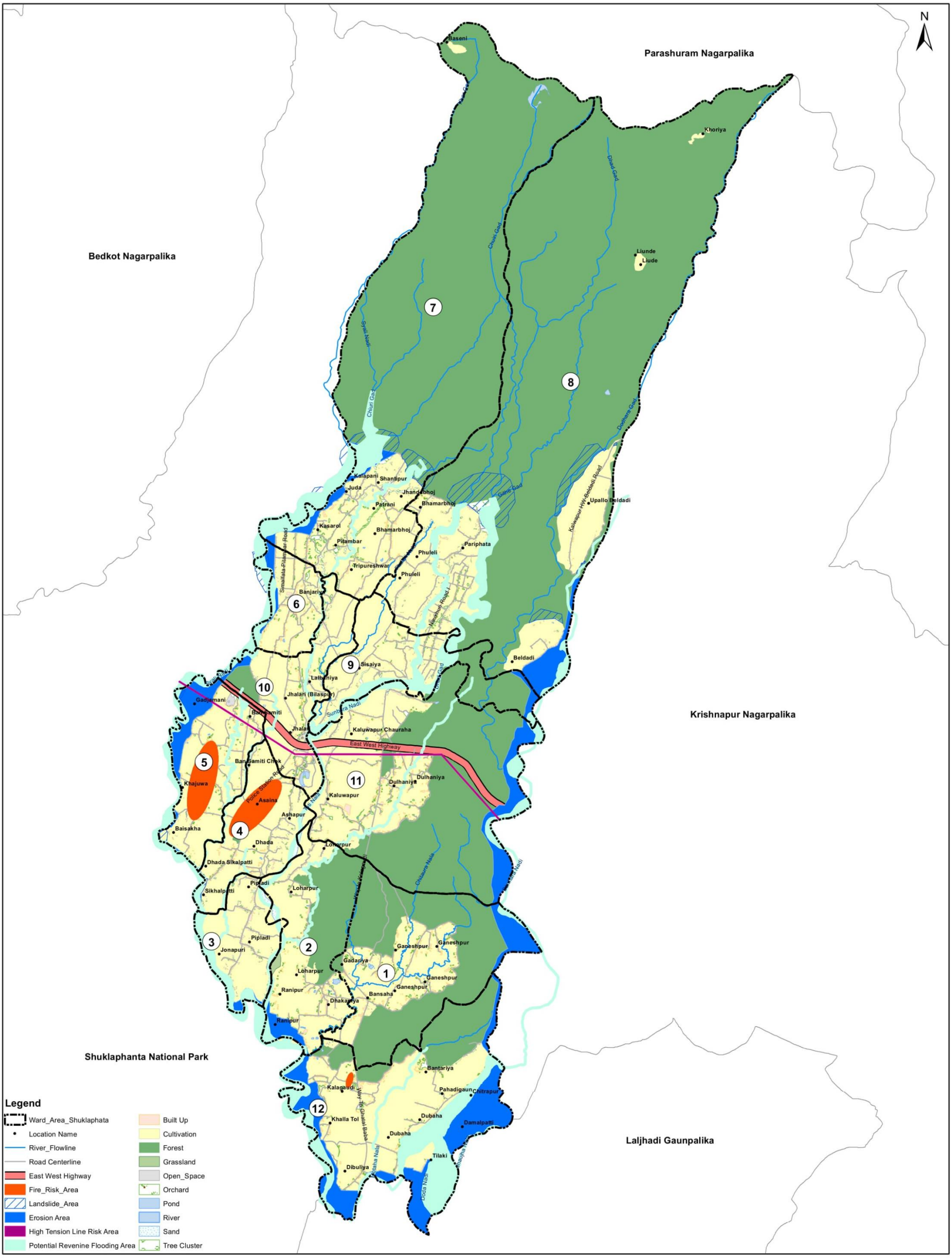
RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Population density (Existing)**	DRG NO: 3



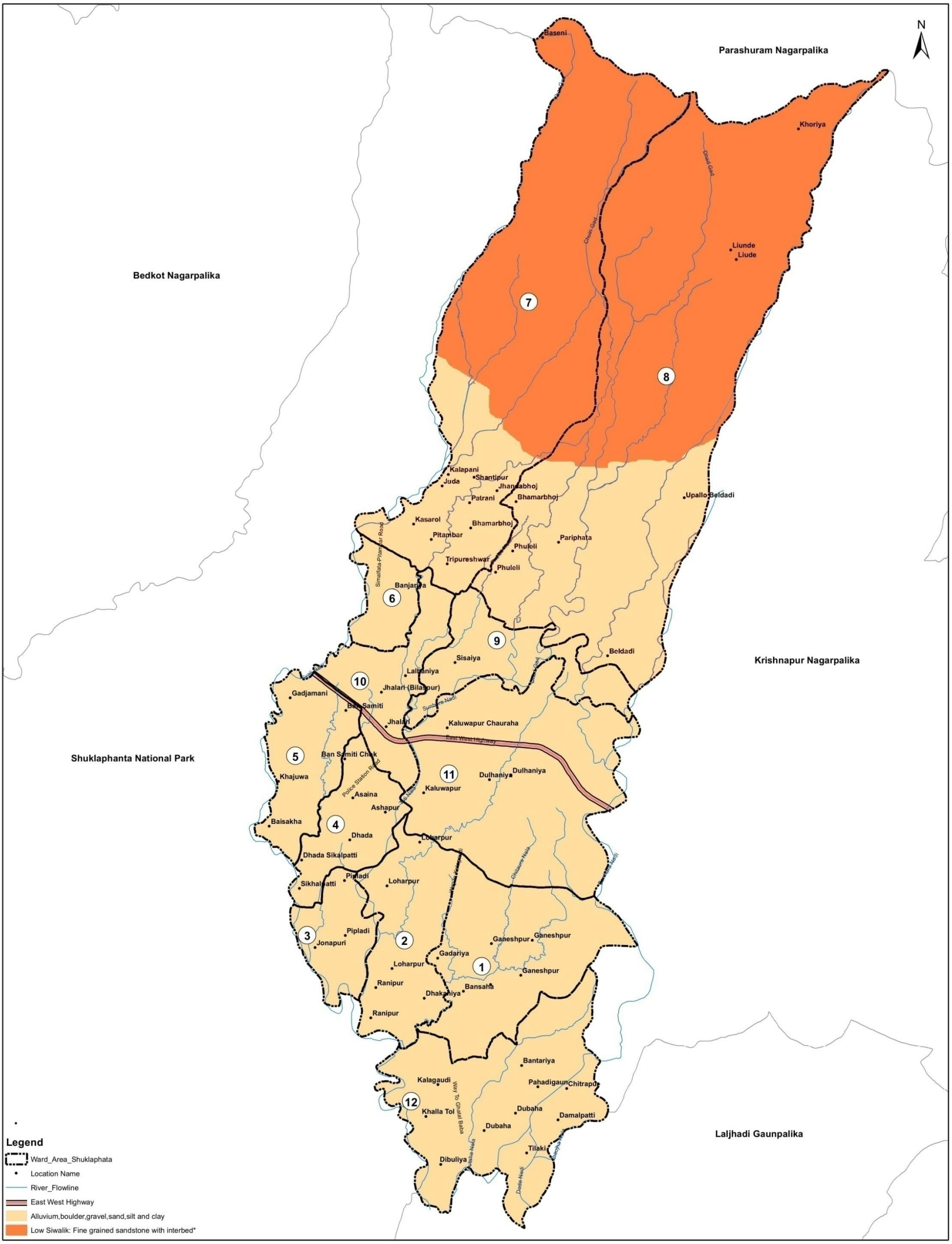
RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Current Settlement Pattern Map**	DRG NO: 4



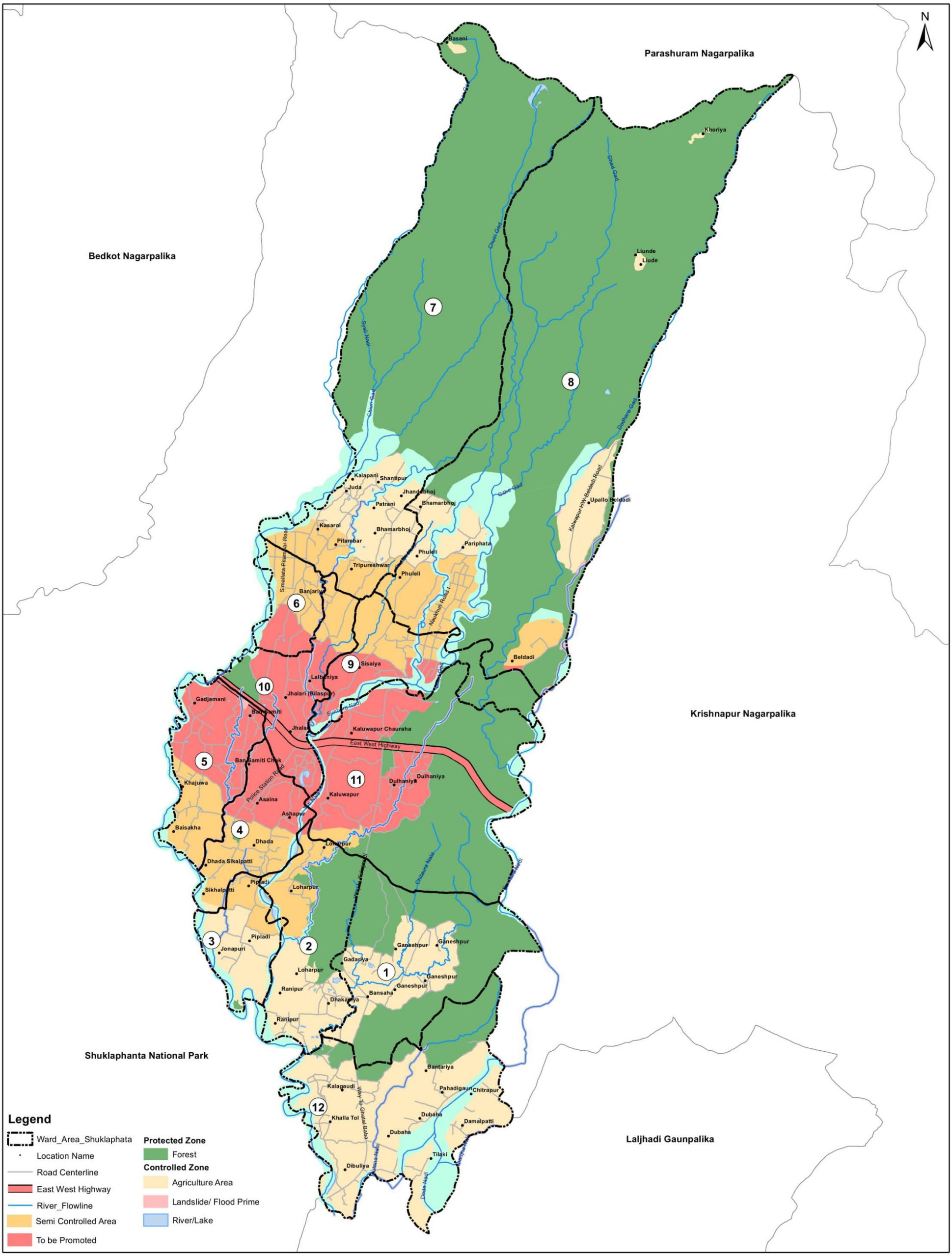
RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Existing Landuse Map (2018)**	DRG NO: **5**



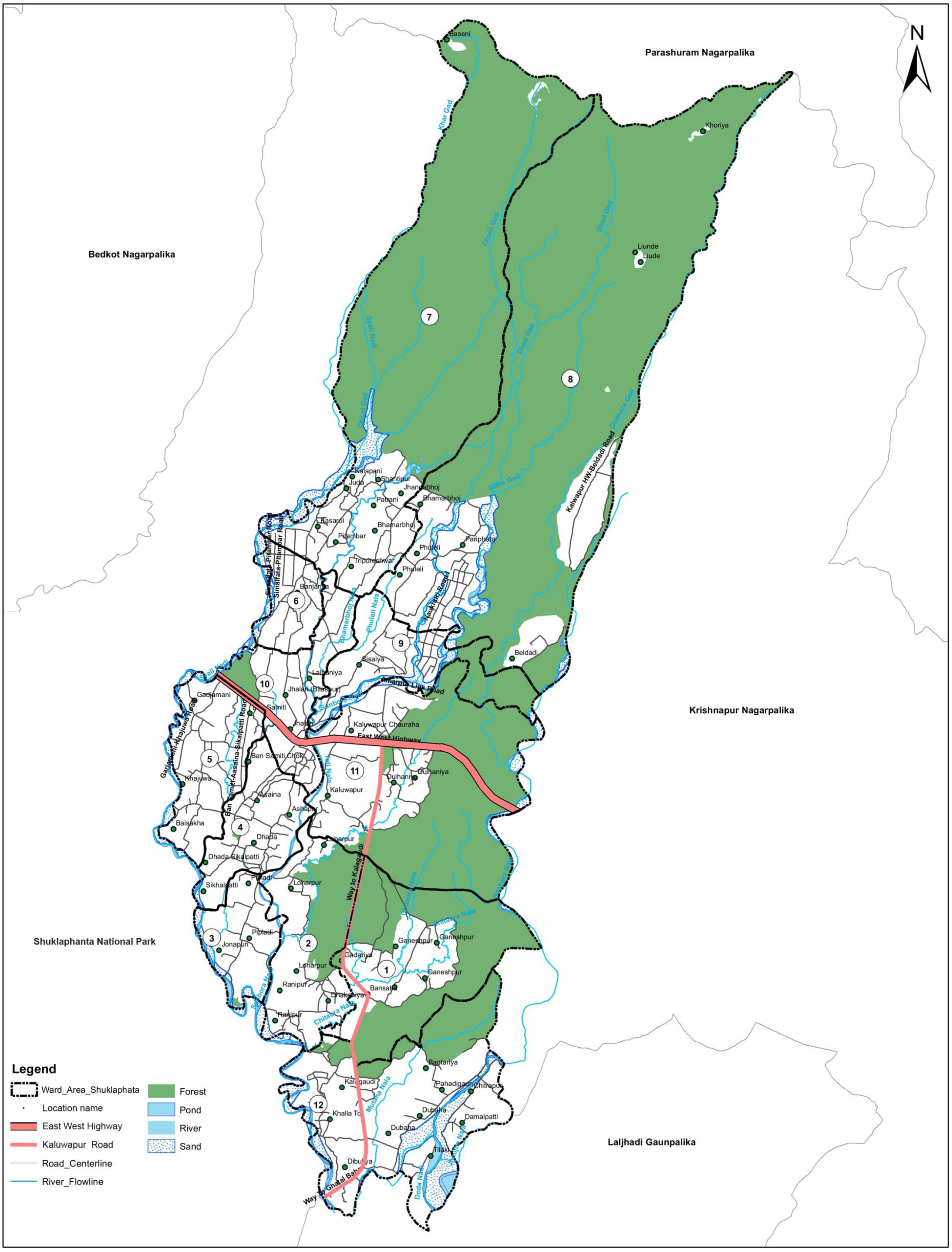
RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Shuklaphanta,Kanchanpur	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Disaster Risk Map**	DRG NO: **6**



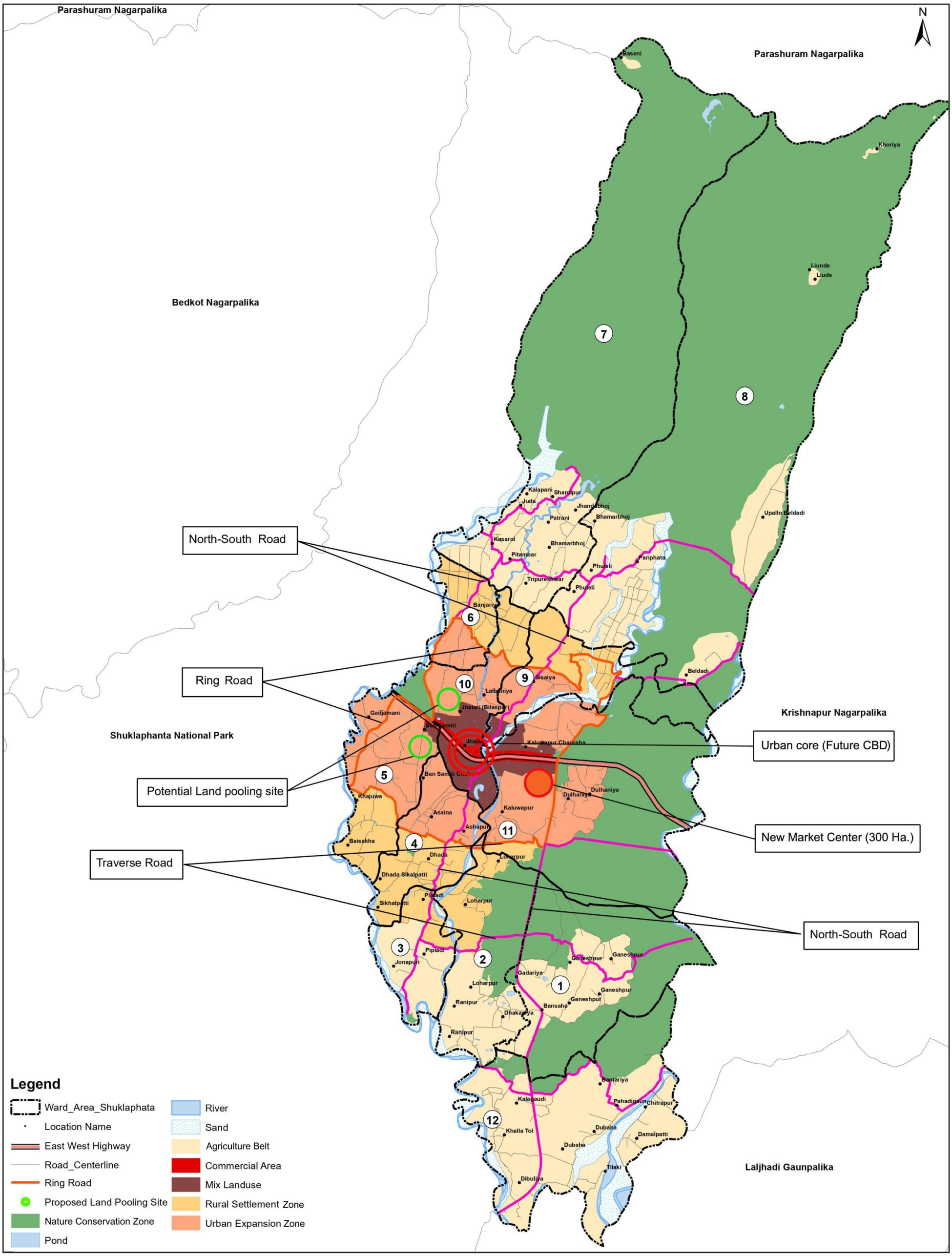
RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Geo-Morphological Map**	DRG NO: **7**



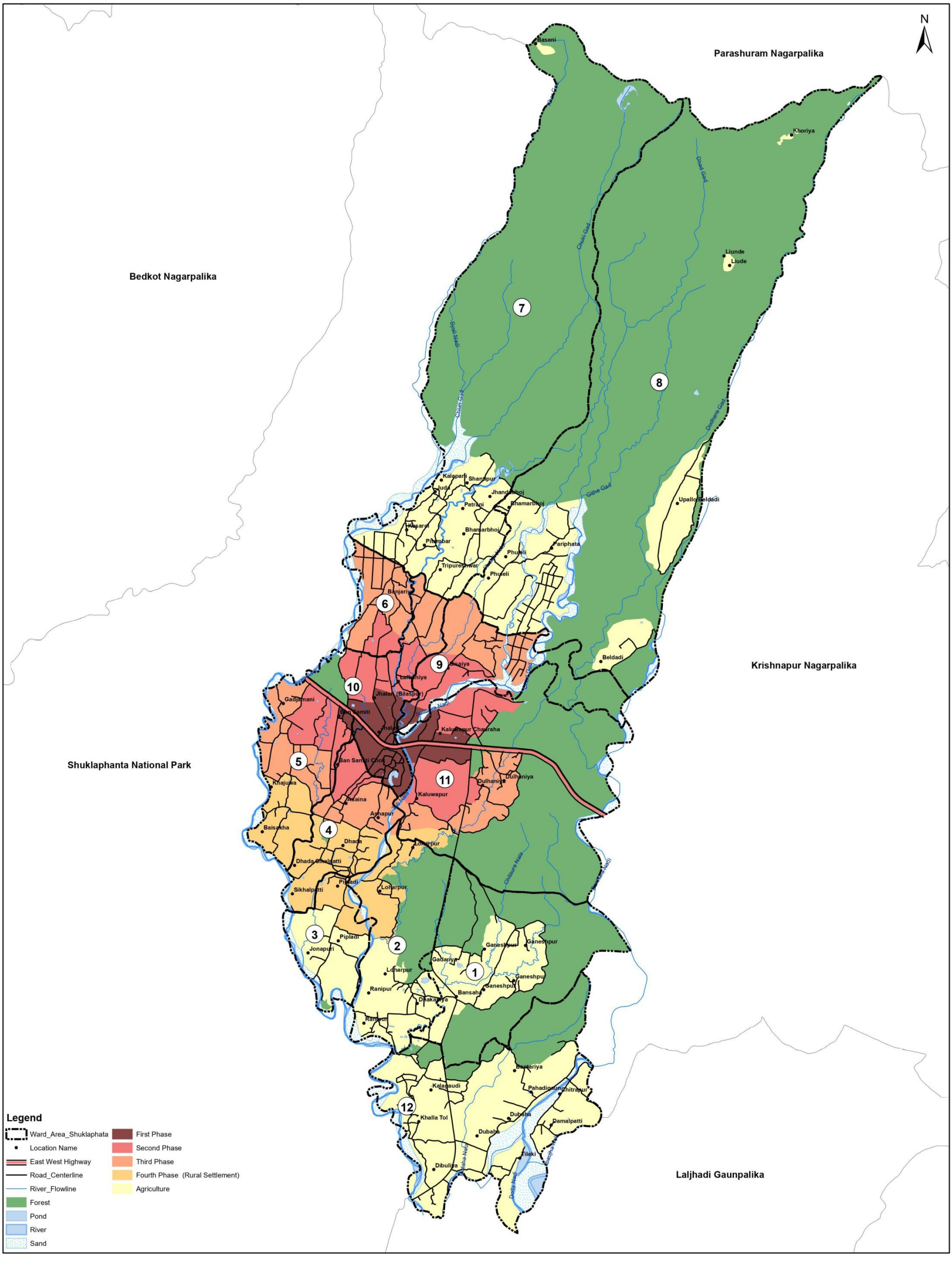
RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Shuklaphanta,Kanchanpur	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Risk Sensitive Landuse (Area to be Controlled, Promoted and Protected)**	DRG NO: **8**



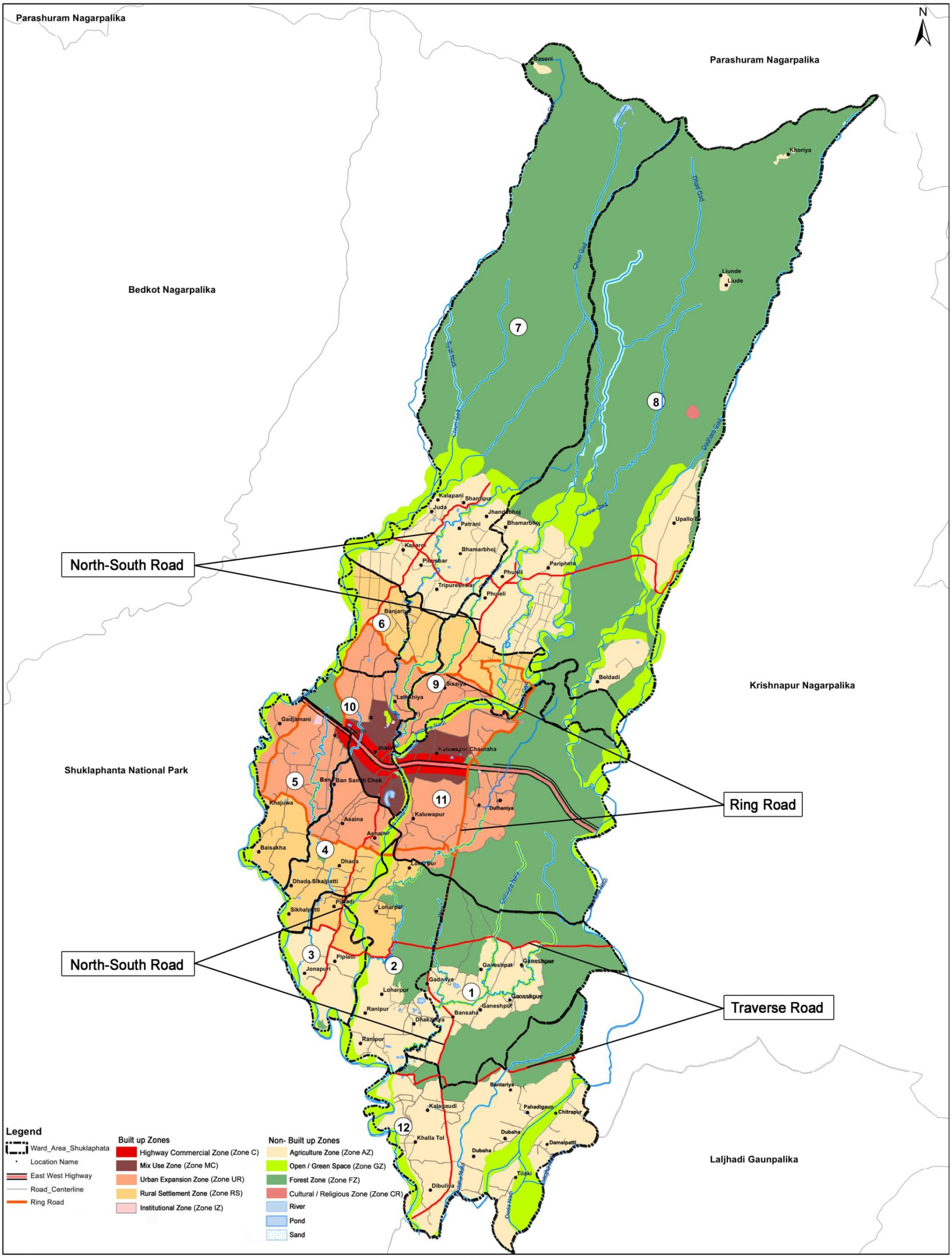
RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Batajoo Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Road	**Infrastructure Master Plan (Urban Road)** **Shuklaphanta Municipality** **Existing Road Network**	DRG NO: **9**



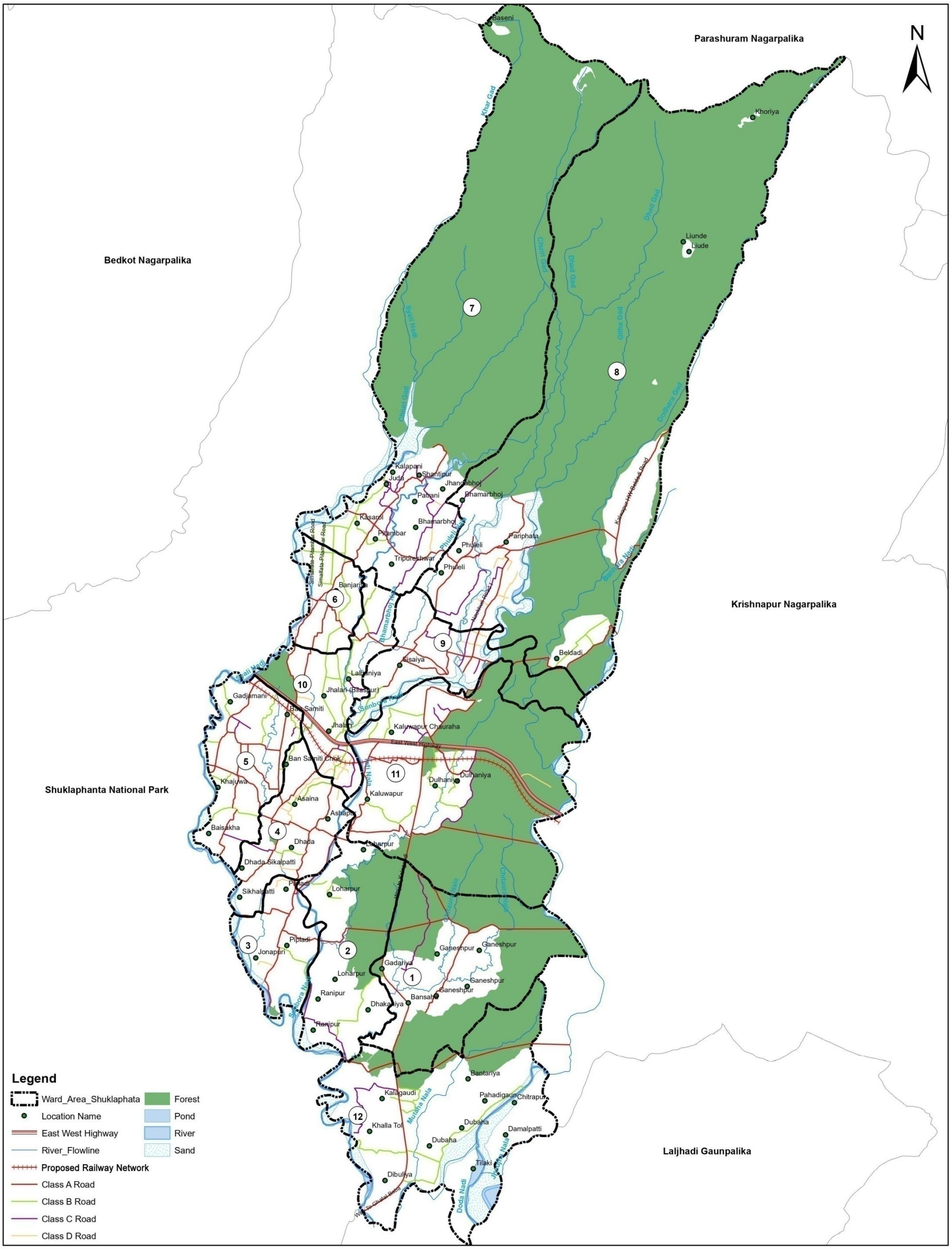
RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Updated Conceptual Development Map**	DRG NO: **10**



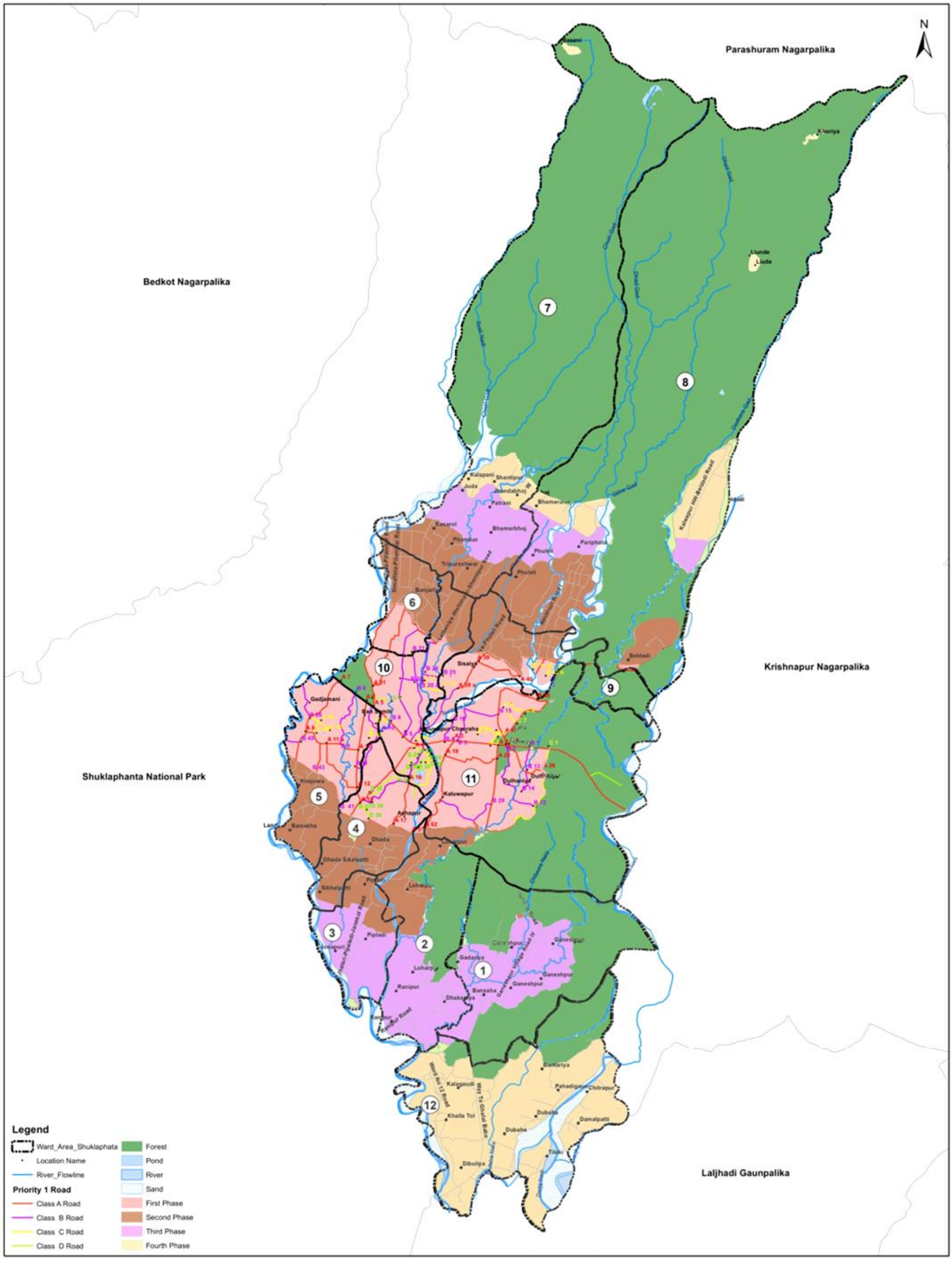
RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Phasing of Urban Expansion Areas**	DRG NO: **11**



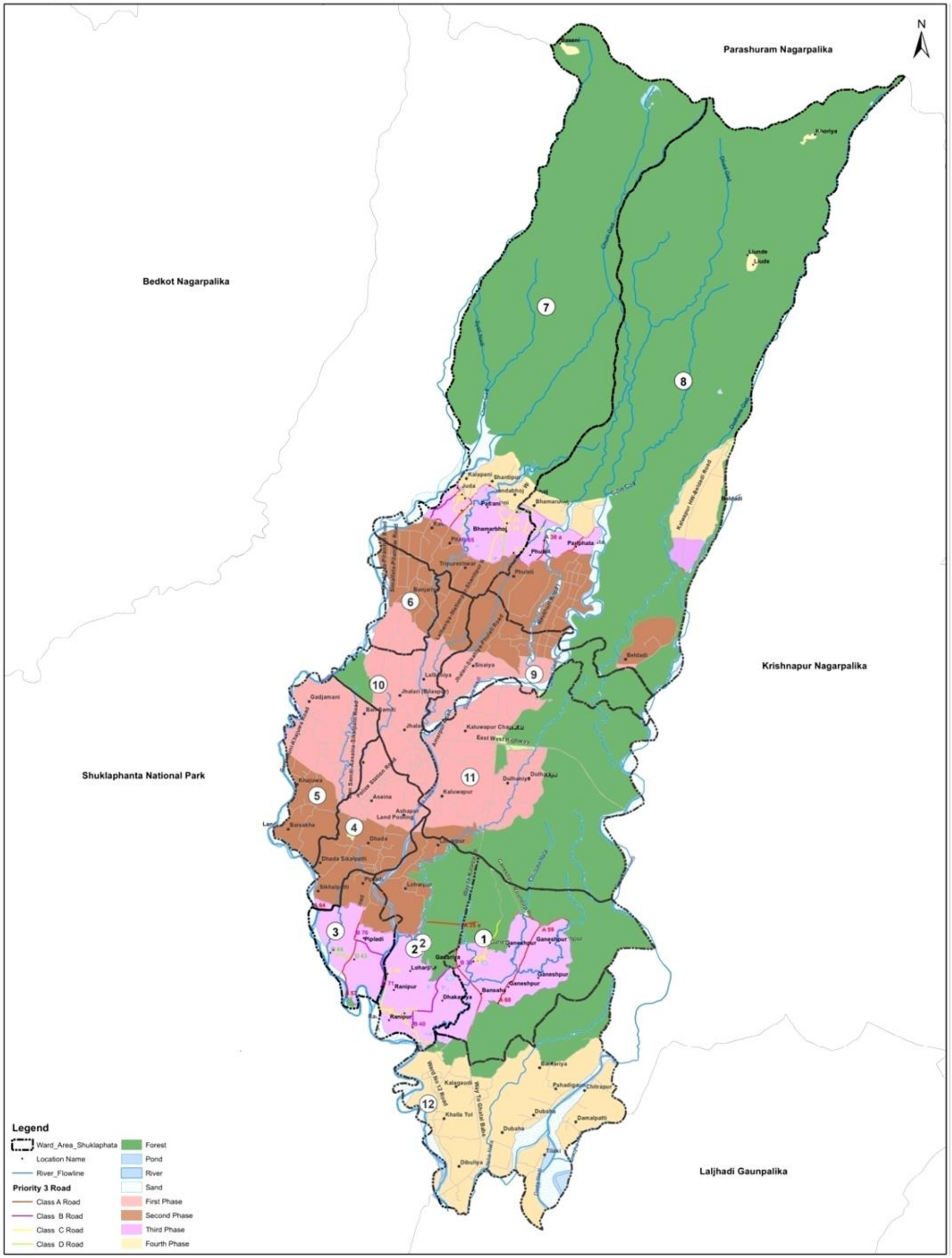
RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Proposed Land Use Zoning**	DRG NO: **12**



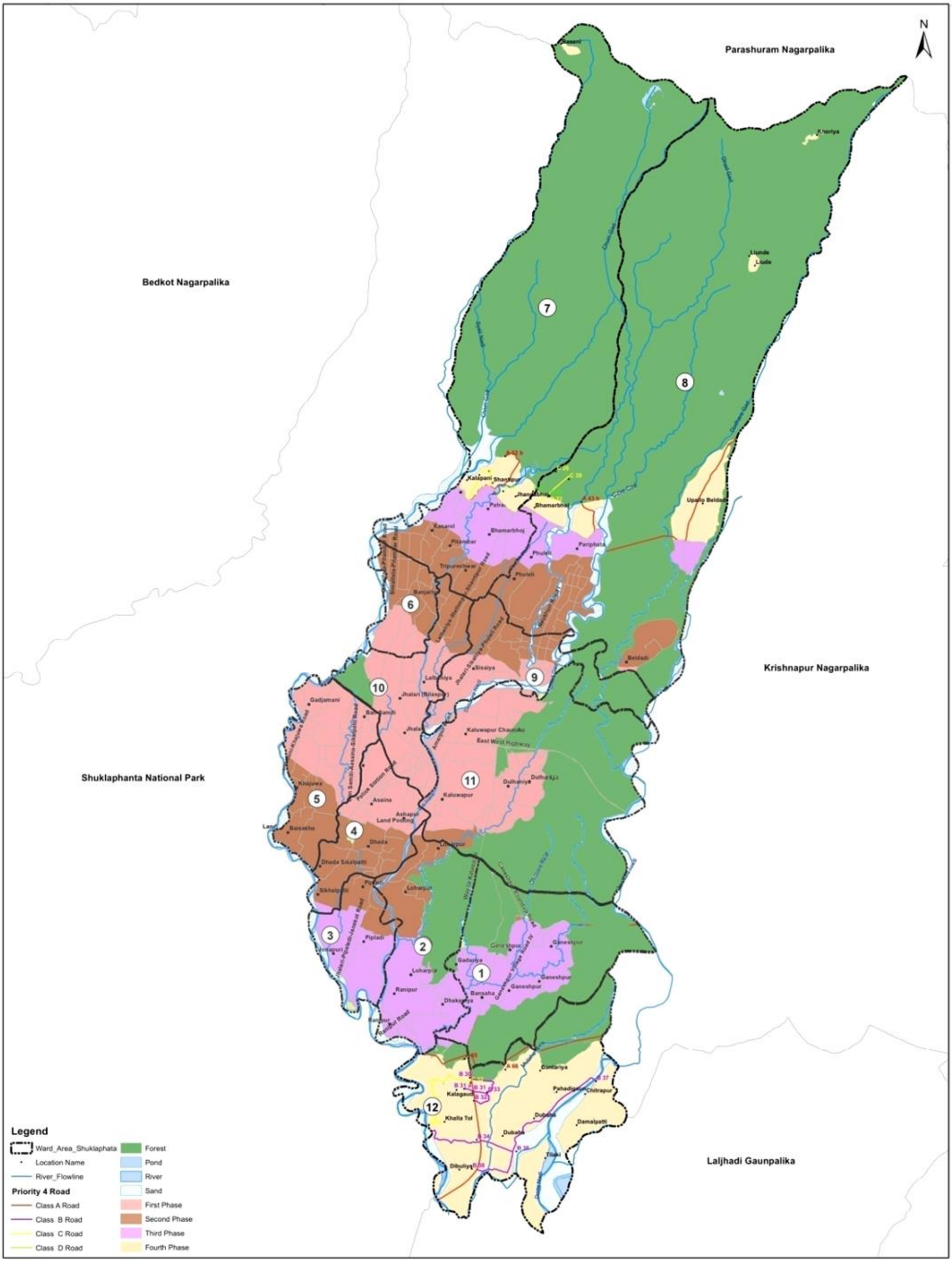
RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Batajoo Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:72000	COMPONENT: Urban Road	**Shuklaphanta Municipality** **Proposed Road Network**	DRG NO: **13**



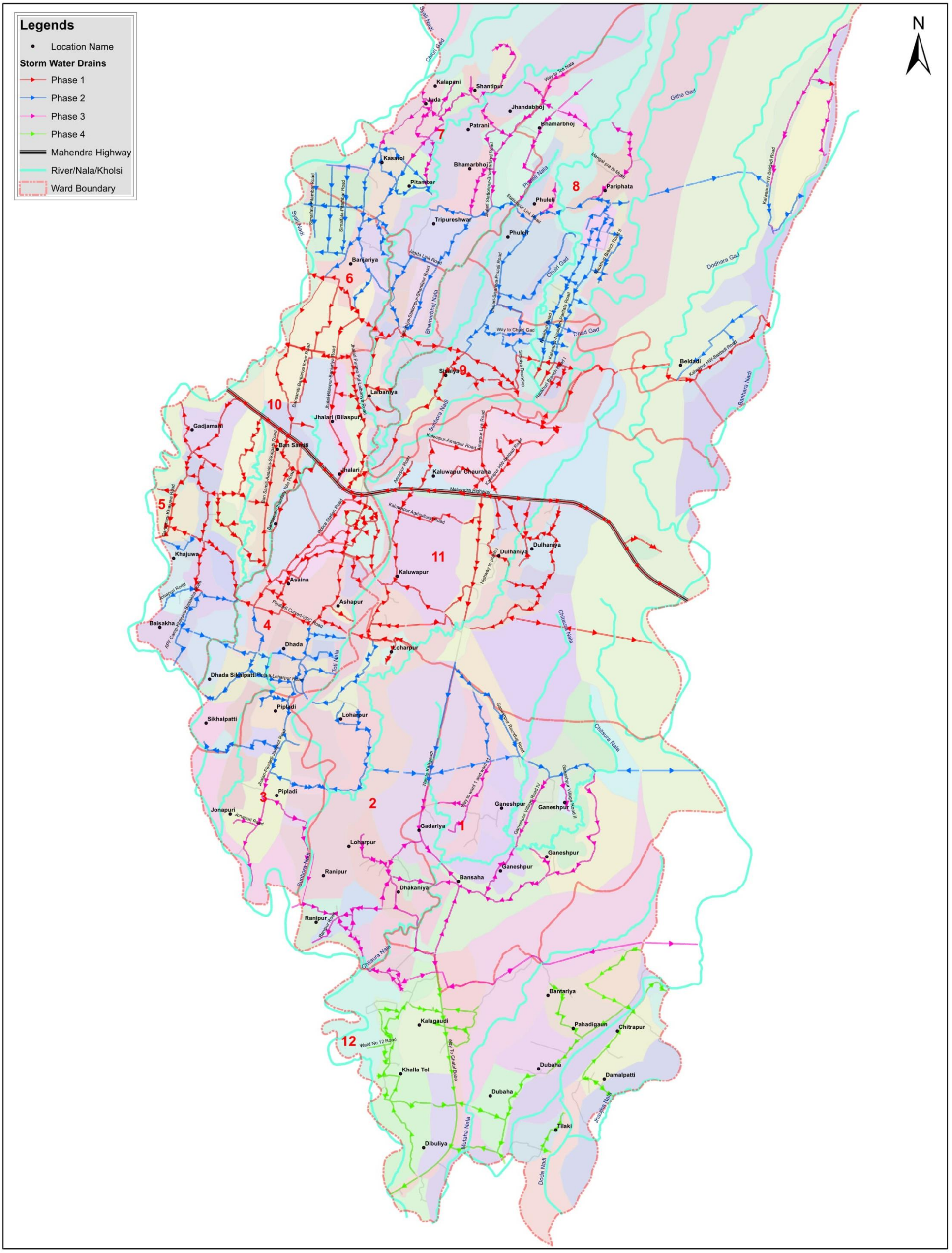
RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Road Expert: A.K.Bataj00 Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Road	**Infrastructure Master Plan (Urban Road)** **Shuklaphanta Municipality** **Priority 1 Road**	DRG NO: **14**



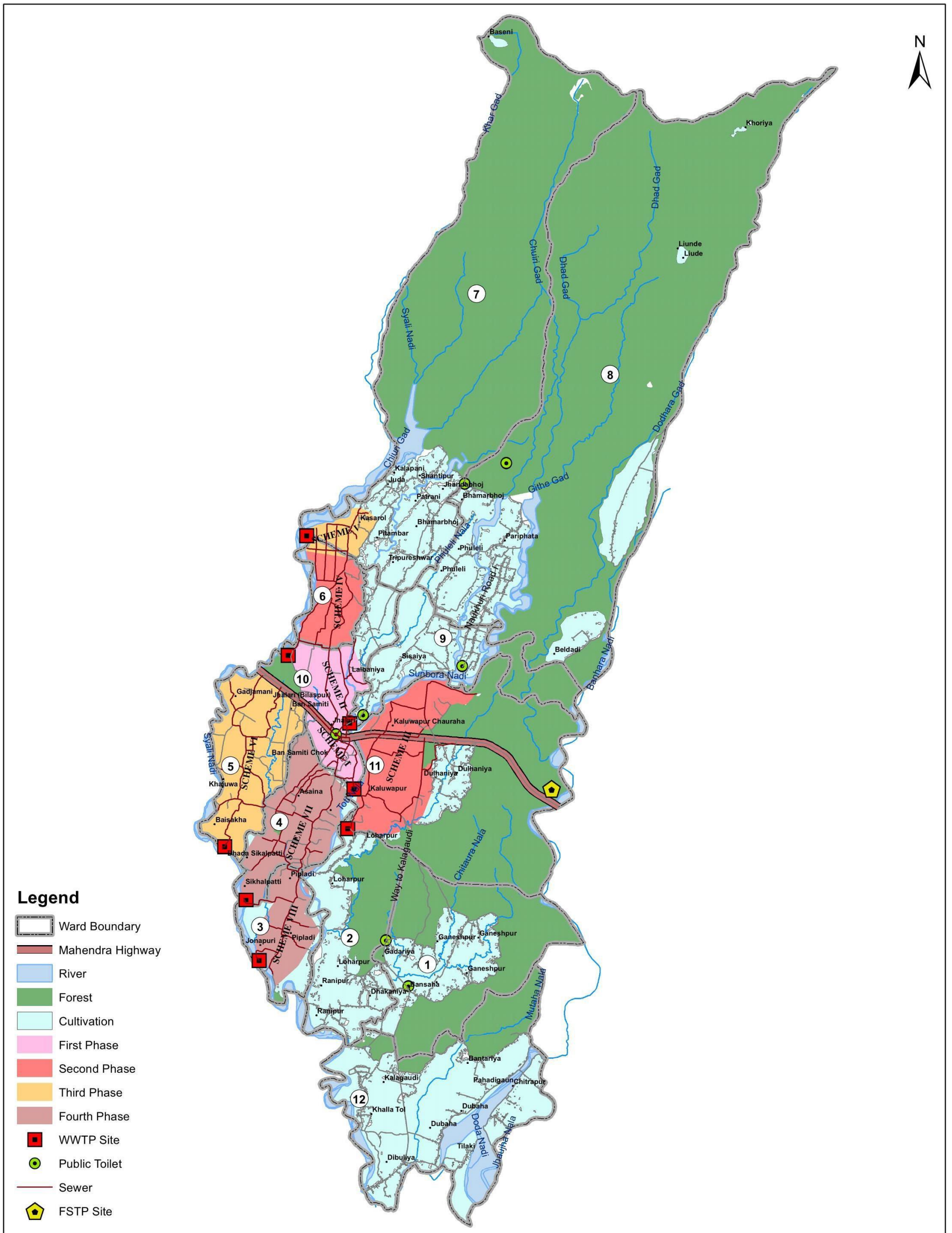
RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Bataj00 Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Road	**Infrastructure Master Plan (Urban Road)** **Shuklaphanta Municipality** **Proposed Road Network - Priority 3 (P3)**	DRG NO: **16**



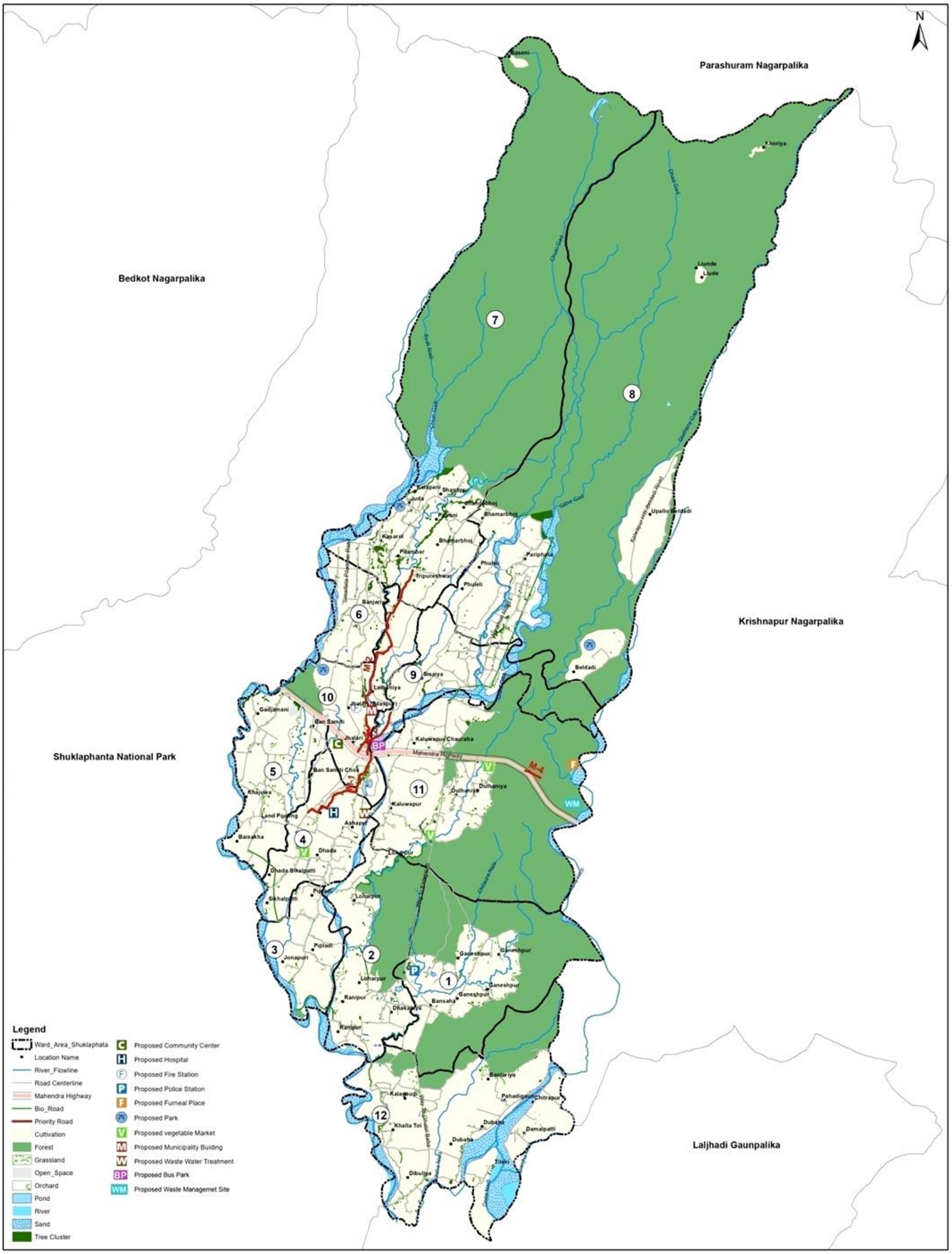
RUDP-P7 R&D	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Road Expert: A.K.Batajoo Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Road	**Infrastructure Master Plan (Urban Road)** **Shuklaphanta Municipality** **Proposed Road Network - Priority 4 (P4)**	DRG NO: **17**



RUDP-P7 SWD	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Shuklaphanta, Kanchanpur	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd., Soil test Pvt.Ltd. and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Prepared By: Lakshmi Nath Nepal Sanjay Khadka Drawn by: Ranjita	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:48,000	COMPONENT: Master Plan of Storm Water Drains Drawing Title: Phasing of Drain	**Infrastructure Master Plan (Urban Drainage)** **Shuklaphanta Municipality** **Phasing of Drainage Network**	DRG NO: **18**



RUDP-P7	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939	Team Leader: Giresh Chand Designed by: Dr. Bhagwan Ratna Kansakar, Namika Maharjan Drawn by: Namika Maharjan	Approved By: Giresh Chand Checked by: Karna B. Ranabhat	SCALE: 1:75,000	COMPONENT: Wastewater Management Plan/ Sanitation Management Plan	**Shuklaphanta Municipality** **Master Plan**	DRG NO: **19**



RUDP-P7 UP	Department Of Urban Development & Building Construction (DUDBC) Regional Urban Development Project (RUDP) Regional Project Implementation Unit (R-PIU), Dhangadhi,Kailali	BUILDING DESIGN AUTHORITY PVT.LTD. JV ITECO Nepal (Pvt.) Ltd.,Soil test Pvt.Ltd.and Udaya Consultancy (Pvt.) Ltd Kamaladi,Kathmandu, P.O. Box 2882 Tel:4227393,4248200,4247939 Fax: 977-1-4223536	Team Leader: Er. Giresh Chand Urban planner: Prakash Raghubanshi Anatta Shresthacharya Drawn by: Asmita Giri	Approved by: Checked by: Er. Giresh Chand	SCALE: 1:74,000	COMPONENT: Urban Development	**Shuklaphanta Municipality** **Proposed Urban Development**	DRG NO: **20**

Annex B Hierarchy of Road Network

The road network is a major urban infrastructure component in terms of the required financial resources and land consumption, hence complementing and governing effective land-use planning in the urban/municipal areas. Furthermore, the aesthetic appearance of a city is mainly dependent on the urban road pattern. The growth of the urban area is mainly guided by the urban road hierarchy and their alignment (Draft Urban Road Standard 2071, DUDBC). Nepal Road Standard (NRS/DOR) 2070 designates four administrative classification of roads including the urban road network. Further it assigns four technical/ functional classifications (Class I-IV as expressways, arterial roads, collector roads and local roads) based on various geometric and technical parameters for design but it is applicable to the strategic roads only, and not to the urban roads. Therefore it is essential to develop a hierarchy of urban road network.

Road classification relates to the technical standard and functional requirements. Therefore, it is based on its functional hierarchy – an important tool for classification of the road network and for land use planning.

Figure A. 1Conceptual framework for road hierarchy

a. Conceptual hierarchy b. Road network hierarchy c. Urban road hierarchy

The direct access between certain classes of road is to be restricted to maintain the road hierarchy (residential streets and arterial roads). The conceptual framework is being clearly seen in Figure 6.7 a, b and c. This hierarchical distinction of road types becomes more essential to enable urban design principles such as accessibility, connectivity, efficiency, amenity and safety. Urban/ municipal road network is being categorized with functional hierarchy such as Class A, Class B, Class C and Class D.

Annex C Proposed Urban Development Features / Proposed Infrastructure

Numerous community infrastructures such as transportation and circulation, Vegetable markets, community centre etc are proposed in accordance to the " Planning Norms and Standards 2015" published by DUDBC referring it as a guideline. The proposed Urban Development Features is presented in Figure 6.6.

Physical Infrastructure Components

1. **Up gradation of Roads by RUDP**: About 8 km of different urban roads are proposed to be upgraded by the RUDP-P7. The proposed road runs through ward 9, 10 & 11 of the municipality and are tabulated below:

Table A. 1 Priority Roads under the Project RUDP

S.N	Code	Name of Roads	Length of road (Km)		RoW (m)
			PPTA	Field survey	
1	M1	Jhalari (H1) – Pipaladi VDC Office Road	2	2.50	12

2	M2	Jhalari (H1) – Proposed Municipal Building Site – Kalapani Road	4	4.00	12
3	M3	Jhalari (H1) – Phuleli Road	1.5	2.10	12
4	M4	East-West highway (H1) – Proposed Landfill Site Road	0.5	1.00	12
		Total	**8**	**9.60**	

Source: Far Western RUDP (Vol. 4), PPTA, DFR , 2015

2. **Bio-road**
   A road connecting greens and forest around the municipality "Bio-Road" is proposed to enhance the circulation, green tourism which is one pf the potential of the municipality. The road is proposed to connect Kalapani- Pariphanta – KaluwapurChauraha - Kalagaudi road – RanipurBaisakha-Khajuwa-Kasorol.
3. **Bus Park**
   Intercity and intra cities Bus Park is proposed near the bank of River SunabaraRiverWard 11, north of East-West highway. 10 passenger vehicles (heavy busses) per hour is expected and land requirement approximately 5 ha is available in the above mentioned location.
4. **Land Pooling Site**
   Land pooling is one of the effective tools for land development. The appropriate localities are the following:
   - Ward 10 - Jhalari (Bilashpur)
   - Ward 10 - Ban Samiti Chowk
   - Ward 11 - Kaluwapur
   - Ward 5 - localities between Khajuwa and Bisakha.
5. **Municipality Office Building**
   The RUDP, P-7 has proposed a municipality office building to be constructed under the project at ward 10.
6. **Integrated Solid Waste management Sites (ISWM Site)**
   Site at the eastern side of the municipality within Krishna community forest (Ward 11) is proposed for Integrated Solid Waste Management (ISWM) sub-project.

Social Infrastructures

1. **Health institution**
   Three health posts are in operation in wards 4, 7 and 10. A 50 bedded hospital is proposed at Asaina ward 4 by upgrading the existing health post.
2. **Open spaces / parks**
   The open space acts as lungs to the urban dwellers and thus these are proposed on the side of Phuleli road-11, Jhalari bilashpur-10, Beldadi-9, Simalphanta-6.
3. **Old age house / Orphan / Sanatorium:**
   It is proposed south of Jhalari bazaar ward 4.
4. **Fire Brigade Station**
   It is proposed opposite of the proposed municipal building in ward 10.
5. **Funeral Place / Cremation Area**
   It is proposed in ward 11 at the banks of Banhara River within Krishna community forest. The proposed place is being used by community as funeral place.
6. **Security Police Post**
   It is proposed near the proposed municipality building (Ward 10).

Economic Infrastructure

1. **Vegetable Market**
   A whole sale market is proposed at Dulhaniya Chowk Ward 11 (near East-West Highway) to facilitate the marketing of the agriculture product.
2. **Cold Storage**
   It is proposed south of Jhalari Bazaar Ward 4.

Annex D Land Development

Among the various land development tools land pooling (land re-adjustment) would be the most effective tool for the land development. The concept of land pooling is to assemble irregular, inaccessible land parcels into a large land parcel, provide it with infrastructure in a planned manner and return the reconstituted land to the owners, after deducting the cost of the provision of infrastructure and public spaces by the sale of some of serviced land.

It is a technique for managing the planned development of urban-fringe lands, whereby a government agency consolidates a selected group of land parcels and then designs, services and subdivides them into a layout of streets, open spaces and serviced building plots. It would be followed by the sale of some of the plots for cost recovery and the distribution of the remaining plots back to the landowners. Each land owner has to contribute a portion of their previous land holdings to provide space for infrastructure (roads and drainage, open space, and for reserve land). The reserve land is sold at the end of the project to pay the cost of planning, administration and construction.

In short, in a land pooling project, individual plots are combined into one large plot, which is subdivided rationally after planning a new road layout. Landowners contribute a certain portion of land for open space, roads, and reserved plots.

1. **Legal Basis:**
   The legislation on Town Development Act 2045, Para 12 (1) defines the land pooling and its procedures. Similarly, Sub Clause (Ka) of Clause 11 (5) of Local government Operation Act 2014 allows land pooling and land development under Federal and Province Law. Also, the Land Pooling Reference Manual 2072 published by Department of Urban Development and Building Construction, Government of Nepal, is guiding the land pooling programs for urban development in Nepal.
2. **Administrative Management:**
   Management sub-committee is formed representing the land owners. Series of discussion with stakeholders, agencies and the local representatives and leaders are carried out from very beginning to decide the land contribution for public space, infrastructures development etc and program is implemented as per the decision made by this committee.
3. **Feasibility Study of the program:**
   The areas for land pooling are identified in terms of technical feasibility i.e suitability of the area for urban development and social feasibility i.e. acceptability of program by land owners, agencies and local representatives.
4. **Technical:**
   The study is carried out mostly in the areas which are urbanizing or have potential for future urbanization, where land transaction and construction of buildings are taking place rapidly but most of the land is vacant.
5. **Social:**
   To implement the program, the willingness of land owners, agencies and local representatives play prime roles. The area where the land owners and tenants can be

easily identifiable is preferred so that it is easier to ensure their participation in serious discussions to be conducted during the implementation process.

6. **Pre requisites for LP:**
   To conduct the program, consent of at least 51% of land owners and tenants of the area is required. Also, at least 50 families should be benefitted from the program.
   As the program deals with society, affirmation of local leaders and political commitment towards the program is must.

Annex E Infrastructure Development

For the implementation of infrastructure development various models can be adopted

- PPP models: **Public**-**Private Partnership** refers to the involvement of **private** sector in the government projects aimed at **public** benefit in the form of management expertise and monetary contribution. Some of the activities *viz*. cold storage, vegetable market, restaurant at Baijnath community forest etcare advisable to develop under PPP models.
- Implementation by Consumer Committee: Nepal has long experiences on implementation of infrastructures development by consumer committee. The committee is formed by the initiation of local people. Partial funding is also done by the local community. This type of work can be carried out in urban local roads and drains. Engaging the locals will make the work transparent.
- Implementation by Municipality: Large scale infrastructure such as Bus Park, waste management, public parks etc are suggested to be constructed by municipality itself by hiring qualified construction contractors.

Annex F Housing

The country has adopted a policy to promote owner built house. The Municipality is suggested to frame policy in line with the central government policy i.e. promote owner built house. Various financing agencies are in operations to support the individual needs. Bye laws need to be periodically updated and suggested to promote combined housing and high-rise buildings to occupy more population.

Annex G Comment Response Matrix

Comments for the Long Term Urban Development Plan (LTUDP), Shuklaphanta Municipality were received on 8 July, 2021 from Project Management Consultant (PMC) after the submission of draft final report on 14 June, 2021.

S.No	Comments / Suggestions	Responses / Actions Taken
1.	DSC should assist IDC to review and amend building bye laws as per the proposed zoning proposals and adopted densities, by taking into consideration of Model Bye-Laws prepared by DUDBC / MOUD.	Building Bye-laws would be prepared incorporating the Proposed land use zoning for LTUDP by IDC after consultation with municipality.
2.	In view of the high flood and landslide risks, DSC should clearly delineate the controlled zones through the adoption of the realistic setbacks along the major rivers and smaller streams and water bodies. The maps need to show the clearly demarcated green belts to the	Realistic setbacks for major rivers and smaller streams have been delineated in Risk Sensitive Land Use Classification (Section 3.4.4) and (Figure 3.12). RSLUP is also considered for Proposed Land Use Zoning where river

	extent as far as possible.	buffer have been proposed as Green Belt (Section 5.5) and (Figure 5.4).
3.	The LTUDP should have an executive summary in both English and Nepali language.	The executive summary in English have been included (Page iv - xxviii). Executive summary in Nepali would be submitted after the formal approval of the report.
4.	The LTUDP report has no page numbers and some maps are large in scale and not readable. It would be rather laudable if a conclusion be fused on each and every chapter of the LTUDP document.	Page numbers have been included; all the maps included in the report are also included in the annex in A3 to make it more readable. Gist of each and every chapter has been included in the executive summary hence not included in the conclusion to avoid repetition.
5.	It is recommended to make a joint review by the Storm drainage and Urban Roads consultant teams of DSC about the effective and coordinated implementation of both the drainage and road components within the planning framework provided by the LTUDP.	Infrastructure master plan of Urban Roads and Urban drainage has been thoroughly reviewed before developing framework for LTUDP. Draft report of LTUDP has also been reviewed by the Strom drainage and Urban Roads consulting teams of DSC and deemed appropriate.
6.	The national and the local government could adopt the integrated approach to the development of motorized and non motorized transportation modes in the city, and railways for national and intra-city connection. Hence, it is suggested to consider such infrastructure which may influence the LTUDP.	Non motorized transportation would be considered in all of the municipal roads (Class A, B, C & D) and proposed railway line is also shown in Proposed Road and Transportation Network (Figure 5.7).
7.	The document also needs an editing to do away with typo errors / inconsistencies in Chapter 7.	Typo errors / inconsistencies in Chapter 7 have been corrected.

Comments for the revised Long Term Urban Development Plan (LTUDP), Shuklaphanta Municipality were received on 31 October, 2021 from Mr. Rabi Shah, Team Leader Project Management Consultant (PMC) after the submission of revised draft final report.

General Comments		
S. No	**Comments / Suggestions**	**Responses / Actions Taken**
1.	Footer and page no.,	Footer and page number have been corrected.
2.	Repeated bullet 5 and 6 of Section 1.1 Chapter I	Repeated bullet has been corrected.
3.	Fig 2.3 and 1st line of section 2 sub-section 2.	It has been corrected.
4.	Fig. 3.9 and 1st line of Sub-section 3.4.2	It has been corrected.
5.	Fig. 3.8 and 1st line of Para 2, 3.4.2. f,	It has been corrected.
6.	Table of Content, Table 6.6 and 6.7	It has been corrected.
Specific Comments		
7.	The scope of work described in sub	Scope of work mentions the preparation

	section 1.2.2, B, bullet 2:	of the land use zoning and proposed land use has been changed to Proposed land use Zoning (Section 5.5, Fig. 5.4). The same land use zoning will also be included in the Building by-laws.
8.	The legend of Fig. 3.8 does not match with Land Use Zones described in Sub-section 3.3.3.	It has been corrected
9.	There is no Subsection 3.3.9 in LTUDP as said in Section 3.8.2, bullet 9, line 4 and also bullet 10, line 3	It has been corrected.
10.	Confirm the monitoring period for approval and implementation of building, and planning bye laws shown in Table 7.1.	Monitoring period for implementation and revision of building bye laws has been change to every 5 years from yearly.
Maps		
11	Drg. No. 5, Existing Land Use Map: It does not have the year it is prepared.	The year of preparation of Existing Land Use Map, 2018 is mentioned in the map.
12	Drg No. 9, Existing Road Network: The map shows numerous road sections in the network but the legend does not.	East West Highway, Kaluwapur road and other municipal roads are mentioned in the map
Other		
13	The formal ppt presentation of the LTUDP should be carried out as earlier as possible at both technical and municipal level for formal approval of the Plan Document.	Formal presentation at DUDBC (RUDP) Project Coordination Office was done on 21st January, 2022 and at Shuklaphanta Municipality was done on 27th February, 2022 and comments/concerns have been addressed.

Newly elected officials resumed office at all four project municipalities of RUDP (P-7) after the local level election held on 13 May 2022. They were not well imformed about the LTUDP as the presentation and discussions were previously done with former officials, hence as per the suggestion from the ADB Mission (30 Aug – 2 Sep), presentation of Long Term Urban Development Plan (LTUDP) was again done at Shuklaphanta Municipality on 25th Sep 2022 in presence of the newly elected Mayor, Deputy Mayor, Ward Chairpersons, Ward Members and techinal officers of the municipality. Following comments were received during the presentation.

General Comments		
S. No	**Comments / Suggestions**	**Responses / Actions Taken**
1.	Highway Commercial Zone (Zone C) to be proposed for 100m depth (instead of 25m) beyond the ROW on either side of the EW highway from Kaluwapur chowk to Ban samiti chowk. Page 78	It has been corrected both in the text and map.

Annex H Photographs

Photo 1: Commercial uses adjacent to EW highway in Ward 10.

Photo 2: Mixed use buildings in Ward 10

Photo 3: Agricultural land in Ward 7

Photo 4: Rural houses in Ward 8

Photo 5: Manika Dham Temple

Photo 6: Pond at Manika Dham

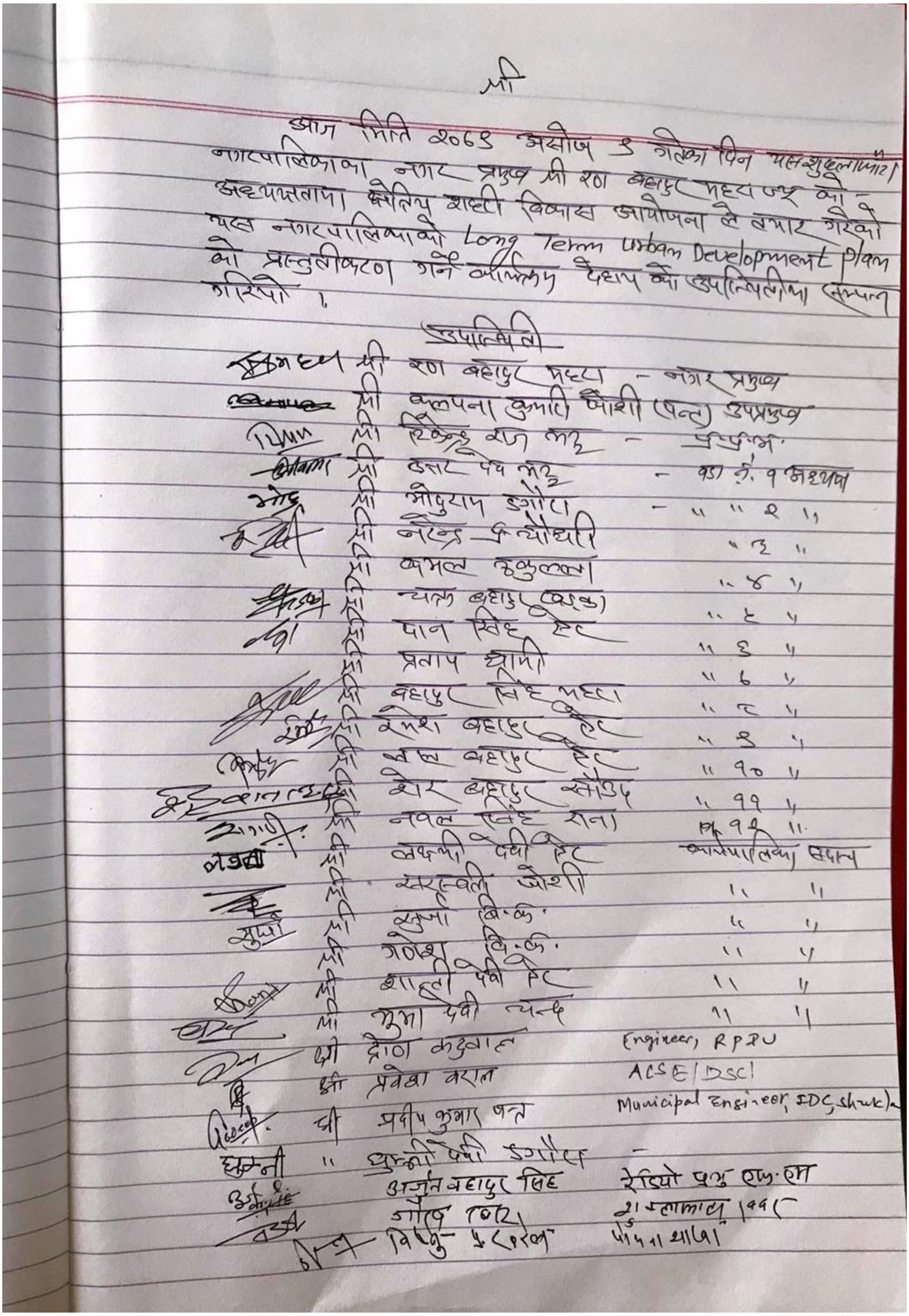
Photo 7: Presentation at Municipality on 27th FEB, 2022.

Photo 8: Presentation at Municipality on 27th FEB, 2022.

Photo 9: Presentation at Municipality on 27th FEB, 2022.

Photo 10: Presentation at Municipality on 25th Sep, 2022.

Photo 11: Presentation at Municipality on 25th Sep, 2022.



श्री

आज मिति २०७९ असोज ९ गतेका दिन यस शुक्लाफाँटा नगरपालिकाका नगर प्रमुख श्री रण बहादुर महरा ज्यू को अध्यक्षतामा क्षेत्रिय शहरी विकास आयोजना ले तयार गरेको यस नगरपालिकाको Long Term Urban Development Plan को प्रस्तुतीकरण गर्ने कार्यक्रम देहाय को उपस्थितीमा सम्पन्न गरियो।

उपस्थिती

श्री रण बहादुर महरा - नगर प्रमुख
श्री कल्पना कुमारी जोशी (पन्त) उपप्रमुख
श्री टिकेन्द्र राज लाठ - प्र.प्र.अ.
श्री दलार पंथ लाठ - वडा नं. १ अध्यक्ष
श्री मोतीराम डगौरा - " " २ "
श्री नरेन्द्र चौधरी " ३ "
श्री कमल कुकुरानी? " ४ "
श्री चन्द्र बहादुर (क्षत्री)? " ५ "
श्री दान सिंह हटर? " ६ "
श्री प्रताप धामी " ७ "
श्री बहादुर सिंह महरा " ८ "
श्री रमेश बहादुर हटर? " ९ "
श्री लाल बहादुर हटर " १० "
श्री शेर बहादुर सौड " ११ "
श्री नवल सिंह राना " १२ "
श्री लक्ष्मी देवी हटर नगरपालिका सदस्य
श्री सरस्वती जोशी " "
श्री सुमा वि.क. " "
श्री गंगा वि.क. " "
श्री शान्ती देवी हटर " "
श्री पुष्पा? देवी चन्द " "
श्री द्रोण कडुवाल Engineer, RPIU
श्री प्रतिक्षा बराल ACSE/DSC
श्री प्रदीप कुमार पन्त Municipal Engineer, IDC, Shukla
" धनमती देवी डगौरा -
अर्जुन बहादुर सिंह रेडियो ... एफ.एम
...
विष्णु ...

Photo 11: Meeting minutes of presentation on 25th SEP, 2022.

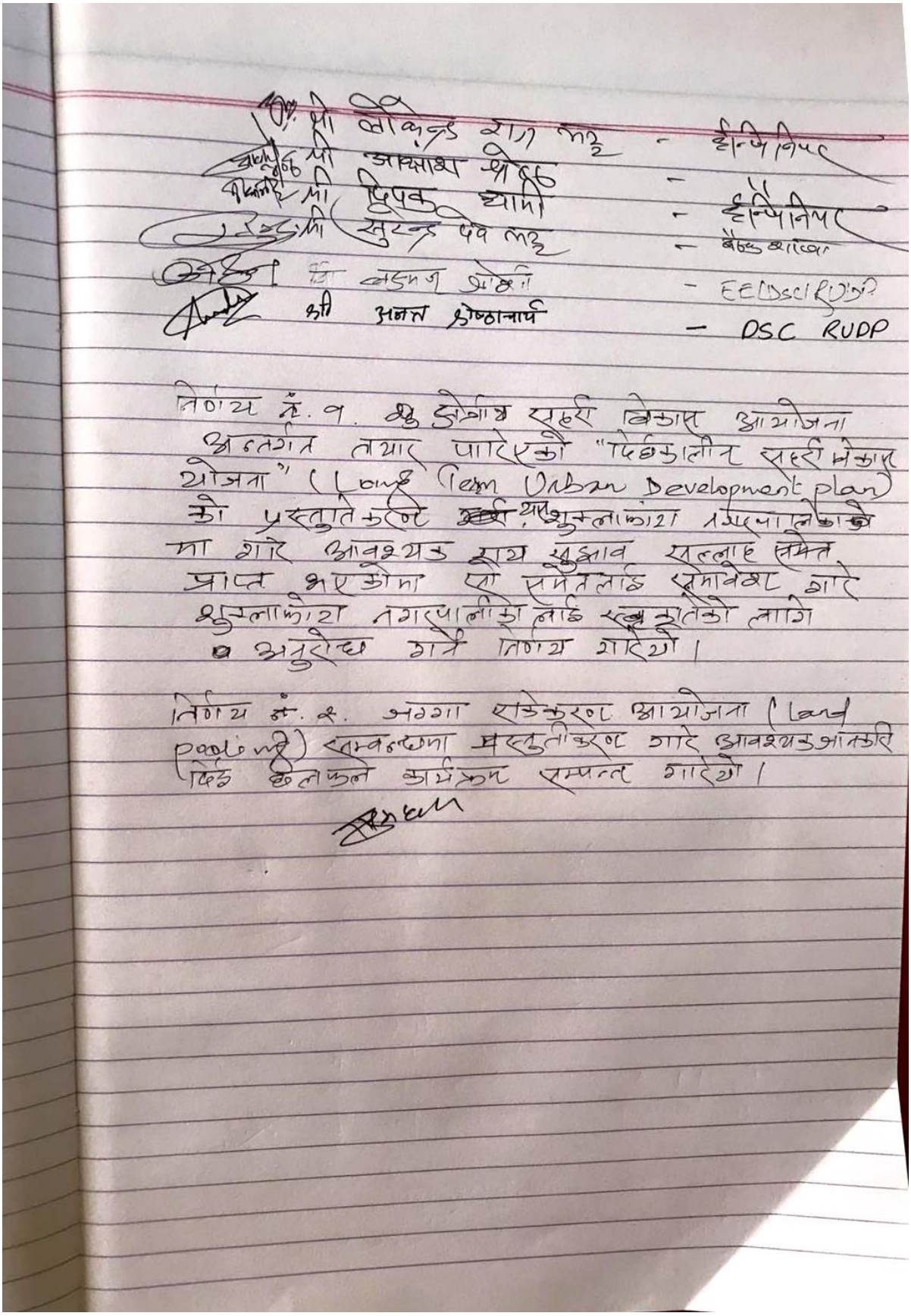


Photo 11: Meeting minutes of presentation on 25th SEP, 2022.