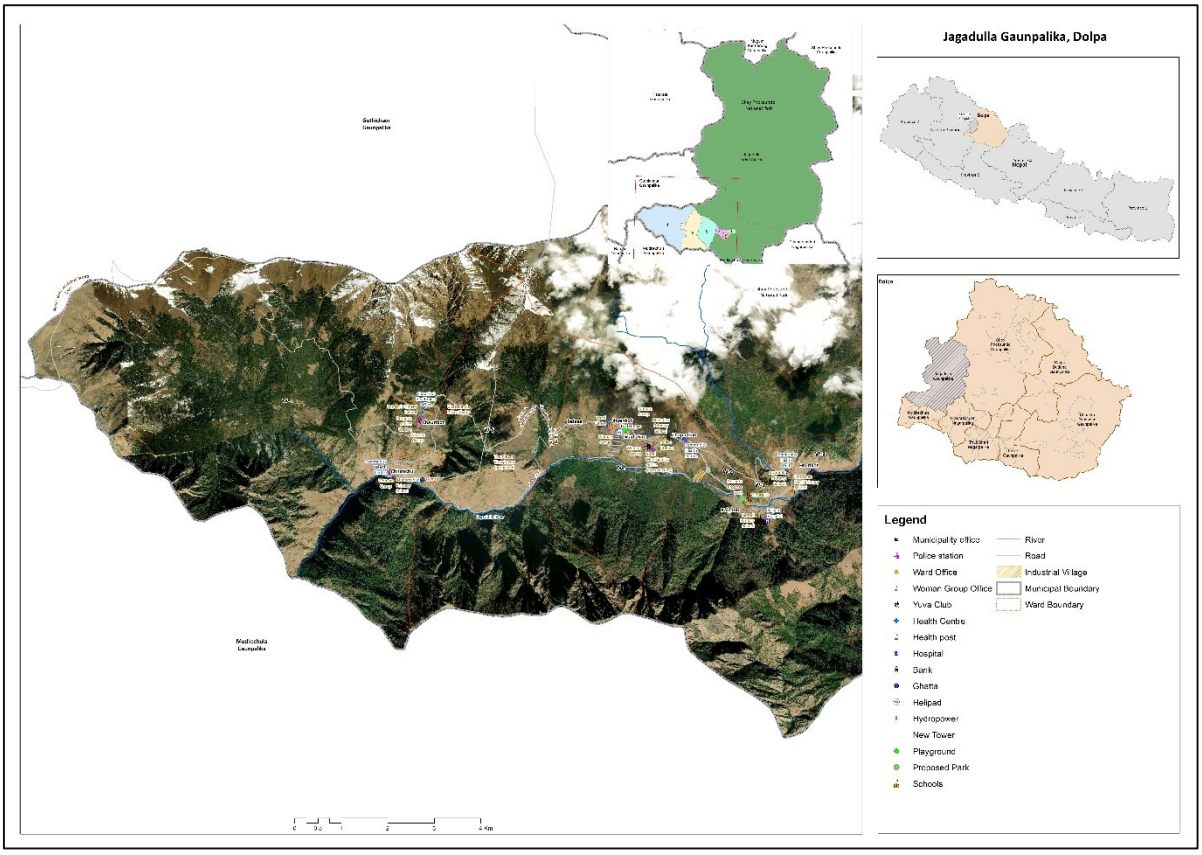
Master Plan Report of
Jagadulla Rural Municipality
Dolpa, Karnali Province



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Furthermore, the team would like to thank all the Social Mobilizer and the representative of women and ethnic group of Jagadulla Rural Municipality for their suggestions for making the plan more inclusive and child friendly. The team expresses sincere gratitude to inhabitants of Jagadulla Rural Municipality for their patience and co-ordination during the surveys. Finally, the team would like to acknowledge all the helping hands that were directly or indirectly involved in preparation of this umbrella plan.

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FOREWORD

The master plan of Jagadulla Rural Municipality, first planning step in the process of planned development of the Rural Municipality. This plan has been formulated with the sole objective of sustainable development, poverty alleviation and systematic development. It has incorporated the directives and suggestions provided by Government of Nepal, Constitution of Nepal (2072 B.S.), Local Government Operation Act (2074 B.S.) and 15th Planning Approach Paper of National Planning Commission (2076 B.S.).

It has also embraced the suggestions of local stakeholders, class and communities of the society, the prevailing economic and social situation and the challenges emerged from it at the implementation level and has come up as a pragmatic, realistic and implementable plan. The envisaged objective and the sectoral targets couldn't be achieved and the overall development process hindered due to the deteriorating condition of peace and security within the country and lack of visionary planning. Despite the critical situation and taking into account the fact that without a clear cut framework of development and poverty reduction for overall Rural Municipality, investment and development programmes can't be effective, this master plan has come into existence. Based on the realistic evaluation of the situation, resources mobilization, investment grant of GoN and Provincial Government have been projected. It is not possible to successfully implement the plan and attain expected outcomes without the real identification of the people's aspirations and the necessities. Keeping in view this reality in mind various discussion programmes were organized expecting the participation of all the classes of society in the process of formulation of this master plan. Discussion programmes were organized at ward and Rural Municipality level involving representatives of the village elected representatives, civil servants and people of society to determine the framework of the plan.

We strongly believe that the report will act as a milestone for upcoming plan, development activities and build the emotional connection among the youth and local inhabitants. To undertake this arduous journey, we are committed to continue this collaboration with the Government of Nepal and other stakeholders. This report offers a reliable, representative information about the umbrella concept and realistic information in the sector of planning concept of Jagadulla Rural Municipality. Lastly, it is hoped that the Master Plan of Jagadulla Rural Municipality, Dolpa will make a meaningful contribution in fulfilling the systematic development and poverty alleviation by accelerating the pace of social and economic development of the Rural Municipality. The active participation of all inhabitants is expected in its implementation from their respective capacities.

Naarsingh Rokaya
(Chairperson)
Jagadulla Rural Municipality,
Dolpa, Karnali Province

ABBREVIATIONS/ACRONYMS

° C	:	Degree Celsius
A.D.	:	Anno Domini
B.S.	:	Bikram Sambat
CBS	:	Central Bureau of Statistics
CER	:	Cultural and Environmental Risk
DCC	:	District Coordination Committee
DMG	:	Department of mines and Geology
DHM	:	Department of Hydrology and Meteorology
DPR	:	Detail Project Report
DoR	:	Department of Road
DWS	:	Drinking Water and Sanitation
FGD	:	Focus Group Discussion
GIS	:	Geographical Information System
GoN	:	Government of Nepal
GPS	:	Global Positioning System
HHs	:	Households
IDPM	:	Indicative Development Potential Map
INGO	:	International Non-Governmental Organization
IPF	:	Infrastructure Prioritization Framework
KII	:	Key Informant Interview
mm	:	millimetre
MoFAGA	:	Ministry of Federal Affairs and General Administration
NGO	:	Non-Governmental Organization
NTFPs	:	Non-Timber Forest Products
RCC	:	Reinforced Concreate Cement
RM	:	Rural Municipality
RMIM	:	Rural Municipality Inventory Map
RMMP	:	Rural Municipality Master Plan
SCW	:	Stakeholder Consultation Workshop
SRN	:	Strategic Road Network
SWM	:	Solid Waste Management
ToR	:	Terms of References
VDC	:	Village Development Committee
FIRR	:	Financial Internal Rate of Return
NPV	:	Net Present Value

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BRIEF ABOUT JAGADULLA RURAL MUNICIPALITY

S.N	Sector	Detail
1.	Physical and Geological	**Area:** 577.59 Km^2
		Area of Settlement: 83.30 Km^2
		Area of Shey-Phoksundo National Park: 694.29 Km^2
		Latitude: 29° 03' to 29° 25'
		Longitude: 82° 26' to 82° 47'
		Altitude for mean sea level: 2,170 to 6,883 m
		Climate: Temperate and Alpine
		Temperature: Maximum (22° C) and Minimum (-10° C)
		Former VDC: Kaigaun and Rimi
2.	Demography	**Total population:** 2,897
		Male: 1,440 and **Female:** 1,457)
		Total households: 589
		Population density: 3.72 person/Km^2
		Sex ratio: 98.83
3.	Economic	**Main occupation:** Agriculture, animal husbandry, medicinal herb collection
		Main production: Maize, millet, wheat, barley, buckwheat
		Income source: Animal husbandry and medicinal herb collection
4.	Social	**Educational instruction:** 9
		Literacy rate: 67.83%
		Mother tongue language: Nepali (69.59%) and Kham (30.41%)
		Religion: Hindu (57.68%) and Boudha (42.32%)
		Cooking energy source: Firewood (568 HHs-96.43%), LP gas (21 HHs-3.57%)
5.	Infrastructure	**Road:** 56.30 Km (Earthen)
		Drinking water: Available for all HHs (3/4 are using one tap)
		Electricity: 237 HHs (40.24%)
		Tele-communication facility: 85% HHs (Cell phone)
6.	Forests and Environment	**Forest coverage:** 89.28%
7.	Institutional	**Rural Municipality office:** Majhgaun, ward no. 5
		Total number: 6
		Web site: www.jagdullamun.gov.np
8.	Contact Address	Contact number: +977-9858390128 and +977-9858390214
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कार्यकारी सारांश

१. जगदुल्ला गाउँपालिकाको परिचय

कर्णाली प्रदेश अन्तर्गत डोल्पा जिल्लामा अवस्थित जगदुल्ला गाउँपालिका समुन्द्री सतहको २,१७० मिटर देखि ६,८८३ मिटरसम्मको उचाईमा अवस्थित छ। कुल क्षेत्रफल ७७७.५९ वर्ग कि.मी. रहेको मध्ये ६९४.२९ वर्ग कि.मि भू-भाग शे-फोक्सुण्डो राष्ट्रिय निकुञ्जले ओगटेको छ । यस गाउँपालिकालाई समग्र डोल्पा जिल्लाको क्षेत्रफलसँग तुलना गर्दा करिव ९.८५ प्रतिशत भू-भाग ओगटेको देखिन्छ । यस गाउँपालिका भौगोगिक अवस्थितिका हिसाबले २९ डिग्री ०३ मिनेट देखि २९ डिग्री २५ मिनेट उत्तरी अक्षांश र ८२ डिग्री २६ मिनेट देखी ८२ डिग्री ४७ मिनेट पूर्वी देशान्तर बिच फैलिएको छ । यो गाउँपालिका डोल्पा जिल्लाको सदरमुकाम दुनै देखि पश्चिम दिशामा पर्दछ । गाउँपालिकाको पूर्वमा शे-फोक्सुण्डो गाउँपालिका, उत्तरमा मुगु जिल्लाको मुगुमकार्मारोंग गाउँपालिका, पश्चिममा जुम्ला जिल्लाको गुठीचौर गाउँपालिका र दक्षिणमा मुड्केचुला गाउँपालिकाको साथै त्रिपुरासुन्दरी नगरपालिका रहेको छ ।

जगदुल्ला गाउँपालिका कर्णाली प्रदेश अन्तरगत डोल्पा जिल्लाको पश्चिमी भागमा अवस्थित रहि जुम्ला जिल्लासँग सिमाना जोडिएको जिल्ला हो । साविकका २ गा.वि.स.हरू (काईगाउँ र रिमी) समावेश गरी बनाइएको यस गाउँपालिकालाई ६ वडाहरूमा विभाजन गरिएको छ । डोल्पा जिल्लामा विद्यमान २ नगरपालिका र ६ गाउँपालिका गरी ८ स्थानीय तहमध्ये जगदुल्ला गाउँपालिका पनि एक हो । हाल यस जगदूल्ला गाउँ कार्यपालिकाको कार्यालय वडा नं. ५ को माझगाउँमा रहेको छ । यस जिल्लामा प्रतिनिधि सभा सदस्यका लागि एक वटा निर्वाचन क्षेत्र तथा प्रदेश सभाका लागी २ वटा निर्वाचन क्षेत्र रहेको छ । जगदुल्ला गाउँपालिका प्रदेश 'ख' अन्तर्गत पर्दछ ।

जगदुल्ला गाउँपालिकाको धरातलीय अवस्थामा धेरै विविधता रहेको पाइन्छ । जगदुल्ला नदीको दाँया बाँया समथर फाँटमा काईगाउँ र हुरीकोट वस्ति रहेको भएता पनि अन्य वस्तिहरु (चौरीकोट, छाँचु, भ्याकोट, माझगाउँ र थापागाउँ) भने भिरलो भू-धरातलमा अवस्थित छ । यस गाउँपालिकाको धेरै भू-भाग शे-फोक्सुण्डो राष्ट्रिय निकुञ्ज तथा यसको मध्यवर्ती क्षेत्रले ओगटेको छ । जगदुल्ला गाउँपालिकाको धरातलीय अवस्थाको सन्दर्भमा कुरा गर्दा यहाँ उच्च पहाडी भू-भागदेखि अग्ला-अग्ला बाह्रै महिना हिउँ पर्ने डाँडा, लेक, पाटन तथा हिमालहरू रहेका छन । गाउँपालिकाको कुल क्षेत्रफल ७७७.५९ वर्ग कि.मी.मध्ये ०.७८ प्रतिशत क्षेत्र मात्र खेतीयोग्य जमिन रहेको छ । वन क्षेत्रले ओगटेको क्षेत्र १३.९१ प्रतिशत छ भने घाँसे मैदानले ढाकेको २१.०९ प्रतिशत रहेको छ । बाँझो जमिन ५०.०४ प्रतिशत रहेको छ । गाउँपालिकालाई मूलप्रवाह क्षेत्र बनाएर अविरल बगिरहने जगदुल्ला नदी तथा अन्य खोलानालाहरु यहाँको मुख्य प्राकृतिक जल सम्पदाहरू हुन् । शितोष्ण तथा अल्पाइन हावापानी भएको यस गाउँपालिकामा गर्मीयाममा अधिकतम तापक्रम २२° सेल्सियस र जाडोमा न्यूनतम –१०° सेल्सियस सम्म पुग्छ । यस गाउँपालिकाको वार्षिक औषत वर्षा २४५ मी.मी. रहेको छ । Trans-Himalayan Zone भएकोले मनसूनी वर्षा एकदमै न्यून हुन्छ भने हिउँद याममा उत्तरी भेगमा वर्षाको सट्टा हिमपात हुन्छ । गाउँपालिकाको अधिकांश भू-भागमा सुख्खा किसिमको जलवायु पाइन्छ । दक्षिण-पश्चिम भागमा मात्र केहि हदसम्म मनसूनी हावापानीको प्रभाव पर्दछ ।

२. गुरु योजना तयार गर्दा अपनाइएको विधीहरु

गुरु योजना तयारीका लागि गाउँपालिकाबाट प्राप्त कार्यविधिमा उल्लेख गरिएको ढाँचा, सर्वेक्षण औजार उपयोग गरी प्राथमिक तथा द्वितीय तथ्यांक संकलन गरी यस गाउँपालिकाको वस्तुगत विवरण संकलन गरियो । गाउँ कार्यपालिकाको आयोजनामा गाउँसभा, कार्यपालिकाका पदाधिकारी, कर्मचारी र स्थानीय सरोकारवालाबीच साझा धारणा, बुझाइ र कार्ययोजना तयार गर्न २०७६ वैशाख ९ गते एक दिवसीय गाउँपालिकास्तरीय अभिमुखीकरण कार्यशालाको आयोजना गरियो । यस कार्यशालामा गाउँसभा तथा कार्यपालिकाका पदाधिकारी, कर्मचारी तथा गाउँ विकासका सरोकारवालालाई गाउँपालिकाको गुरुयोजनाको आवश्यकता, तयारी विधि तथा प्रक्रिया, ढाँचा, तथ्याङ्क संकलन तथा विश्लेषण गर्ने औजार, विधि तथा प्रक्रियाको बारेमा अभिमुखीकरण कार्यक्रम सम्पन्न गरिएको थियो । विज्ञ टोलिबाट स्थलगत अवलोकन तथा

गाउँपालिकाको पदाधिकारी र स्थानिय जनतासँगको छलफल तथा GPS तथा Google Earth मा Locate गरेको तथ्याङ्कलाई GIS Software मार्फत तयार गरियो । सम्वन्धित क्षेत्रको विज्ञहरुको संलग्नतामा यो प्रतिवेदन तयार पारिएको छ ।

३. जगदुल्ला गाउँपालिका गुरु योजनाको मुलभुत विशेषताहरु

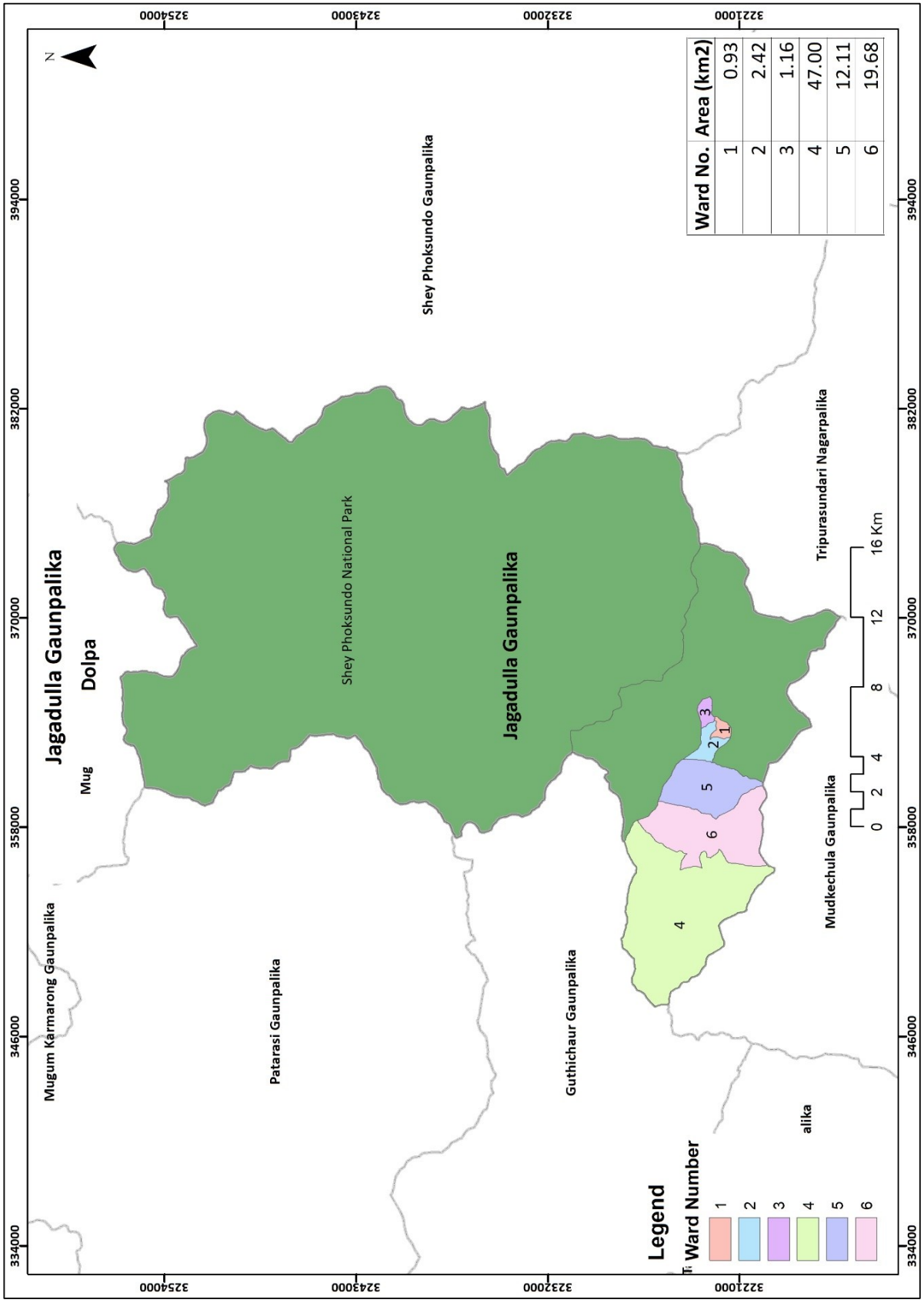
दीर्घकालीन सोच (Long Term Vision) गाउँपालिकाको दीर्घकालीन लक्ष्यको आदर्शात्मक अवस्थाको हो । सामान्यतया दीर्घकालीन सोचले वर्तमान अवस्था (Existing Stage) बाट भविष्यमा पुग्ने एउटा इच्छित अवस्था (Desired Stage) दर्साउँछ । यस अवस्थामा निश्चित समयावधि किटान नभए पनि दीर्घकालीन प्रकृतिको हुन्छ र यस सोचले आदर्शवादी अवस्था झल्काउँछ । यस्तो आदर्शात्मक अवस्थाका तर्फ योजना उन्मुख भए मात्रै दीर्घकालीन सोचले परिकल्पना गरेको इच्छित अवस्थामा पुग्न सकिन्छ । यस गाउँपालिकाको गुरुयोजनामा मुख्यतया: कृषि, पशुपालन, जडिबुटीको दिगो रुपमा संवर्धन तथा संकलन, सडकको सुधार तथा विस्तार, फलफुल खेति, खेलमैदान तथा मनोरन्जन पार्कको निर्माण, संस्थागत विकास तथा आवश्यक भवन संरचना निर्माण, पर्यटकिय क्षेत्रको पहिचान तथा प्रवर्धन, अस्पताल निर्माण, शिक्षमा सुधार जलविद्युत निर्माण, हेलिप्याड निर्माण, आदी योजनाहरु समेटिएका छन् ।

गुरु योजनामा प्रस्तावित केही योजना छोटो अवधिमा नै सम्पन्न गर्न सकिने किसिमको छ । जुन सम्पन्न गर्न ५ वर्ष भन्दा कम समय लाग्ने अनुमान छ । मध्यम समयावधिको योजनाहरु रणनितिक तथा दिर्घकालिन किसिमका पनि रहेका छन् । यस आयोजना सम्पन्न गर्न ५ देखी १० वर्ष प्रस्तावित गरिएको छ । यस किसिमका आयोजनाहरु समयमै सम्पन्न भएमा जगदुल्ला गाउँपालिका अरु स्थानिय तह भन्दा अब्बल साबित हुनेमा कुनै शंका छैन । साथै सामाजिक तथा आर्थिक जीवनस्थरमा परिवर्तन ल्याउने दिर्घकालिन सोचबाट प्रभावित भएका तथा गाउँपालिकाको मात्र आयस्रोत पर्याप्त नहुने कुनै न कुनै वाहिरी दाता वा संघिय तथा प्रादेशिक सरकारको अनुदान आवश्यक पर्ने आयोजनाहरु प्रस्तावित छन् । सो आयोजना पुरा भएमा वास्तवमा नै जगदुल्ला गाउँपालिका डोल्पा जिल्लाको मात्र नभइ समग्र कर्णाली प्रदेश कै अब्बल साबित हुने विश्वास गर्न सकिन्छ ।

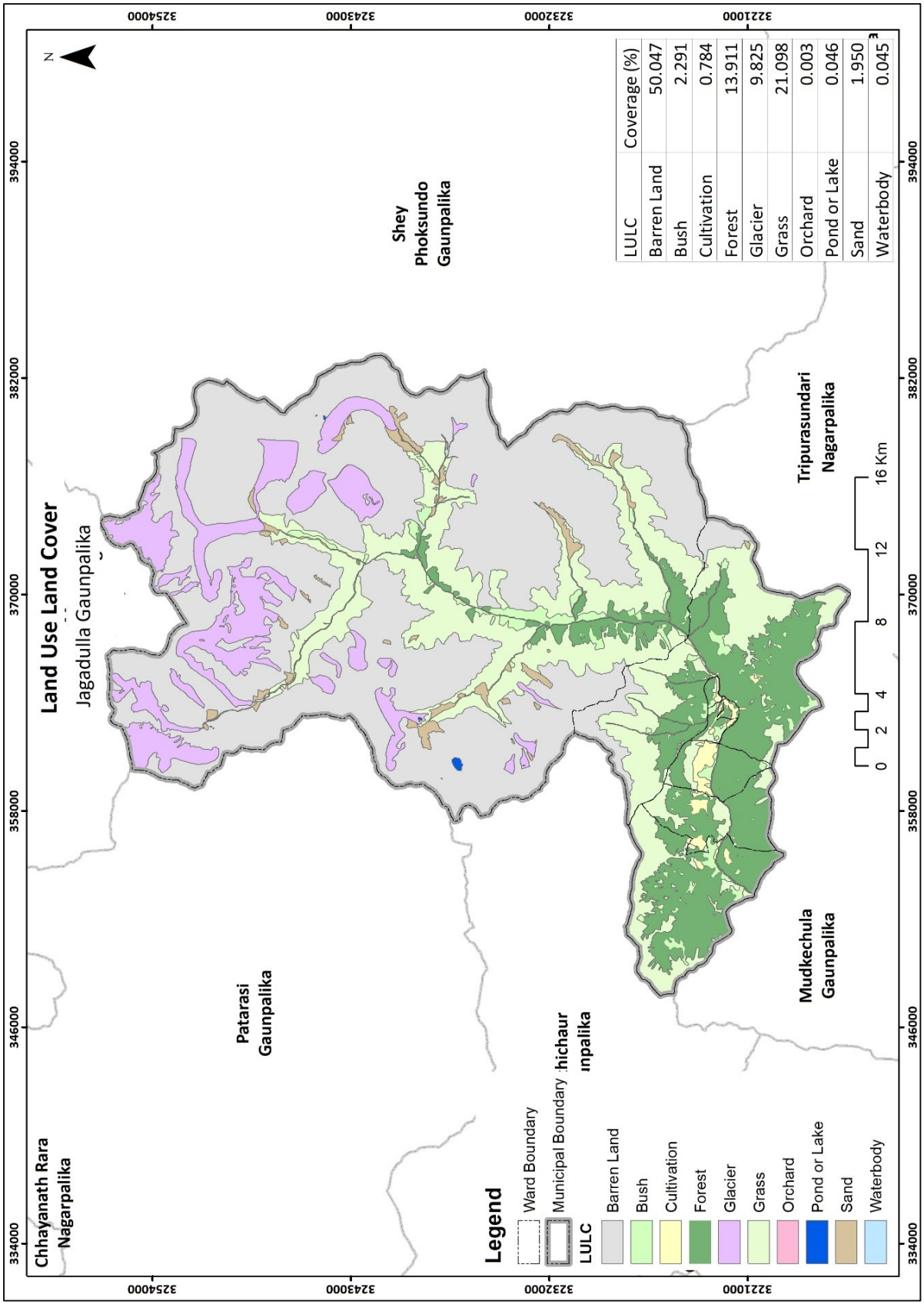
४. निश्कर्ष

जगदूल्ला गाउँपालिको गुरु योजनामा यथार्थपरक तथा कार्यान्वयन गर्न सम्भव हुने योजना तथा स्थानिय बासिन्दाका साथै जनप्रतिनिधिहरुको सल्लाह र सम्वन्धित विज्ञको विज्ञतामा आधारित भएर वनाइएको हुनाले यसको सहि कार्यान्वयन गरी यस प्रतिवेदनको मार्गनिर्देशन पालन गरि आयोजना छनौट तथा सहि तरिकाले कार्यान्वयन भएमा निश्चय नै पनि समाज र समग्र गाउँपालिका लाभान्वित हुनेछ । साथै आर्थिक अवस्था र जनशक्तिको उचित ब्यवस्था गरेर आयोजना अघि बढाउन सल्लाह दिइन्छ ।

WARD MAP OF JAGADULLA RUMICIPALITY
(Source: Survey Department, 2019)



LAND USE MAP OF JAGADULLA RURAL MUNICIPALITY
(Source: Survey Department, 2019)



CHAPTER I: INTRODUCTION

The genesis of planned development in Nepal commenced on the year 1956 A.D. The plan attempts to encompass the aforementioned concepts while formulating it on the basis of maximum utilization of available limited resources to include therein people's rising aspirations as far as possible. It has to be framed in an atmosphere of severe constraints of resource and means due to recent happenings taking place in national and international firmaments. Under such circumstances, too, the plan attempts to adhere to the principle of ensuring the utilization of here-to-fore developed infrastructures, institutional setups and policy reforms to yield maximum returns.

1.1 Background

A master plan is a dynamic long-term planning document that provides a conceptual layout to guide future growth and development. Master planning is about making the connection between buildings, social settings and their surrounding environments. A master plan includes analysis, recommendations and proposals for a site's population, economy, housing, transportation, community facilities and land use. It is based on public input, surveys, planning initiatives, existing development, physical characteristics, and social and economic conditions. Master planning can assume some or all of these roles:

- Develop a phasing and implementation schedule and identify priorities for action
- Act as a framework for regeneration and attract private sector investment.
- Conceptualize and shape the three-dimensional Rural Municipality environment.
- Define public, semiprivate and private spaces and public amenities.
- Determine the mix of uses and their physical relationship.
- Engage the local community and act as builder of consensus.

As Rural Municipality regeneration initiatives are generally long-term propositions, it is important to consider the master plan as a dynamic document that can be altered based on changing project conditions over time. Master plans can have an important role in determining the shape of the development environment. The residents also criticized the unpleasant contrast of the development with the existing historic urban fabric, as well as the fact that the development are not well integrated within the traditional neighbourhoods. All of these issues could have been addressed well in advance as part of the master plan.

A broader perspective on Rural Municipality Master Plan is proposed in Local Government Operation Act (2017 A.D.) and National Urban Strategy (2015 A.D.). The Act and strategies include the integration of development, land use and transportation, sectoral development as well as development of related institutional mechanisms and capacity. Local Government Operation Act provisions formulation of local development plan according to needs-based, bottom-up and participatory approach. It has prominently defined tangible steps for formulation of such development plan. The main objective of this plan is to make investment for planned development within each of the local bodies' territory. Ultimately, development endeavours help attaining sustainable livelihood and improved well-being of people. People's needs for sustainable livelihood and improved well-being are such that they require better access to information, markets and opportunities; they need better access to health, education and other goods and services. The population and land area are inherent for economic development but the sustainable development have multiplicative effect on local economy.

Ministry of Federal Affairs and General Administration stepped up to prepare profile, land use plan and master plan of local level. Government of Nepal have responsibility to approve the proposal the proposal and report in various steps. The Constitution of Nepal 2015 A.D. defines Nepal as a federal democratic republic organized around three levels of government – federal, state, and local. Henceforth, state is divided into seven provinces and local is divided into 77 districts & 753 local levels. The Constitution of Nepal 2015 A.D. (Schedule 8) gives 22 powers to these local levels. This enables them to formulate laws to implement these powers. Jagadulla Rural Municipality is one, which has established in 2016 A.D. through agglomeration of 2 existing Village Development Committees (Rimi and Kaigaun VDCs of Dolpa). Since these Rural Municipality is at an early stage of infrastructure development they require appropriate long term plan so that organized and sustainable development shall be developed. Jagadulla Rural Municipality Master Plan has considered as an objective tool for prioritizing the projects and it will fulfil partially the lacking part of development.

1.2 Objectives of Master plan

The prime objective of this study is to prepare the Rural Municipality level master plan for Jagadulla Rural Municipality. The planning approach is participatory and bottom-up approach level from the community. It will include a constructive plan to incorporate all the needs and facilities for now and future. The specific objectives are to:

- Collect the inventory of demography, occupation, religion, literacy, economic data and perception of local people.
- Identify the major problems, issues of different sector, mobility and accessibility.
- Prepare indicative map of resource, land use, potential development, natural resource, tourism potential area, other existing infrastructure and prioritized plan.
- Prepare the perspective plan of different sector and facilities and synchronize the draft perspective plans of adjoining RM/Municipalities/districts.
- Collection of demands for new/rehabilitation transport linkages, Rural Municipality, settlements based development plan.
- Develop scoring criteria and its approval from Rural Municipality.
- Prepare physical and financial implementation plan of prioritized plan.
- Prepare a five, ten year and long term Rural Municipality Master Plan.

1.3 Scope of Work

Primary scope of the study is to prepare the comprehensive master plan report of prioritized infrastructure projects. Besides the primary scope, different steps and methodological approaches are to be followed in achieving the task which will assure the accountability, credibility and effectiveness of the study. Some important scopes of the project study are listed in various stages as follows. The scope of the works and services of the consultant for the project are given below:

- Preparation of holistic Master Plan of Jagadulla Rural Municipality.
- Collection of basic information like: demography, health, education, socio-economic data from primary and secondary sources.
- Land-Use map preparation and classification and analysis the fund availabilities.
- Preparation of perspective plan of interventions of services and facilities.
- Prepare indicative plan along with the existing basic infrastructures and services.
- Experts' analysis on master plan thematic topics.

CHAPTER II: PRE-FEASIBILITY STYDY AND LITERATURE REVIEW

The pre-feasibility study will help to eliminate unaligned alternatives in a situation where there are several possible methods to achieve the desired objectives, eliminate non-viable projects, eliminate unsuitable locations, decide whether modifications are required for a particular project to make it a viable one etc.

2.1 Reconnaissance Survey and Verification of Screened Projects

The consultant with team of multi-disciplinary experts including the support staffs of the field office shall visit the field and carryout necessary reconnaissance survey and collect required data and information. During this task the team will collect additional data and information of the particular projects as screened above. The consultant shall devote another two weeks in the field for rapid assessment focusing on land and soil, social, commercial, institutional, economic and environmental aspects of master plan analysis following the guidelines of GoN and potential future funding agencies. Based on the field data and information the consultant shall prepare the alternatives, tentative cost estimate and investment plan of each project.

2.2 Pre-feasibility Study of all Screened Projects

The consultant shall prepare location maps, conceptual plans, measurement drawings, thematic maps etc. and prepare draft Pre-Feasibility Report and submit to Rural Municipality.

2.3 Presentation and Discussion and Submission of Pre-Feasibility Report

The report shall be presented to representative of Rural Municipality for their feedback, comment and suggestions. The Rural Municipality shall provide necessary comments/feedbacks and suggestions and the consultant shall submit the Final Pre-Feasibility Report after incorporating those comments/feedbacks and suggestions, all listed program and projects shall be assessed to examine whether or not these projects are worthwhile to conduct feasibility study and detailed project study.

2.4 Feasibility Study with Detailed Infrastructure Development

2.4.1 Economic Feasibility

The benefits that shall accrue from a particular project over a period of time and the cost/investment that needs to be made to implement such project through the indicators such as Benefit-Cost ratio and others shall be analysed in detail. The study finding out Jagadulla Rural Municipality, Dolpa is high feasible area on its economic development perspectives. The major economic development area has been identified as such Agriculture (apple orchard) Development Pocket Area; Livestock pocket area, Non-Timber Forest Products (NTFPs) pocket area and developed under budget and program of Jagadulla Rural Municipality.

- **Tourism sector**: It is one of the most vibrant economic development areas of Jagadulla Rural Municipality as this municipality is rich in natural resources (Yarsagumba, apple, sarpaganda), beautiful pasture lands like Jagadulla pasture land, Maure pass high land, which is used for film making and adventures tourism activities. Jagadulla Rural Municipality has envisioned proposing a dream project for cable car projects from Chanchu to Dudhkundali Lake. This project would run along the Thumlagna Danda and would be 10.8 Km in total length. The project will be a milestone to attract internal and external tourists.

- **Water purification plant:** Jagadulla Rural Municipality have planned to conduct feasibility study for establishment of a water purification plant within Rural Municipality area to deliver potable water to the local people and commercialize the water out of Rural Municipality territory which will be one of the high economic potential project.

- **Medicinal and therapeutic herbs resource centre:** In consultation with local representatives, Rural Municipal executives, political leaders, teachers, indigenous people at field level and socio-economist, researchers and scholars at expert's level found that a model medicinal and therapeutic resources centre is supposed to be established as there are diverse, valuable medicinal and therapeutic herbs are available in Jagadulla Rural Municipality. The executive officer of Jagaulla Rural Municipality has dreamed to establish such resource centre for study, research and apply indigenous medicinal and therapeutic practices introduced by Shiners.

- **One house one entrepreneurship development initiatives:** With the objective of reducing unemployment and uplifting the living standard of people, Jagdulla Rural Municipality of the higher mountain district of Dolpa has introduced one home, one business' campaign. In the first phase of the campaign, 35 households of ward no.4, Chaurikot, have been provided yaks, according to chairperson of Jagdulla RM. He said that the local unit has sanctioned a total budget of Rs 56 million for animal husbandry in 190 households, agriculture in 314 households and various other activities in 78 households. Households in Chaurikot were provided two yaks each while those preferring to raise goats were provided 12 goats each in a grant. While the farmers will have to mandatorily buy at least one yak each, they will be provided two yaks each in a grant. Likewise, the farmers will have to mandatorily buy eight goats each while they will get 12 goats each in a grant. Non-gazetted officer Keshav Jaisi of the municipality said that this campaign has been launched from fiscal year 2018/19. He added that the farmers will be provided with a grant of Rs 96,600 each. Develop Economic Pocket Area: Economic Pocket Area approach enables smallholder farmers to take advantage of market opportunities by forming production groups. These groups are then able to generate sufficient volume for commercial activity, reducing transaction costs, providing key services such as processing and grading, and allowing for the scale necessary to advocate for policies favourable to smallholder agriculture. This will serve over 100+ smallholder households, resulting in increased commercialization of farming activities, increased incomes, and economic and social benefits for 1500+ people.

2.4.2 Social Feasibility

The proposed project shall benefit the community lagging behind in the society especially children, single women, physically disable people. It shall also look into the displacement and resettlement issues and shall recommend the socially acceptable measures. The study will also address the participation aspect of the project.

2.4.3 Environmental Feasibility

The proposed project shall address environmental, geological and disaster risk issues to analyze for likely negative impacts to assess the viable mitigating measures.

2.4.4 Financial Feasibility

It involves the analysis and calculations like Financial Internal Rate of Return (FIRR) and Net Present Value (NPV). Financial analysis deemed necessary for major infrastructures project shall be calculated. Financial analysis shall also cover institutional borrowing capacity,

possible contribution by Rural Municipality and community level, etc. as an integral part of the study.

2.4.5 Institutional Feasibility

The proposed projects shall be analysed for role and responsibility of Rural Municipality, stakeholders and agencies directly or indirectly involved in the rural municipal development process and activities. It shall recommend the implementable institutional framework such as Public Private Partnership (PPP) and other viable modalities within the cluster settlement. This shall include an assessment of the Rural Municipality human resources and their capacity building needs.

2.4.6 Technical Feasibility

The proposed projects must be assessed for geo-seismological and hydrological soundness. Further, it needs to consider the availability of lands and its accessibility, availability of local skilled/unskilled labours, raw materials, appropriate technology etc., conduct detail engineering survey, design and cost estimate of alternative projects.

2.4.7 Strategic Framework

The strategic framework accompanies the master plan and sets the scene in establishing baseline information related to the physical, social, and economic context of the site and surroundings. This background information should outline the site location and dimensions, topography, and existing uses. It should highlight the current zoning regulations and relevant/applicable planning policies, as well as any particularly important opportunities and constraints relevant to the site. In summary, the strategic framework includes:

- Physical aspects of the regeneration project
- Vision and scope prepared during the scoping phase
- Various elements or functions that could act as catalysts for change
- The business case for development
- Strategic delivery issues and options
- Guidelines about how the strategic framework will inform and impact design.

The strategic framework is critical for developing a sound spatial master plan in the next stage. It includes all of the studies and analysis that are needed before entering the design phase, especially urban design analysis, which provides options for various development form scenarios. In the strategic planning phase, the team also determines which core competencies are required to develop the master plan. These could include urban design and planning, landscape design, transportation planning, economic development, cost planning/surveying, cultural heritage, specific industry sector analysis, and urban sociology and crime statistics.

2.4.8 Physical and Spatial Elements of a Master Plan

Once the feasibility study and strategic framework have been undertaken, the physical master planning process continues. Based on the first two phases, master plans establish and develop options for land use, as well as costs and values. In summary, the spatial master plan should include elements such as massing, height, densities, orientation, grids and blocks, transportation systems, and open spaces. The master plan should also cover some or all of the following elements to ensure an overall holistic and successful design and use outcome:

- Neighbourhood character, and heritage
- Various uses including housing and commercial areas
- Open space and the public realm

- Biodiversity
- Integrated water management and utilities
- Transport

2.5 Literature Review

Literature review is carried out to understand the planning history of Nepal along with to understand some key terminology that are significant in this project to explore. Review of different planning practices in Nepal has helped consultant to understand the challenges that earlier planning process had to face and learnings from past to pass through the stages. Similarly, consultant have also intricately reviewed the new constitution of Nepal, especially exploring the authority and obligations of different level of governing bodies focusing on local government.

2.5.1 Planning Practices in Nepal

The process of planned economic development has commenced in Nepal since 1956 A.D. with the inception of the First Five-year Plan (1956-1961). Fourteen periodic plans have been implemented so far. Some progress has been made towards laying socioeconomic infrastructure, which has supplemented national development over a little more than four decades; however, achievements of these plans do not measure up to the expectation. No substantial progress has registered in the agriculture sector, upon which the majority of people mainly rely for subsistence. Only a limited number of industries have been established. Internal savings have remained low. External assistance has not been utilised gainfully. Foreign trade has recorded increasing deficit. Unemployment and economic inequality have not been able to reduce. As a consequence, the problem of poverty still remains unresolved. Poverty still persists as a formidable challenge as population growth has not been able to bring down and the increase in the income of the people has remained minimal. Against the backdrop of 25.4 percent of the population living below the absolute poverty line, it is highly essential to promote investment and employment and render sustainable and dynamic economic development in order to increase the income of the poor within a certain time span.

2.5.2 Master Planning approach and Structure Plan

One of the fundamental premise of the master plan is based on the western concept of 'zoning' which outlines a land use pattern by dividing the city into zones, where those traditional master plans had physical planning approach translated into spatial plans. Wapwera and Egpu (2013) defines master plan as a comprehensive long-range plan intended to guide growth and development of a community or region including analysis, recommendations, and proposals about the community's population, economy, housing and basic infrastructure as well as land use. P.B. Chhetri believes that new approaches of planning should be preceded by understanding of planning and development policy and programs after radical political change of 1950-51. Chhetri considers the coronation of King Mahendra (1955) and Queen Elizabeth's visit (1962) as introduction period of modern urban planning which was soon followed by UN Technical assistance program in 1962 for planning initiation Kathmandu Valley. The study resulted "The Physical Development Plan for the Kathmandu valley" in 1969 also called as Master Plan or the first comprehensive planning document in the country, commonly referred to as "1969 Plan" as well. Based on the "Survey-Analysis- Evaluation-Implementation", master plan approach of planning took enormous time in collection and analysis of data (Joshi, 2008, p. 95). Further on the analysis resulted on alternative solutions where best alternative was selected and developed into master plan (Joshi, 2008). One of the major criticism of master plan was that the plan was never realized of its full extent because of its extensive need of resources and limitation of project management.

Alternative to master plan, structure plan was introduced in 1988- 1991 for municipalities in support of Department of Housing and Urban Development (DHUD) in the name of Management Support of Urban Development (MSUD) (Irwin & Joshi, 1996). Structure plans were prepared for 33 municipalities but were limited to policy statements and details were not worked out (Joshi, 2008). Moreover, the approach continued to be physically biased and unrealistic. The plan basically lacked the consideration of realistic scenario of financial, institutional and other dimensions in the ground which could majorly affect the implementation strategy through municipalities (K C, 2015). Joshi (2008) explains the possibilities of structure plan to be successful than Master Plan on the basis of its dynamism, feasibility in updating plans as per demand and rightful allocation of budget as they were backed up by series of action plans which were detailed local area plan which provided legal basis for development control and brought planning issues before public. Another learning steps from the structure plans were indicative plans where Joshi explains in his book "Planning approaches in Nepal" that simple, feasible and understandable plan has better chance to success, where everyone gets to participate in the process and decision making.

2.5.3 Integrated Action Plan

Integrated Action Planning was introduced at a time of decentralization of responsibilities and expected increases in funding for urban infrastructure to overcome deficits and serve rapid urbanization (MHPP, 1992) (Mattingly & Winarso, 1999). An alternative to conventional approaches of planning, it was more action oriented and realistic as it translated and implemented the goals of strategic planning within shorter time frame. (Irwin & Joshi, 1996). Joshi (2008) pushes the fact that IAP is more appropriate in case of Nepal where urbanization is rapid, resources are constraints, institutional capacities are inadequate and planning processes need to be simplified and less time taking. Joshi (2008) explains about the process adopted during the IAP, where professionals worked closely with municipal staff for about three months. Some of the steps carried out are explained as: Community consultation and problem identification with series of discussions and meetings were held where problems were identified in realistic way and people's expectations were not raised beyond affordability. Parallel to the community consultation, analysis of acquired information was conducted to determine and evaluate the opportunities and constraints existed in resources & institutional capacity of municipality, legislative framework and existing project (Irwin & Joshi, 1996). Likewise, physical and environmental analysis of the locality was done to conduct the SWOT analysis of site by preparing thematic maps, assessment of land use, identifying trends and patterns of growth, resource distribution and others (Joshi, 2008). Based on the previous collected information, problems were identified and prioritized, projects were formulated with solutions to each problem. Projects formulated were examined on the basis of their social, physical, topographical and financial feasibility, and applicable projects were set to implement.

Mattingly & Winarso (1999) claims that Integrated Action Planning was expected to promote the use of spatial planning as well as to improve investment programming. Different studies have proven the IAP concept is widely praised in Nepal but some of the steps are questionable. "Municipal residents and maybe some ward leaders and representatives have mistakenly thought IAP as a funding agency, probably because its introduction opened up access to the Town Development Fund and possibly some funds of the DHUD" (Mattingly & Winarso, 1999), which might be the similar case with UGDP/ UGIIP where the program is unanimously taken as the funding project rather than the essence of the planning process. Identifying the problems and prioritizing the projects at ward level meetings with extent of participation can be considered as good democratic process but often misguided by ill political will (Joshi, 2008).

Mattingly & Winarso (1999) argue that changes to the sources of local government revenue have destroyed the foundation behind many investment plans and increased many times the difficulty of estimating future municipal incomes which showed the potentials that IAP was not fully realized. Irwin & Joshi (1996) further add that many municipalities find it difficult to implement urban projects as there is sever lack of manpower, resources and urban awareness.

2.5.4 Periodic Plan

Periodic plan is a long term plan of generally 5-7 years, picturing the future image of that locality comprising different disciplines of plan such as physical, social, environmental, financial, economic and institutional development. It consists of plan, policies & regulations related to the programs, investments and implementation of the program including budgeting and allocating tasks for responsible line agencies. According the guideline published by government, it can be taken as 'participatory and inclusive plan'. Periodic plans integrate different thematic plans according to social, economic, environment, physical, financial, and institutional aspects and ensure that the concerned stakeholders in the respective district authorities get due support in the overall periodic planning process in order to translate the legal provision into action (Ministry of Federal Affairs and General Administration). It requires a municipal data profile and a participatory planning process with a log frame format that includes a rolling budget. Compared to Integrated Action Planning, comprehensive nature of periodic plan is considered as more realistic because of its legal status of Local Government Operation Act (2017 A.D.), hence these are also considered as one of the performance indicators of municipalities.

Periodic planning processes have been extremely slow due to endless data collection, lengthy public participation, the limited analytical capacity to utilise existing proxy data, the unwillingness to make decisions due to the changing political climate and the conflict within the country, the lack of local representation, weak institutional capacity and other priorities that override periodic planning (gtz: udle, 2006). These are often viewed as tools that provide legitimacy or fulfil bureaucratic necessities rather than as management tools that actually organise the future development of municipalities according to agreed and balanced priorities voiced by local people. These are often argued as overloaded with a holistic planning approach, which is far beyond realistic implementation and service capacity (gtz: udle, 2006). But periodic plans have certain benefits over other sorts of planning because of its integrated nature of planning, legal and financial base for planning and budget allocation, foreign agencies in enhancing the institutional capacity building of municipalities and participatory approaches.

2.5.5 Issues and Challenges

Nepal has started modern urban planning after 1960s with international expertise of UN, when country was freed from century of feudocracy of Ranas. Since then we have gone through series of new urban planning processes to control the haphazard urbanization, where the present doesn't shine as was planned in the past (K C, 2015). Many scholars like Dhakal (2004), Joshi (2008) and Irwin (1996) believe that planning in Nepal were limited in papers without taking in consideration of ground reality and unexpected scenarios. So far the first kind of master plan for Nepal prepared by UN experts in 1969, covering a number of aspects in planning and conservation for next 20-30 years was not really well accepted by government in its policies (Dhakal, 2004). Dhakal blames that 'Kathmandu Valley Physical Development Plan, 1976' which consisted many sub plans like urban design, residential development, zoning, etc. always remained in the file and in reality greens were converting into greys.

Two major planning authorities of Nepal Town Development committees and Municipalities itself are merely 'Jaw-less bodies' (Dhakal, 2004), which is still the same as it basically lacks the required human resources and institutional support. According to new constitution Municipality are authorized to frame land use, prepare housing plans, management plan for drainage and drinking water, plan recreational space, and approve the construction of building and many more. Lack of coordination between private and public sector, national and international development agencies as well as among the sectorial line agencies in the implementation of urban projects has been a problem since long time. Technical competence for implementing the municipal projects is also severely lacking (Irwin & Joshi, 1996) where factors like privileged co-ordination of various actors, trend to violate laws, insufficient zoning regulations and improper planning consciousness are distorting the urban features (Dhakal, 2004).

Scarce supply of urban land, high cost and slow mechanism for land acquisition act is also considered as major challenges in implementation of big urban infrastructural project. Prolonged public participation and often misguided by ill political will are hindrances in implementation of many urban projects. As Roy (2009) describes about the situation of urban governance in India as 'regime is itself an in formalized entity, one that is a state of deregulation, ambiguity, and exception'. She further ads on that 'incontrovertible argument about the failure of planning in India: that informality and insurgence together undermine the possibilities of rational planning, and that therefore India cannot plan its cities,' which is exactly the similar ground reality of Nepal. Law rendered as unrestricted and subject to multiple elucidations and interests can be positioned as, 'law as social process is as idiosyncratic and arbitrary as that which is illegal' (Berry, 1993; Holston, 2007, Roy, 2009).

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

Joshi (2008) explains that many attempts have been made to make planning more comprehensive. Mechanism to integrate different aspects are either not in place or very weak where such failures to integrate these sectors explain why planning has failed in Nepal. Plans in Nepal have always lacked the 'harmony within and among the organization' (Joshi, 2008). Kelly & Becker, (2000) explain that success in planning is determined by the effort of its leadership, that can be governing body or planning commission or working together, which is one of the major drawbacks of planning institutions in Nepal. Joshi (2008) adds that institutional in capabilities of planners or implementing agencies to consider the unexpected scenario caused due to external factors is making planning in competitive in Nepal. He highlights the implementation as ultimate goal of any plan hence it should be strategically ready to cope up with situations due to changes in environment, both internal and external.

2.5.6 Infrastructure Planning

Infrastructure, in the developmental perspective, is the base, upon which society and societal activities rest. It is the sector in which public welfare activities are executed by public (or private) enterprises. Merriam Webster Dictionary has defined "Infrastructure" as "The

underlying foundations or basic framework" (as of system or organization). Single definition of infrastructure is difficult to make, yet infrastructure can be defined by its characters.

- It is accessible to large groups of people
- It provides crucial services for the functioning of an organization or society
- It helps to achieve economic and social objectives
- Examples of infrastructure are waterways, Roads, Education Institutions, etc.

Infrastructure supports societal objectives that range from basic amenities like increased housing provisions, economic growth, transport, schools, health and leisure services to other services like green energy, utility services, open space, community, thriving and sustainable communities and mitigating climate change (I and Dea, 2009). World Bank (Telford, 1999) has made it even clearer that, Infrastructure may be deemed to include facilities and processes in following areas:

- Public utilities- power, telecommunications, piped water supply, sanitation and sewerage, solid waste collection and disposal, and piped gas.
- Public works- roads and major dam and canal works for irrigation and drainage.
- Other transport sectors- urban and interurban railways, urban transport, ports and waterways, and airports.

These constitute the physical infrastructures. However, there are other sectors of infrastructure apart from this definition. They are the social, cultural and so on. Infrastructure planning is a continuous process and a valuable tool for managing infrastructure delivery. Monitoring, review and taking action to deliver will require an ongoing partnership governance arrangement. (Planning Officers Society, 2009). With Infrastructure Planning, infrastructure needs are identified and planned for addressing those needs. They also cover the task of planning for how infrastructure establishment will come about, underpinned by organizational investment regardless of sector (2009, p. 5).

All organizations must invest in their future if they can, in order to improve, expand or maintain their services. The integration of these individual processes and programs will enable service providers to more effectively target areas of need with the potential to achieve greater efficiencies and savings. Good infrastructure planning and delivery is important at both local and regional levels (2009, p. 5).

Infrastructure and services are provided by a range of organizations and they need to be integrated for progression as planned. The preparation of an Infrastructure Delivery Plan or Schedule will help that integration and is essential if local authorities and their partners – especially the LSP – are to fulfil their place shaping role. Where investment for development can be identified, the capacity of existing services to accommodate new population growth should be captured and where possible quantified and any gaps in provision clearly set out. If the plan is done with the involvement of all relevant parties, it helps to:

- Direct the right level of growth and infrastructure development in the right place
- Bid for funding from other infrastructure agencies, and
- Engage with infrastructure funding providers and deliver the right levels of infrastructure for growth (2009, p. 5).

Thus, Infrastructure Planning includes tasks of identifying infrastructure needs, designing the process of infrastructural project identification and planning for their implementations, predicting the outcomes that synchronize the project with infrastructure needs and budget envelope, integrating various sectors and investors and analysing the individual contributions of the stakeholders.

2.5.7 Indicative Plans

Various key performance indicators of development are taken as the conditions based upon with development plans are formulated. They are Employment, sufficient income, adequate shelter, access to safe water, access to medical services and education, environmental safeties and personal security. By definition, infrastructures that assign those indicators are usually invested by the state or government. According to World Bank working paper from 1990,
"Indicative plans include establishment for sectorial targets which are not necessary for private sectors and are imbedded in macroeconomic projections that pertain to a period of several years" (Belassa, 1990).
Followings are the postulate of Indicative planning (Moisseev, 2010).

- Resource assessment for safe, secure and sustainable development
- Flexible and reliable form of cooperation, partnerships and participation
- Coordination mechanisms for safe flows of investments for capacity building and infrastructure development using innovative techniques and technologies
- Collaboration in identification strategic goals and development priorities

Indicative plans are usually persuasive ones. That is, they are not imperative plans but are suggestive ones that are directed to promote faster and more stable growth thereby encouraging more efficient investment. According to (Turner & Collis, 1977), Indicative plans contain 'a forecast or target rate of growth for the economy as a whole for specified future time period and a consistent set of microeconomic forecasts or targets. The planning exercise involves raising the overall level of demand expectations and removing the uncertainty with which expectations are held. Indeed, in the context of this project, Indicative planning is employed so as to set target population of planning and targeted growth and direction of urban form.

2.5.8 Infrastructure Project Prioritizations

Project selection is one of the major tasks of Infrastructure Development Planning. Especially when large number of projects are floated during the planning process, it is important to prioritize those in order to ensure the proper use of funds on the most needed infrastructure. This process is known Infrastructure Project Prioritization. Various models are under practice for project prioritizations. Social Cost Benefit Analysis (SCBA) is one of the most comprehensive and sound project appraisal process, when systematically applied, provides a basis for project's prioritization (Marcelo, Mandri-Perrott, House, & Schwartz, 16-04-23-Infrastructure-Prioritization-Framework-Final-Version, 2016). But in most of the cases, in developing countries, the data and even the budget for infrastructure may not be sufficient as required and also the planning has to be carried out in less time with relatively even lesser timeframes. SCBA incorporates extensive economic analysis and is time consuming on the one hand, on the other, processes with in depth data and information regarding the cases. For such instances, various other models are already practiced and have been proven to be effective. Infrastructure Prioritization Framework (IPF) is one of them. 'It is a multi-criteria decision support tool that considers project outcomes along two dimensions- social-environmental and financial-economic (Marcelo, Mandri-Perrott, House, & Schwartz, 16-04-23-Infrastructure-Prioritization-Framework-Final-Version, 2016). As IPF is based upon Multi-Criteria Decision

Analysis, it allows for two critical policy choices, the selection of criteria by which alternatives will be assessed and the weighting of criteria. And both of these choices are performed with the active consultation to expert guidance. As per the World Bank PPP Group (Marcelo, Mandri-Perrott, House, & Schwartz, 16-04-23-Infrastructure-Prioritization-Framework-Final-Version, 2016) which has already used this model for project selection, the first step of IPF is to identify the set of indicators that will be combined to construct the social-environmental (SEI) and financial-economic indices (FEI) in term of application context based upon government policy goals and stakeholder consultations. Next step is to combine the quantitative and qualitative variables via an additive model. The following step is to condense dissimilar data types and scales of measurement into indices. For that, qualitative data and ordinal quantitative data are transformed into usable scalar data, wherein the intervals between values reflect degrees of difference. The criteria measurement, as such, are standardized into common scale and weights for each criterion in the additive models are established (2016, p. 11). Thus, standardized indicators are multiplied by weights to create the index score. Weighting, on one hand helps to structure the discussions on relative importance of component indicators and policy goals, on the other, could be a way of manipulation of selection process in pursuit of prevailing interests. As such, experts' consultation is important with the critical discourse of indicators importance, weightage for each indicator is figured out. This has to be a transparent process and the weightage, as such is fixed with the expert's guidance, already set Policy goals and the contextual project appropriateness identified in advance of analysis (p. 12).

In case of Vietnam five indicators were figured out under SEI: Direct jobs Created (DJ), Number of Beneficiaries (NB), People Affected by Repurposing Land Use (PA), Cultural and Environmental Risks (CER) and Pollutions in term of CO_2 equivalent emission (CO_2). Similarly, for FEI, indicators used were Financial Internal Rate of Return (IRR), Multiplier Effects (ME), Categorical score indicating the project's locus in designated Priority Economic Zones (PEZ), a qualitative measure of Complementarily/ Competition effects (CC). The indicators further prioritized with the weightage were extrapolated to the budget envelope with a Cartesian matrix and as such, 268 projects were selected out of approximately 3000 projects. Thus, the pilot project in Vietnam was executed successfully with some lessons to learn. One was the sensitivity of the composite indices. Another was about Technical or even political problems that could be created by subjective weightage. Third was the role of proper definition of the metrics to avoid the possible biases. Fourth was the appropriate use of financial and economic indicators in low information conditions. Fifth lesson being the success of the IPF to monitor the efficacy and efficiency consideration and final lesson was the appropriateness in using IPF to strengthen data weaknesses (p. 22).

CHAPTER III: CONCEPT, GUIDING PRINCIPLES AND LEGAL FRAMEWORKS

3.1 Concept of Master Plan

Although some sectoral long-term plans were formulated and implemented in the past in central level, a clear vision could not be formed for the socio-economic development of the country because of the lack of formulation of an overall framework for long-term development. The absence of clearly defined concept of the long-term development and lack of clear guidelines to that end led to the inconsistency between the sectoral policies and programmes, adversely affecting the economic growth rate of the country. Because of this situation, efforts are needed to formulate and implement strategies for the immediate and long-term development of the Rural Municipality level.

3.1.1 Goals of the Master Plan

These are the major goals of RMMP.

a. Poverty Alleviation
b. Systematic development
c. Environment friendly development
d. Maximum resources utilization
e. Strong local level institution development
f. Focus on specific target guided by plan, etc.

3.2.2 Sectoral Concept of Master Plan

The following sector covers the RMMP.

a. Agriculture
b. Labour and employment
c. Tourism
d. Electricity development
e. Irrigation
f. Transportation
g. Communication and information development
h. Education
i. Health
j. Drinking water and sanitation, etc.

3.2 Guiding Principles

The conditions in general planning system reveal a concern with basic conditions of infrastructure, environment, economy and finance of Rural Municipalities. These conditions fail to convey the qualitative aspects of resident life and living. Rural Municipality Master Plan should necessarily be guided by the need to improve current physical conditions, but more than that it has to articulate a qualitative vision of development for the future so that systematic development also reflect the highest values of a society. The five underlying and interconnected guiding principles for the RMMP are:

3.2.1 Sustainability

The strategies outlined should seek to promote environment, social and economic sustainability of development. This means that urban development initiatives should be environmentally sustainable, i.e. should not have negative externalities and should not over-stretch the capacity of the environment to sustain itself. Social sustainability refers to the nurturing and

development of social capital which minimizes alienation and contributes to vibrant social life in the Jagadulla RM. Economic sustainability refers to the promotion of environment friendly economic activities that can be sustained with minimal support from outside.

3.2.2 Inclusivity

RM have to be socially inclusive both in terms of ethnicity/caste and gender, and in terms of economic class. Inclusion should be reflected in the space the RM provides for the nurturing and celebration of social and cultural diversity and the sensitivity particularly to disadvantaged and marginalized, and minority groups, and the poor and the youth in general. Inclusivity promotes social justice and contributes to equity and balanced development. The increasing poverty trend in RM areas means that also need to be pro-poor in terms of attending to the needs of the poor and addressing their basic concerns of education, health, housing, livelihood and transportation.

3.2.3 Resilience

Resilience refers to both physical and social resilience so that RM are safer and adaptable to changes, both environmental and economic. The major focus of the strategy should be on physical, social, economic and institutional resiliency that is pivotal for mitigating short or long term vulnerability resulting from disaster or the regional/global impacts of climate change. Planning and development should enhance capacity to cope with different types of hazards and absorb shocks and risks.

3.2.4 Green

Strategies for RM development should be guided by three key considerations, namely, keeping the city green, cool and wet. The thrust should be in saving, protecting, promoting greenery green parks, green open spaces, agriculture, forestry and so forth. RM should promote land use, technology and material that would contribute to low carbon emission, increase the use of alternative energy, reduce the effects of urban heat islands and lower ambient temperatures. Similarly, RM should promote and protect clean water bodies-ponds, rivers, canals that contribute to blue convection and survival of aquatic life, and urban biodiversity and contribute to recharge ground water.

3.2.5 Efficient

A sustainable, inclusive, resilient and green RM can only be one that is efficient, well governed and effectively managed. RMMP should therefore be guided by three basic concerns of governance: enhanced capability and technical competence of local bodies, institutionalization of a system of transparency and accountability in the planning and development process, and a citizen oriented delivery of services and development outcomes.

3.3 Contemporary Issues of Planning

- **Inclusive growth strategy:** Focus on marginalized and excluded people/groups (dalit, adibasi/janjati, women, and people with disability) and geographical areas
- **Broad-based growth and distribution:** Investment in remote areas (public and private sector); social security and social justice, anti-poverty and SDG programs thru local bodies.
- **Forward linkages (globalization):** Focus on international trade; labour as exportable product, foreign aid and economic diplomacy
- **Sectoral & spatial balanced growth:** Agriculture and social sectors for distributive growth; infrastructure for building growth environment; and regional equality.

3.4 Phases of Planning in Nepal

- **First to Third Plan (1956-1970 A.D.):** Rural and Agriculture Development; Building planning capability.
- **Fourth & Fifth Plans (1970 – 1980 A.D):** Regional development; Infrastructure development.
- **Sixth & Seventh Plans (1980-1990 A.D.):** Fulfilment of basic needs; Growth with equity.
- **Eighth to Tenth Plans (1992-2007 A.D.):** Sustainable economic growth; Poverty alleviation (PRSP); Reduction in regional disparity.
- **11th to 14th Plans (2007-2019 A.D.):** Employment centric inclusive and equitable growth; poverty alleviation; sustained peace; Sustainable Developments Goals.

The following framework follows in provincial planning system of Nepal.

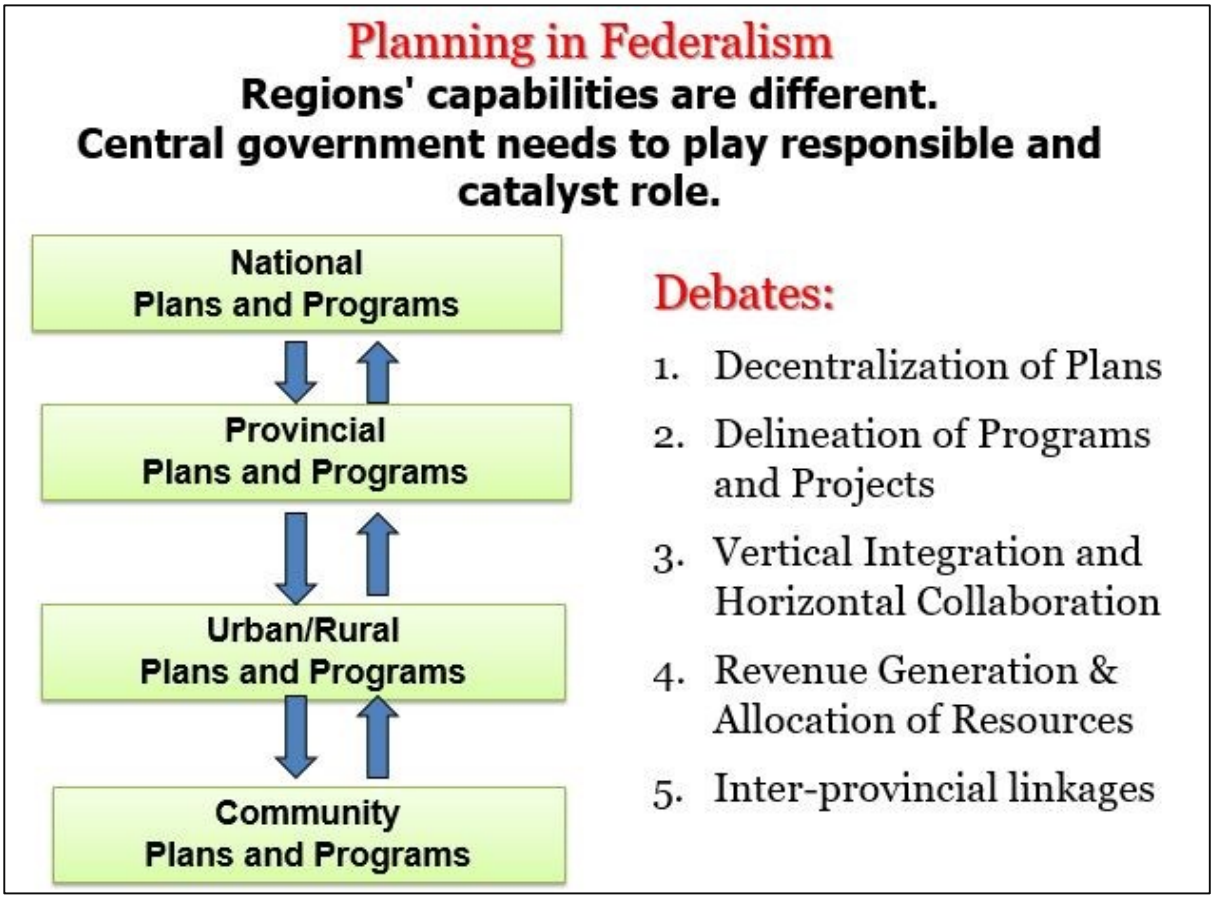


Figure 1: Chart of Planning in Federalism of Nepal

3.5 Legal Frameworks

The National Planning Commission (NPC) is the apex advisory body of the Government of Nepal for formulating a national vision, periodic plans and policies for development. It is headed by the Right Honourable Prime Minister. The NPC assesses resource needs, identifies sources of funding, and allocates budget for socio-economic development. It serves as a central agency for monitoring and evaluating development plans, policies and programs. The NPC also serves as an intellectual hub for the exchange of new development ideas and proposals from scholars, private sector, civil society, and development partners.

Infrastructure development has remained a priority of the government right from the beginning of first five-year plan. With a view to facilitate and to create enabling environment many legislations have been enacted since then. Rules, Regulations and Guidelines have been developed and put to use. Policy documents have been passed and practiced so as to streamline the direction of the development. The government of Nepal has formulated a number of policies for the regularization and development of planning sector in different times. The following policies, formulated by the government, are relevant for the planning sector:

3.5.1 Constitution of Nepal, 2015 A.D.

The Constitution of Nepal has provisioned the main structure of the federal democratic republic of Nepal into three levels namely the federation, the state and the local level and three levels shall exercise the power of state pursuant to this Constitution and law. The exclusive powers of the federation, states and local level have been included in the Schedule 5, 6, and 8 respectively and the concurrent powers of the Federation, and local level have been included in the schedule 7 and 9 of the Constitution of Nepal.

The constitution empowers the government for formulating policies and laws related to environment on the basis of principles of ecological sustainable development like liabilities for polluters, alertness and pre-informed agreements in environment conservation and implementing policy on minimizing the risks of natural disaster by means of pre-information, preparation, rescue, relief and rehabilitation.

3.5.2 Fifteenth Plan Approach Paper (2076/077-2080/081 B.S.)

The fifteenth plan approach paper has set the national strategy to sustainable economic growth and increase the production as well as productivity of major grains. This approach paper focus on plan and development in bottom-up approach as well as based on plan community demand and geo-physical structure. It focuses the development and planning activities based on provincial structure as per new system.

3.5.3 Land Use Policy, 2015 A.D.

The National Land Use Policy, 2013 prioritized the protection of arable lands ensuring food security. The devastating Gorkha Earthquake and aftershocks thereto have exposed us to non-vulnerable secured human settlement in the country. So then, awareness has come that only guided activities are allowed to be operated in such identified areas of natural disasters. In erecting physical infrastructures from onwards, it is realized that we should take accounts of probabilities of newly created hazards among natural disasters–including earthquakes. In order to address all these contemporary issues on a long term basis, the Land Use Policy, 2015 has come into existence upon making a review over the Land Use Policy, 2013.

3.5.4 National Transport Policy, 2001 A.D.

This policy states, among others, that the entire process of land acquisition and transferring of land ownership to the project shall be established prior to the commencement of road project implementation. Equally, a basis for livelihood shall be established to the fully displaced families by way of rehabilitation or by any other means.

3.5.5 Land Acquisition, Resettlement and Rehabilitation Policy, 2015 A.D.

The goal of this policy is to improve social and economic status of project affected families by providing fair and adequate compensation, appropriated resettlement and rehabilitation assistances/ allowance. The main objectives of this policy are to avoid displacement wherever possible and if not minimize as far as possible; If population displacement is unavoidable,

mitigate adverse impact by providing adequate compensation and rehabilitation assistance to affected person, family and community; create conducive environment for timely completion of the project by simplifying land acquisition, valuation, compensation, resettlement and rehabilitation process. Four approach for land acquisition is suggested as voluntary donation, direct negotiation, land development program and expropriation (use of eminent domain).

3.5.6 Local Government Operation Act, 2017 A.D.

Local Government Operation Act, 2074 outlines work, responsibility and powers of the local governments (Rural Municipality and Municipality levels). It specifies authorities devolved by the Constitution of Nepal to the local bodies. Chapter 3 of the act specifies the authorities of the local government bodies. Particularly concerning to local revenue, sub section 2 of section 11 has provisioned authorizes local level to formulate policy, standards related to real estate rental tax, vehicle tax, tourism tax, commercial taxes, land taxes and their implementation and monitoring in accordance with federal and provincial legislation, Similarly, the same subsection also empowers local government to formulate local level policy for the environmental conversation and biodiversity and requires the local bodies to act for the environmental risk reduction, pollution control and control of hazardous substances.

Nepal has introduced its new Local Governance Service Delivery Act which also has several challenges. Budget disbursement can be a major challenge because now it will become harder to allocate and disburse budget in a timely manner to multiple layered and widely dispersed local authorities. The chances of delay in decision making, program implementation, planning and resource allocation could be an issue with lack of prior experience and expertise. Successful implementation of this act needs to be rigorously supported with planning, technical assistance and better clarity between the local agencies and the central government. Moreover, timely and effective monitoring and evaluation of several fragmented local authorities and agencies is another major challenge under the new federal context. This act contains several provisions for the conservation of soil, forest and other natural resources and implements environmental conservation activities and local drinking water related policies, law, criteria, planning, implementation and regulation, electricity distribution system and service management, etc. The system of local governance requires prior preparation and planning in the new federal set up. Issues like infrastructure development and human resource development needs to be accorded top priority under federalism. More attention and energy need to be directed towards developing competent human resource through trainings and capacity building activities. The federalist structure also promotes competition within the provinces and opens up avenues for growth and development. Inclusiveness, gender and social equity issues also get prioritisation with greater focus on address local development agendas.

3.5.7 Land Acquisition Act, 1977 A.D.

Land Acquisition Act, 2034 (1977) with amendment in 2049 (1993) guides the compulsory acquisition of land in the country. Government can acquire land at any place in any quantity by giving compensation pursuant to the Act for the land acquired for any public purposes or for operation of any development project initiated by government institutions (Section 3 and 4). The powers given under these sections are very broad as government is empowered to acquire any land in the name of public works.

3.5.8 Labour Act, 2017 A.D.

This Act strictly prohibits the concerned parties who hire the work force to over utilize them during its different activities. Section 5 of the Act prohibits child labour engagement. Similarly, Section 6 prohibits any kind of discriminations like religion, gender, caste ethnicity, mother

tongue etc. among employees. Section 22 states that prior work permit is required for non-Nepali citizens and they are allowed to work in Nepal for certain period only in the area where the Nepali work force is not available or not competent. Section 28 provisioned the working hours as 8 hours a day and 48 hours a week. The same section provisioned that thirty minutes must be allowed for rest and/or refreshments should be given in every five hours of work. Likewise, Section 30 allows employer to engage employee additional of 4 hours per day or 24 hours per week and shall provide over-time payment as 1.5 times the normal wage as per Section 31. Section 74 emphasizes constitution of Safety and Health Committee where 20 or more employees are engaged.

3.5.9 Public Road Act, 1974 A.D.

The Public Road Act is the governing legislation for construction and operation of roads in Nepal. The Act prohibits the construction of permanent structures (buildings) in a defined distance from the rural road, i.e. the road agency has the authority over everything within the right of way. The Act empowers DoR to acquire any land on a temporary basis (for storage facilities, construction camps, etc.) during road construction and upgrading. The temporary acquisition of land containing any buildings (e.g. house, sheds, temples and schools) is avoided wherever possible. The Act also empowers DoR to "lift earth, stone or sand from any adjoining land" during construction and upgrading works.

The Act does not provide for leasing of land. However, DoR is required to pay compensation for any damages caused to buildings, crops, and trees, where the farming activity of the landowner is interrupted, and where the landowner has to incur expenses to restore the land after it return. Article 19 of the Act mandates requirement of permission from the Department of Roads to carry out activities within the limits of the road boundaries. GoN offices as per Article 29 have to give notice to the Department of Roads prior to the start of activities in the limits of the public roads.

3.5.10 Solid Waste Management Act, 2011 A.D.

Whereas, it is expedient to make the management of the solid waste in a systematic and effective way by reducing at its source, re-use, processing or discharge and for maintaining a clean and healthy environment through the reduction of adverse effects that may be caused to the public health and environment by amending and consolidating the laws relating to the management of solid waste like most essential services laws. The local body shall be responsible for the management of solid waste by construction and operation of infrastructure like transfer station, landfill site, processing plant, compost plant, biogas-plant and collection of waste, final disposal and processing.

The local body shall, while fixing segregation at least of organic and non-organic solid waste at its source under Section 6, must make management and segregation of harmful or chemical waste separately. If it is prescribed as above, the individual, organization or agency generating such solid waste, shall have to make segregation as prescribed. The responsibility of managing the chemical or harmful solid waste under Sub-Rule (1) shall be of concerned generator. The Local Body shall follow up on whether the individual, organization or agency which has obtained permission under Sub Rule (3) for the management of harmful chemical, organic or inorganic waste, has managed according to the permitted ways, standard, process, and technology compatible with the site for the management.

3.5.11 Water Resources Act, 1992 A.D.

This act requires that water resources not to be polluted. In this regard, section 19 (1) mentions that the governments through notification in Nepal Gazette prescribes pollution tolerance limits for water resources. Similarly, section 19 (2) requires any person abides by the rules and not to pollute water resources beyond specific limits. Section 20 states that while utilizing water resources, there should not be significant adverse impact on the environment such as soil erosion, flood, landslide, etc. Section 16, 19 and 20 of the Acts are related to the land acquisition. The government shall, according to existing laws, acquire land for the licensed person or institution and many compensations in this regard shall be paid by the licensed person. (Section 16.3)

The rules and regulation also elaborate the provision made in the Water Resources Acts, 2049 and obliges the proponent to analyses environmental impacts of the proposed action and include environment protection measures including arrangements for the settlement of the displaced people (Rule 17). While resolving any conflict, Water Resources Utilization Investigation Committee should consider environmental impacts likely to occur from a proposal by collecting site specific information on likely environmental impacts of the concerned project (Rule 28).

3.5.12 Soil and Watershed Conservation Act, 1982 A.D

Soil and Water Conservation Act (1982) provides legislative measures concerning soil and watershed conservation to control natural catastrophes such as floods, landslides, and soil erosion and to maintain the economic viability and welfare of the public. The section 2(B) of the act defines the soil and water conservation. According to Section (3), GoN can acquire area/ land by giving notice for the purpose of water conservation. But for such acquisition compensation shall be paid in case private land in consultation with local authorities. This act provides legislative measures concerning soil and watershed conservation to control natural catastrophes such as floods, landslides, and soil erosion and to maintain the economic viability and welfare of the public. Section (10) of the act elaborates the activities that are considered illegal in the area which is suspected for a natural disaster.

CHAPTER IV: METHODOLOGY

The master plan formulation process was coordinated by forming a coordinating committee under the chairmanship of Chairman of Jagadulla Rural Municipality and different sectoral steering committees under the concerned member. In order to support the committees, various subject/area teams of technical experts were formed, and plan formulation work was carried in various consultation meeting. The master plan has given an emphasis to make it different and more realistic plan. Methodology adopted in the process of the preparation of this master plan report is based on the proposed approach that consultant has offered in the proposal. As with the changes in local government and other political decisions, methodology has been altered in some instances like key stakeholders and data collection process (Based on the availability of resources and status of Rural Municipality after the restructuring) to adopt the changing scenario where as the fundamental aspect of planning process is kept intact with the participatory approach and accountability of local government. Different methodological steps adopted and to be adopted in other phases are explored and explained in different stages below.

4.1 Approach

Rural Municipality master plan is prepared using participatory bottom-up approach from the community level. Techno-Political interface is incorporated in the planning process, where active participation from representatives of political parties, line agencies, Rural Municipality officials is crucial. The conceptual framework of the methodology adopted is shown in ***Figure 2***.

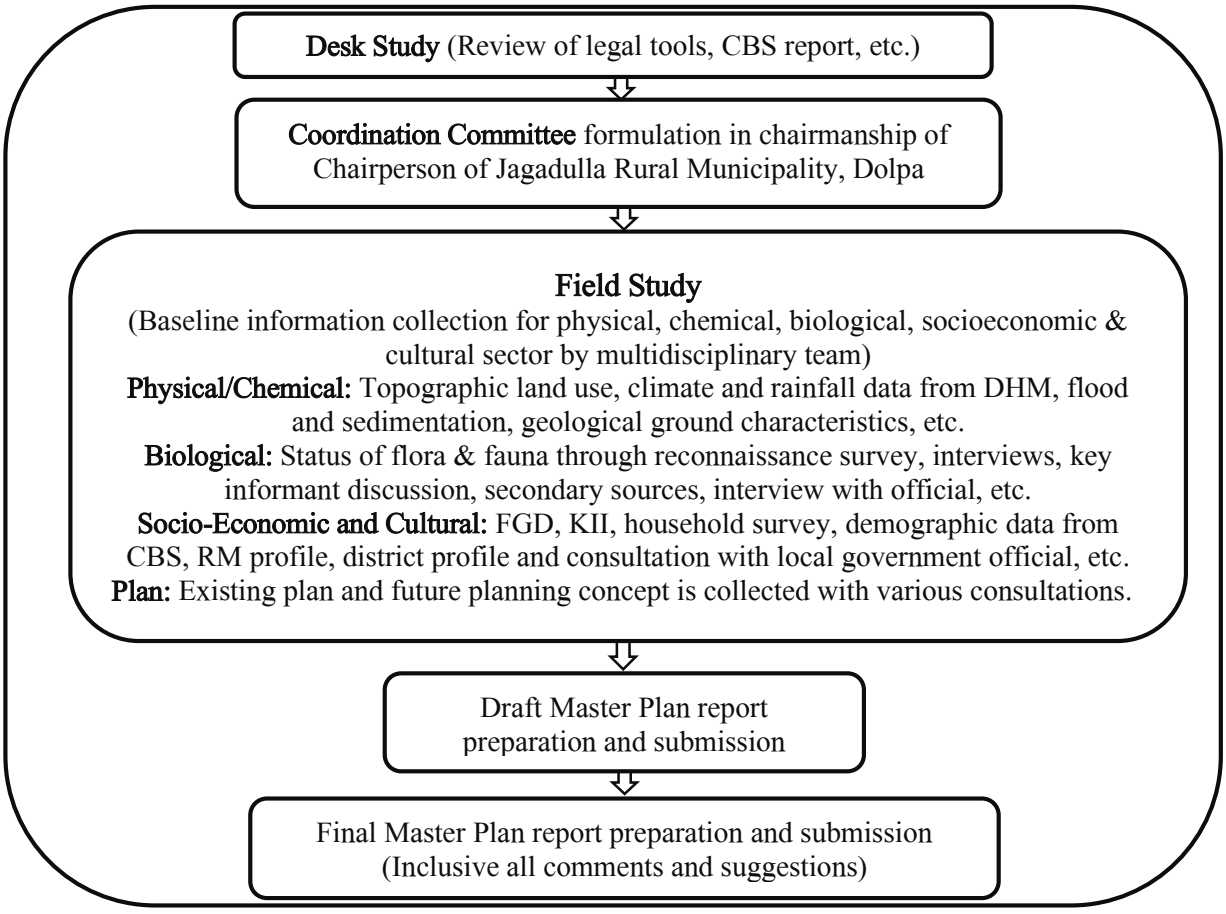


Figure 2: Adopted Approach during RMMP Preparation

4.2 Methodology

The study starts with desk study, via collection of secondary data. The study got acceleration with formation of coordination committee and workshop, followed by various field surveys and meeting with stakeholder and community. The prioritization criteria along with hierarchy of plan has been formulated and later the prioritized along with required intervention is proposed for the during study period based on demand and geo-topographic location.

4.2.1 desk Study and Secondary Information Collection

During the desk study, CBS data, DHM data, legal provisions, former master plan report and data and reports of the Rural Municipality were reviewed in detail to come up with the project study requirements both at the desk level and field level. Similarly, topographic map produced by Department of Survey and satellite image extracted from Google Earth were used to assess surrounding environment, land use and physical structures. Literatures of the study area pertaining to physical and socio-economic and cultural environments through maps and reports, etc. from various sources were reviewed to get information on the coverage of the studies and data gaps that need to be fulfilled to accomplish the master plan requirements. Preparation of the questionnaire and checklist was done in consultation with the team to collection information on mainly socio-economic, biological, physical aspects and planning sector. Relevant article and resource available in the internet were also reviewed.

4.2.2 Workshop and Stakeholder Meeting

After the primary desk study about the site, a team of consultants visited the site and as a pre-introductory workshop which was carried out during the first week of July, 2019. Hence pre-introductory workshop was basically held on presence of Chairperson of Jagadulla Rural Municipality, Chief Executive Officer, ward chair persons, all staffs of Jagadulla Rural Municipality and community people. During the time of workshop collected existing demographic, religious, cultural, logistics base line data and information. Consultant team organized different consultation meeting in participation of ward chair persons, political representatives, teachers and other government and non-government service providers. During his consultation meeting consultant team collected primary data, verified the already collected secondary data, existing development activities at ward level, proposed project/activities for the short as well as long term strategic plan. The consultation meeting was focused on identification of problems/issues to be addressed by formulation of thematic policy, programs and allocating budgets

4.2.3 Households Questionnaire Survey

Detail information of demography, economic, cultural, education, institutional, etc. data were collected by household survey and direct interaction with local communities were held. The data and information were collected relating to physical, biological, socio-economic and cultural aspects. These include population, households, major economic activities, social services, literacy, health aspects, utilities, infrastructure facilities, flora and fauna, endangered species, beliefs and traditions, cultural and archaeological heritages, waste generation and disposal facilities, status of pollution. The primary data collection methods carried out in the field are:

- Demand of people
- Inventory of different social and development sector
- Demand Survey
- Vision and view of local representative survey
- Resource and possibility survey
- Geological, topographical and environmental survey

4.2.4 Field Visit and Experts

In order to collect baseline information on physical environment, field investigation along the Jagadulla RM was carried out using a checklist. The extensive field observations and inspections were done to collect the physical environment data, biological, socio-economic, etc. Other related information on the topography, geology, hydrology, environmental, land use, etc. were collected by direct field visit by planner, engineer, environmentalist and sociologist during first week of July, 2019.

4.2.5 Application GIS for Preparation of Map

GIS software has been used for the preparation of different maps and database of the roads, office location, forest area, productive area, settlement, natural drainage and other details. GIS maps prepared for Rural Municipality Master Plan (RMMP) can be summarized in the following points.

a. Data entry and field verification

After Ward and Rural Municipality boundaries and other necessary data was obtained, data entry for roads, village, natural resource and office area was done as per data collection from field, google earth map, GPS data and data from Department of Survey. GPS was also used for recording place names, buildings, village and office location, etc. in the field. This GPS data was converted using "GPS Conversion tools" and then used in Arc GIS. After field verified data was entered then map preparation was done. All the maps are prepared in Arc GIS version 10.2.5 Symbols for various plan, land use, existing infrastructure, proposed infrastructure, etc. have been used as described in Terms of Reference (ToR) provided by Jagadulla Rural Municipality.

b. Preparation of sectoral and boundary map

Shape files for ward boundary, Rural Municipality boundary, district boundary, province was obtained from Department of Survey. Boundary for New Municipalities were generated by merging the previous VDCs using the Dissolve tool in Arc GIS. Ward Boundary of each Municipality were also generated in similar manner. Satellite image of the respective Rural Municipality was obtained using Image Capture Software and Google Earth. A detail location was located in Goole Earth software with presence of official and elected member of Jagadulla RM. A .kml file was used to obtain an enclosed area for image capture using Google Earth. After the image was captured, layers for land use, road, buildings, etc. were digitized.

4.2.6 Preparation of Rural Municipality Master Plan (RMMP)

The following steps will be taken for preparation of RMMP report.

a. Preparation of Rural Municipality Inventory Map (RMIM)

The following steps will be taken for preparation of RMIM.

- The inventory of the existing infrastructure, natural resource and proposed structure were carried out and necessary interventions were identified using Global Positioning System (GPS) tracking and Goggle Earth software.
- Prior to disseminating information in clusters of ward level for inaccessible areas was presented and discussed to verify and obtain preliminary approval of the proposed master plan.
- All suggestions and feedbacks were collected from Rural Municipality official and elected member; then incorporated them into the preliminary proposed master plan report.

b. **Preparation of Indicative Development Potential Map (IDPM)**

IDPM is basically the indication of the existing and potential market centre/service centres (key growth centres) and the areas having various development potentials such as high value cash crops, agro-based industries and tourism. Thus, IDPM shows high value cash crops, tourism area and area of extensive agriculture, extensive horticulture, livestock farming, hydropower and the service centres such as hospital, post office, tele-communication, school, campus, security offices and large settlements, important historic and religious places.

IDP was prepared after interaction with Rural Municipality official and elected representative. Draft Indicative Development Potential Map (IDPM) of the Municipality was prepared by plotting all the development potential areas and sites on the base map. Brief notes on each of the potential development areas plotted were prepared by highlighting the nature and size of the area.

c. **Preparation of five years, ten year and long term Rural Municipality Master Plan**

The IDPM was used as the primary documents based on which the RMMP was prepared. The available financial resource of the Rural Municipality for and spent on development sector was assessed from past trend and forecasted the budget in the basis of this for coming years. Moreover, the tentative budget plan for coming five, ten years and long term was prepared in consultation with Rural Municipality the interventions and road linkages, proposed development sector were identified in the RMMP were prioritized then selected high scored plan for coming five, ten years and long term plan whatever the budget sufficiency.

CHAPTER V: EXISTING CONDITION OF JAGADULLA RURAL MUNICIPALITY

Before going through Rural Municipality Master Plan, it is fundamental to know about the present condition of existing condition and infrastructure. This chapter includes the existing demography, school, institution, road, etc. along with their current condition.

5.1 Description of Karnali Province

Karnali Province is one of the seven federal provinces of Nepal formed by the new constitution which was adopted on 20 September 2015. The total area of the province is 24,453 square Km^2, making it the largest province in Nepal. According to the 2011 Nepal census, the population of the province was 1,570,418; making it the least populous province in Nepal. It borders the Tibet Autonomous Region of China to the north, Gandaki Province to the east, Sudur Pashchim Province to the west and Province 5 to the south.

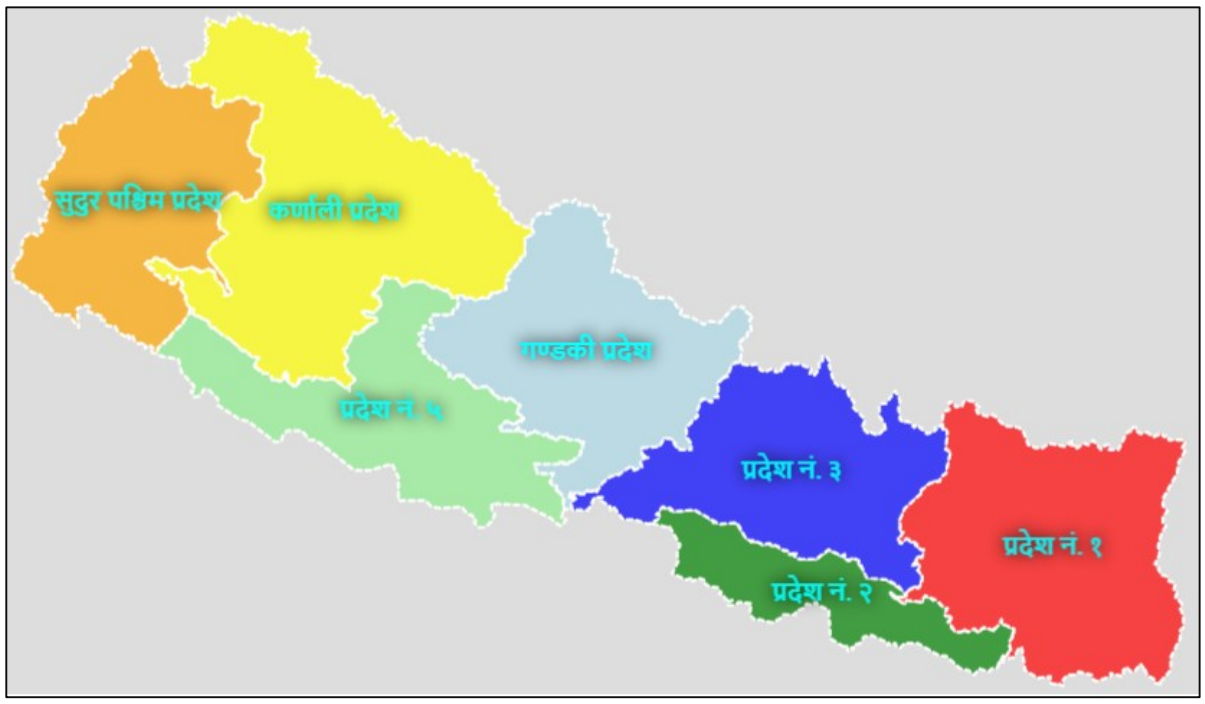


Figure 3: Provincial Division Map of Nepal

The province has occupied higher mountains land of north and mid-hills of Nepal. It contains Kubi Gangri, Changla and Kanjiroba mountains in north. The Shey Phoksundo National Park with Phoksundo lake is the largest national park of Nepal and Rara lake is the largest lake of Nepal which are located in Karnali Province. Karnali River is the biggest river of the province which is thought to be longest river of Nepal. Seti River and Bheri River are tributaries of Karnali.

Karnali is an old civilization of Nepal and it is connected with Karnali River. The archaeological sites found in Jumla, Surkhet and Dailekh refers that this area was part of Khas kingdom which was established during 11th century. The capital of the Khas Kingdom was Sinja. The kingdom was expanded to a great extent in l3th and 14th century. This kingdom was expanded to Garhwal in the west, Mansarowar and Guge regions of Tibet in the north, Gorkha-Nuwakot regions in the east and with Kapilvastu with large areas Terai in the South. After late

14th century the Khas empire collapsed and divided into Baise Rajya (22 principalities) in Karnali-Bheri region.

Karnali Province is formulated by combination of ten district. In the ten district of Karnali province falls twenty-five Municipalities and fifty-four Rural Municipalities.

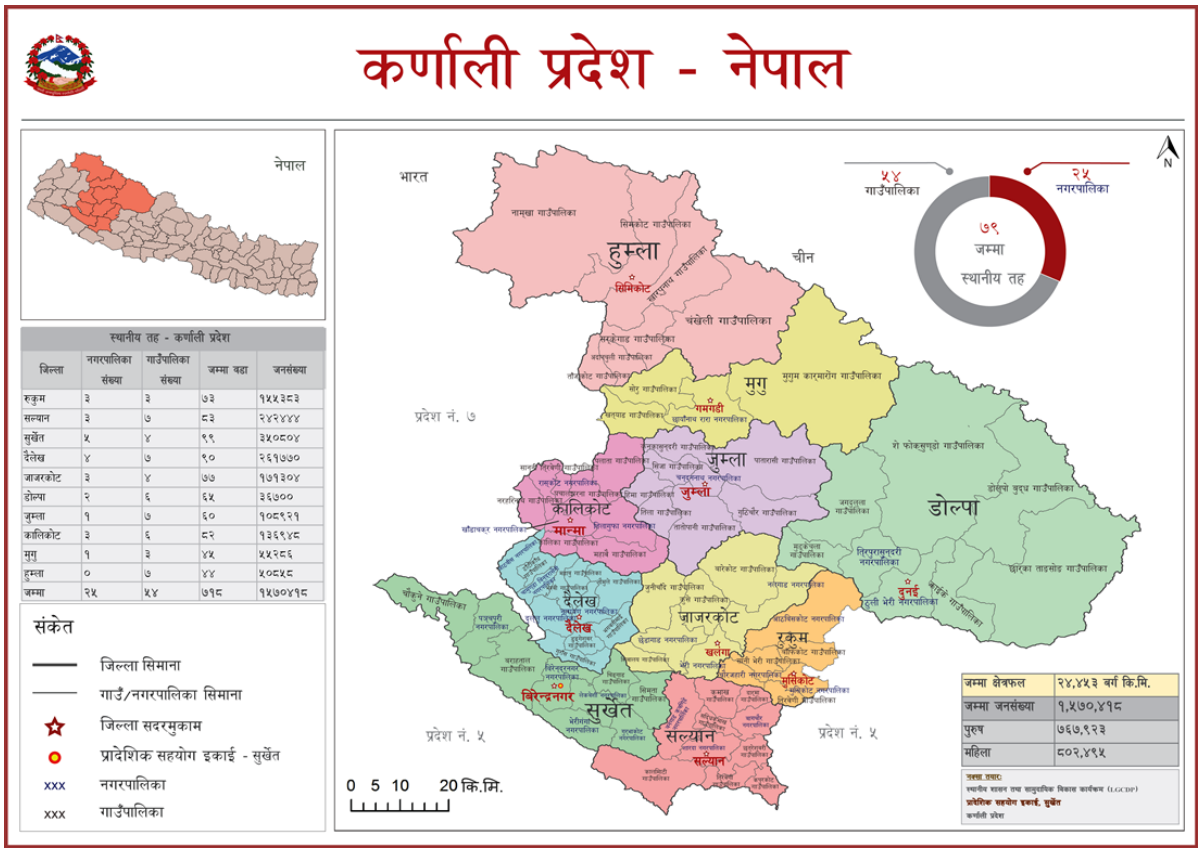


Figure 4: Map of Karnali Province

5.2 Description of Dolpa District

Dolpa is the largest district of Nepal covering 5.36% of total landmass of the country. a part of Karnali Pradesh, is one of the seventy-seven districts of Nepal. The district covers an area of 7,889 km^2. Located between 28° 24' - 29° 43' N latitude, and 82° 24' - 83° 38' E longitude, the elevation in Dolpa ranges from 1,525 to 7,625 meters above sea level. The district borders Tibet (China) in the north and northeast, Jumla and Mugu districts of Karnali in the west, Myagdi, Jajarkot and Rukum in the south and Mustang in the East. Dunai is district headquarter of Dolpa district. According to CBS (2011), Dolpa's population is 36,700. Among them male-18,238 (49.7%) and female-18,462 (53.3%).

A large portion of the district is protected by Shey Phoksundo National Park. The name is derived from a 12th century Shey Monastery and the deepest lake in Nepal, the Phoksundo Lake, both of which lie in the district. The park protects endangered animals like the snow leopard, musk deer and the Tibetan wolf. Shey Phoksundo is the largest and the only trans-Himalayan National Park in Nepal. It is also one of the two districts that lie beyond the Himalaya or the trans-Himalaya, Mustang being the other. Dolpa region is distant region of Nepal and the central point of this area is Shey Phoksumdo National Park. The east and south of Dolpa is surrounded by the Dhaulagiri and Churen Himal ranges and to the west by Jumla district. The notable figure seen here are clean and tidy snowy peaks, ancient and remote villages, rich

wildlife, reliable Buddhist monastery and wonderful lakes. The people of this area are simple and warm-hearted with enthralling culture and traditions. The cultural traditions of this area are basically linked with Tibetan.

Table 1: Climatic Zone of Dolpa District

S.N.	Climate Zone	Elevation Range	% of Area
1.	Sub-tropical	1,000 to 2000 m	0.3
2.	Temperate	2,000 to 3000 m	5.1
3.	Sub-alpine	3,000 to 4,000 m	12.2
4.	Alpine	4,000 to 5,000 m	3.8
5.	Trans himalayan	3,000 to 6,400 m	70.2

Physiographical the smaller ranges of the Great Himalayas comprise the southern border of the district. Between these and the border mountain ranges of Gautam Himal and Kanti Himal to the north Dolpa district is a labyrinth of often wide glacial valleys and ridges. Kanjiroba Himal and Kagmara Lekh running north-west to south-east separate the valleys of the Jagdulla in the west with the rest of the district.

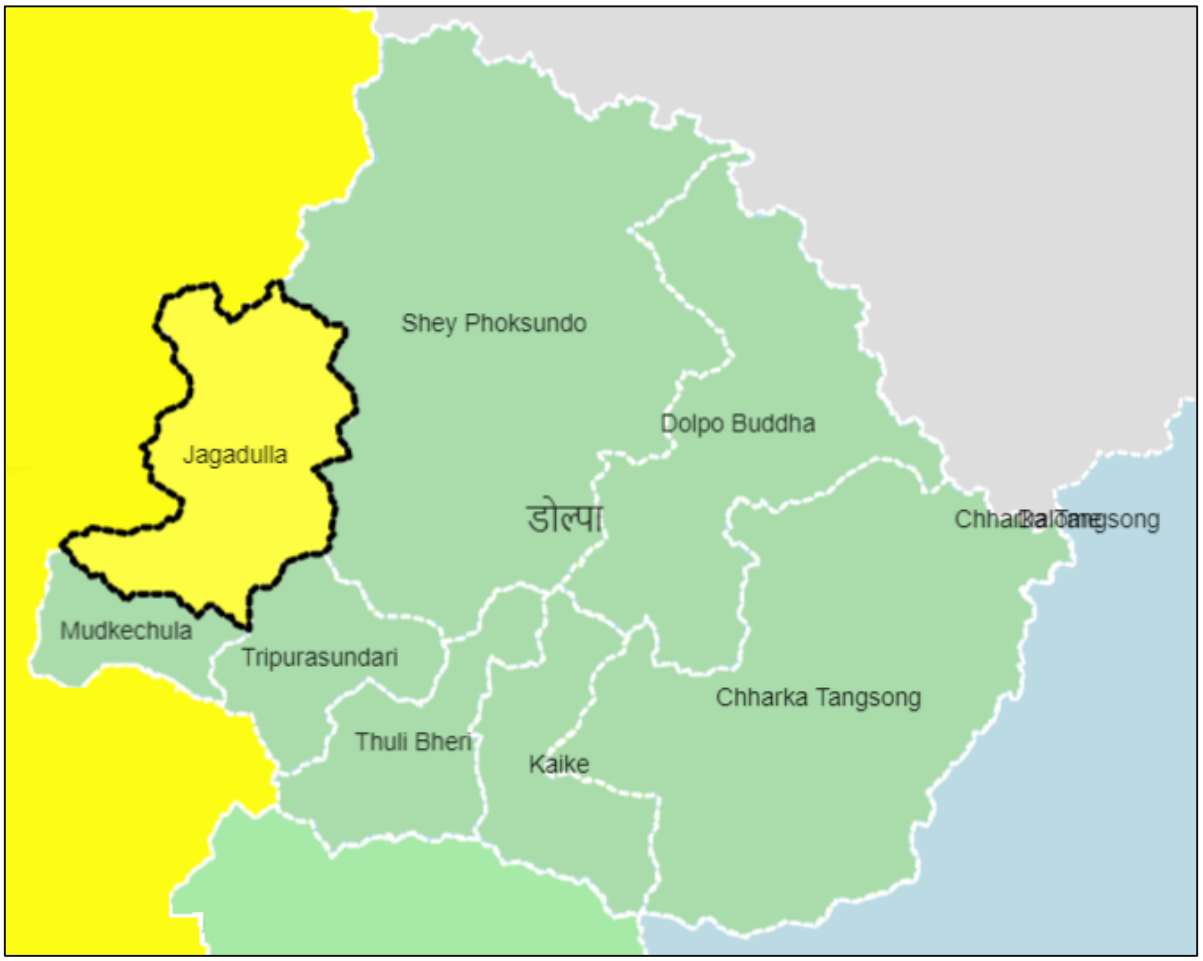


Figure 5: Map of Dolpa District

Dolpa district contains eight local level among them two are Municipality and six are Rural Municipality.

5.3 Jagadulla Rural Municipality

Jagadulla Rural Municipality one local level among eight local level of Dolpa district. It was formed after the declaration of local levels by GoN on 27 Falgun 2073 by merging two previous

VDCs (Kaigaun and Rimi). The Jagdulla Rural Municipality is located in western part of Dolpa District and is a part of Karnali Province. It is surrounded by Shey Phoksundo Rural Municipality and Tripurasundari Municipality to East, Gothichaur Rural Municipality of Jumla district to West, Shey Phoksundo National Park to the North and Mudkechula Rural Municipality to South.

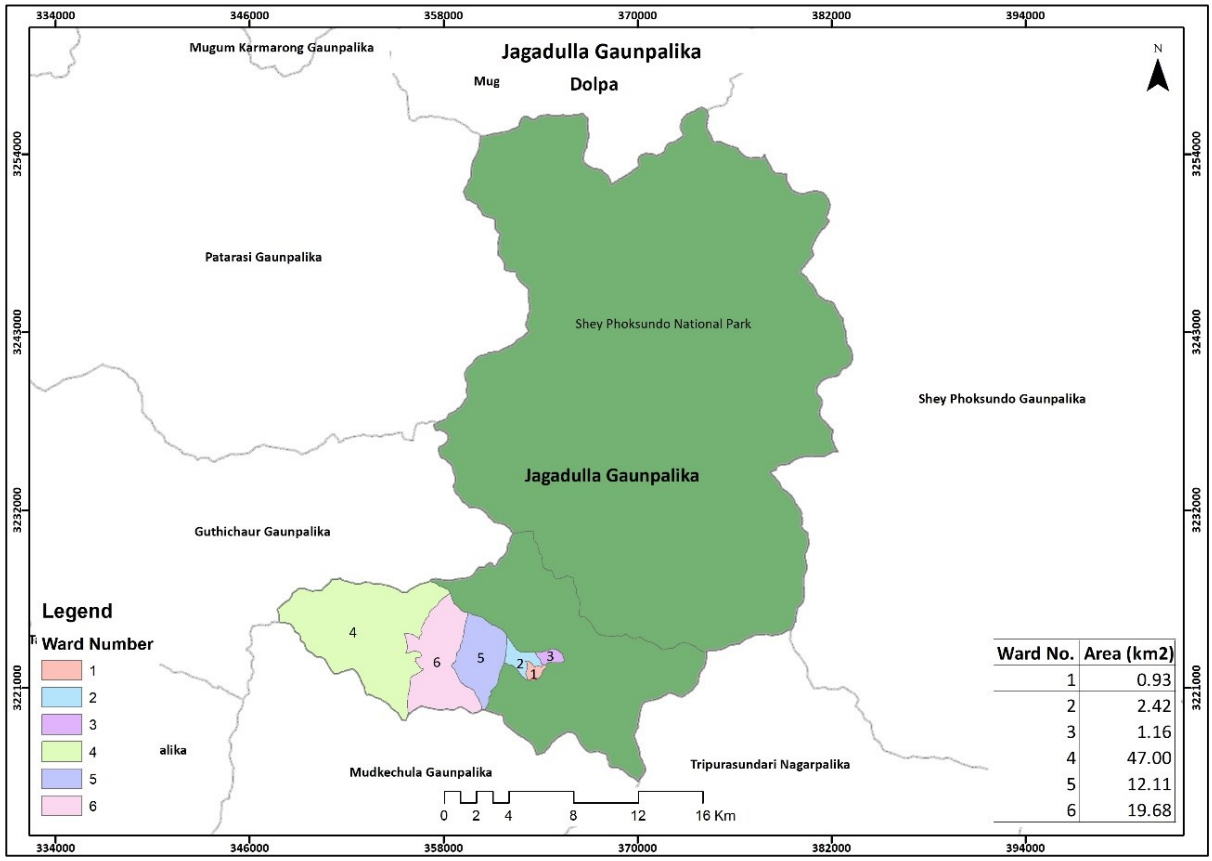


Figure 6: Map of Jagadulla Rural Municipality

5.3.1 Geo-Physical Characteristics of Jagadulla Rural Municipality

The following information shows the detail geo-physical characteristics of Jagadulla Rural Municipality.

a. Location

Jagadulla RM extends through the following longitude, latitude and elevation range.

- **Longitude** : 29° 03' to 29° 25' N
- **Latitude** : 82° 26' to 82° 47' E
- **Elevation** : 2,170 m to 6,883 m

Jagadulla RM lies on the borders of Jumla and Dolapa district. At present following are the borders of Jagadulla Rural Municipality.

- **East** : Shey-Phoksundo Rural Municipality
- **West** : Guthichaur Rural Municipality of Jumla District
- **North** : Mugukarmarong Rural Municipality of Mugu District
- **South** : Mudkechula and Tripurasundari Rural Municipality

b. Area and Physiography

Under the new structure the former two-VDCs were merged together to form a single Jagadulla Rural Municipality which is then further divided into 6 wards. The following table shows the details about ward and its area. Jagadulla Rural Municipality covers 777.59 Km^2 (i.e. 9.85% of Dolpa district), among that Shey-Phoksundo National park covers 694.29 Km^2.

Table 2: Ward Number with Area of Jagadulla RM

Ward No.	Name of Village	Previous Ward No.	Area Covered (Km^2)
1	Hurikot	Kaigaun (1, 2 and 3)	0.93
2	Kaigaun	Kaigaun (4, 5, 6 and 7)	2.42
3	Thapagaun	Kaigaun (8 and 9)	1.16
4	Chaurikot and Chhachu	Rimi (7, 8 and 9)	47.00
5	Majhgaun	Rimi (1, 2 and 3)	12.11
6	Jhyankot	Rimi (4, 5 and 6)	19.68

(Source: Survey Department, 2019 A.D.)

5.3.2 Land Use Scenario

The large portion of this Rural Municipality covers by the barren land, grass land forest. The following presented map shows the land use map of Jagadulla RM.

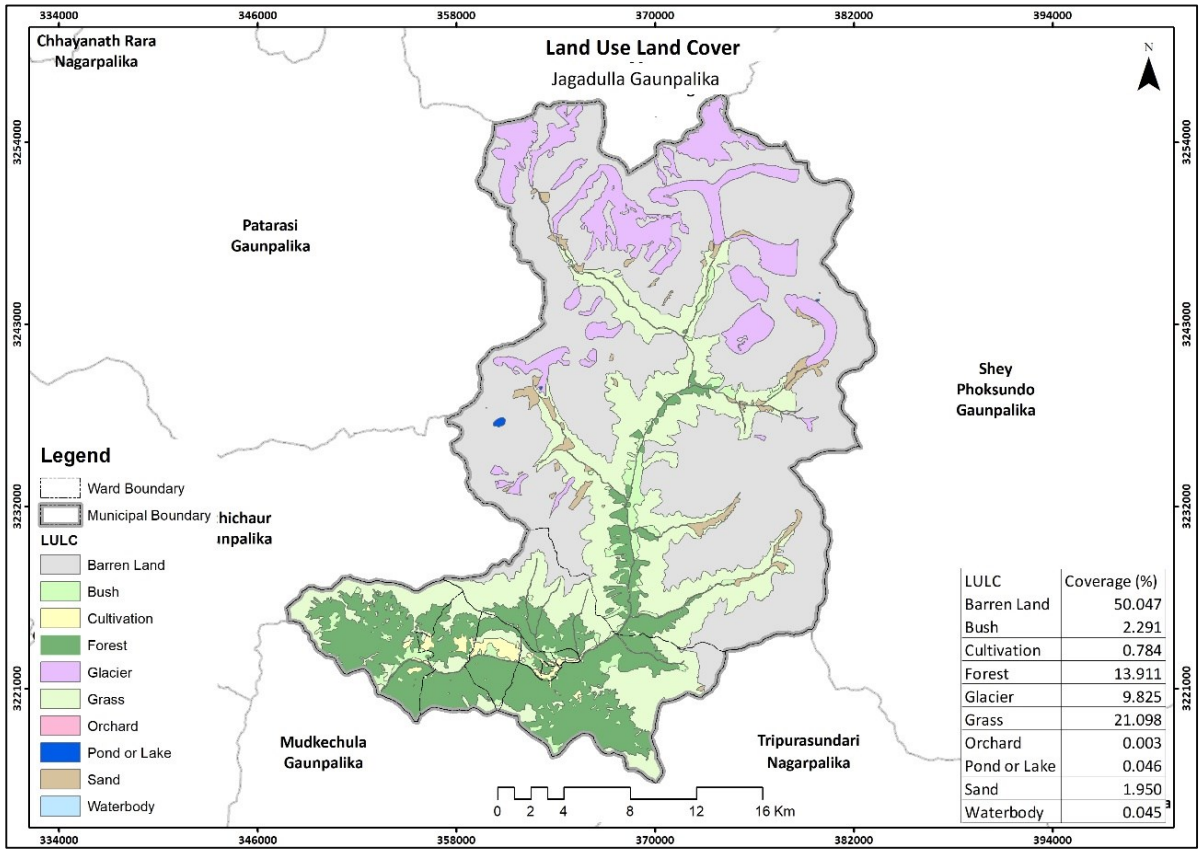


Figure 7: Land Use Map *(Source: Survey Department, 2019 A.D.)*

The detail information about land use and land cover is presented in following map and table.

Table 3: Land Use Map of Jagadulla RM

S.N.	Land Use	Area (Km^2)	Percentage (%)
1.	Barren land	389.11	50.04
2.	Grass land	163.99	21.09
3.	Forest area	108.16	13.91

4.	Glacier	76.36	9.82
5.	Shrub	17.81	2.29
6.	Cultivated land	6.07	0.78
7.	Lake and pond	0.31	0.04
8.	River and rivulet	0.31	0.04
9.	Others	15.47	1.99
Total		**777.59**	**100%**

(Source: Survey Department, 2019 A.D.)

5.3.3 Geo-Morphology, Minerals, Rock and Soil Texture

Dolpa is geologically part of the sedimentary Tibetan-Tethys zone. It is surrounded by Himalayan mountain chains including the Dhaulagiri (8,172 metres). These cloud barriers cause a semi-arid climate, with reported annual precipitations of less than 500 mm. The sedimentary succession of Dolpa is connected with the underlying crystalline. Most of the part of Jagadulla RM lies in the Upper and Middle Himalayan region also known as Trans Himalayan Zone. The most of rock available in this range area metamorphic such as Quartzite, Gneisses, Schist, Phylite, Slate, etc. Some sedimentary rocks are also which are Mudstone, Calcarious rock, Limestone, Sandstone, etc.

Geologically the project area lies in the Higher Himalaya zone of Central Nepal. The geological map of the study area is shown in. The project area falls in the Higher Himalayan sequence of Mugu-Karnali River and Thulo Bheri River (Kanjiroba Himal Section) [Ulak 2016]. It is situated between the fossiliferous sedimentary zone, the Tibetan-Tethys Himalaya in the north separated by STDS and the metasedimentary succession, the Lesser Himalaya separated by the MCT in the south and paradoxically made up of the oldest rocks of Pre-Cambrian metamorphic and granitic gneiss. This zone mainly comprises of percambrian high grade metamorphic rocks comprising gneiss, quartzites, schist and marbles. Migmatites and granitic gneisses are present predominantly in the upper part in the region.

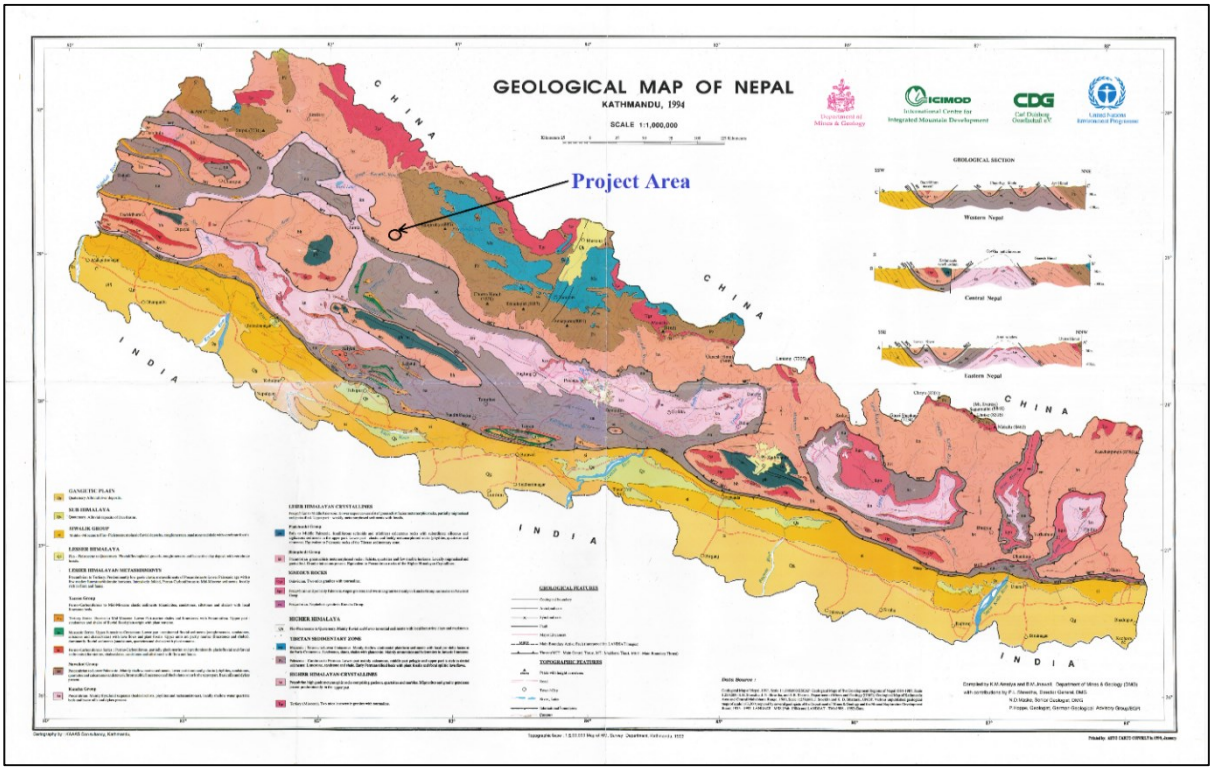


Figure 8: Project Location on Regional Geological Map of Nepal (DMG, 1994)

Due to the Dolpa district falls on rain shadow zone, so that the tendency of rainfall is very low. The major types of soil found in Jagadulla Rural Municipality are residual and glacial soil. The productivity of soil is very low. The major texture of soil is sandy types and have high porosity.

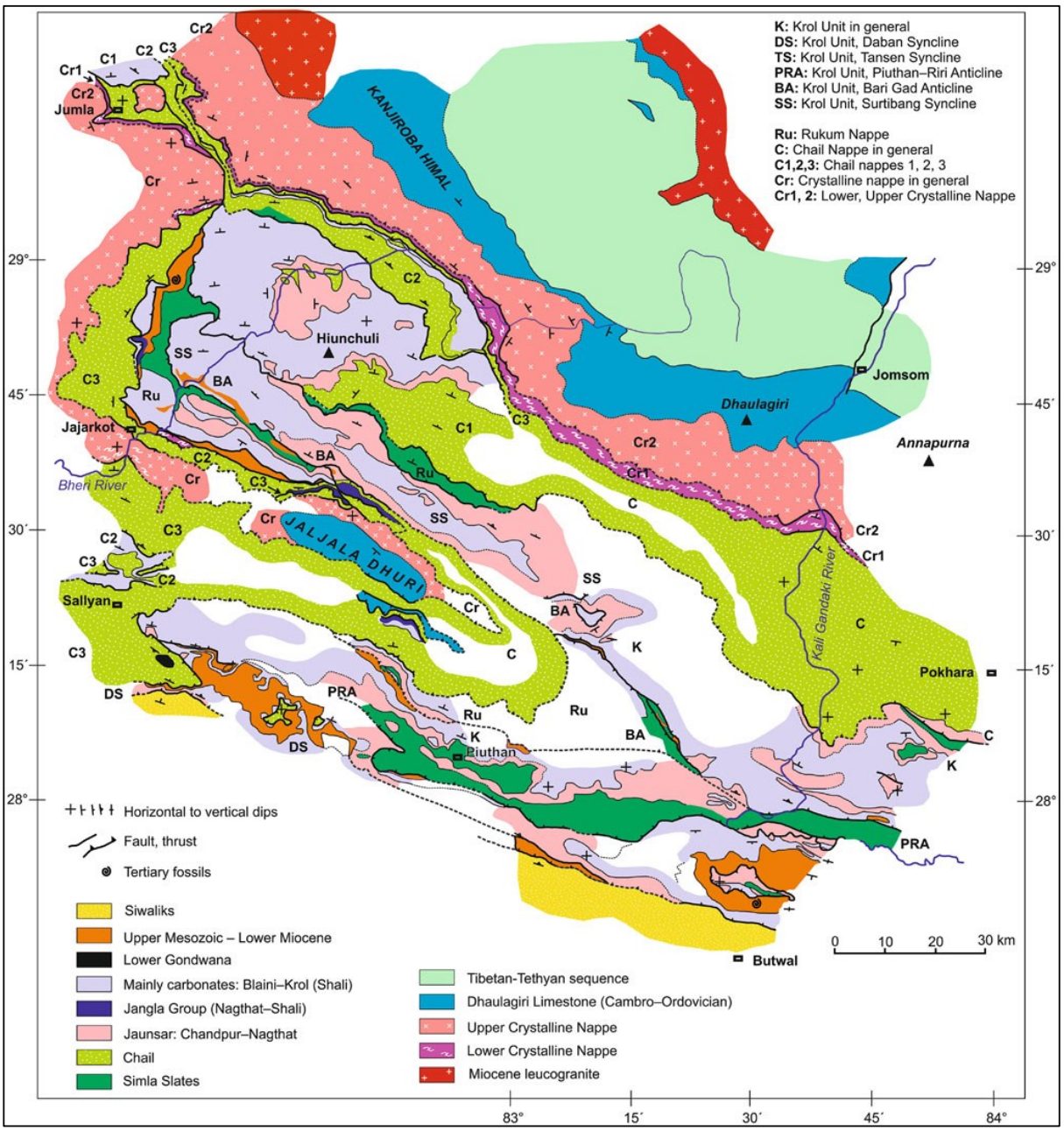


Figure 9: Generalized geological map of the area between the rivers Bheri and Kali Gandaki (modified from Frank and Fuchs, 1970)

Detail geological study was carried out at the project area. Rock type, associate minerals, bedding structures and slope aspects and attitude of beds were noted during the survey. The project area comprises of rocks of Thuli Bheri River section of Higher Himalayan Crystalline rocks. The project area lies on the crystalline. This section mainly consists of coarse-grained garnet-kayenite gneisses. Calc-gneisses, marbles, and calc-mica schists are observed in the upper sections. Metamorphism reaches up to the amphibolite facies and decreases from the top of the section, and finally give way to non to slightly metamorphosed sediments of Tibetan-Tethys zone (Ulak, 2016).

5.3.4 River and Rivulets

The Jagadulla RM area is almost entirely drained by Jagadulla River and its tributaries. The detail about river and rivulets is shown in ***Figure 10***.

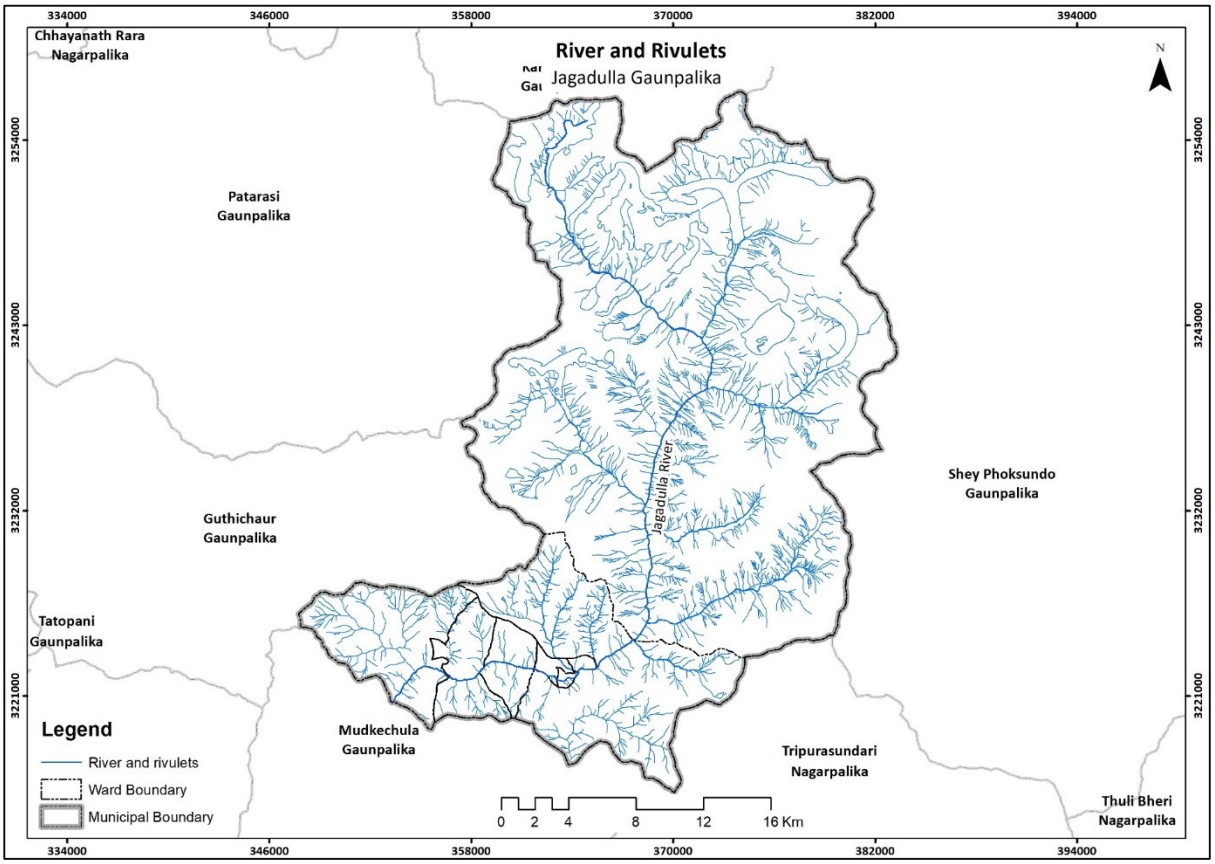


Figure 10: Map of Natural Drainage in Jagadulla RM (Source: Survey Department, 2019 A.D.)

5.4 Biodiversity and Environment

5.4.1 Floral Divercity

Dolpa district is rich in biodiversity. Following floral and faunal species found around the Jagadulla RM. The following higher Himalayan and middle Himalayan species are found. The list of plant species is presented in the following table.

Table 4: Plant Species around Jagadulla RM

S.N.	Nepali Name	Scientific Name
1.	Salla	*Pinus wallichiana*
2.	Laligurans	*Rhododendron arboreum*
3.	Chimal	*Rhododendron maximum*
4.	Khshru	*Quercus semecarpifolia*
5.	Bains	*Salix spp.*
6.	Jhula	
7.	Dhatelo	*Prinsepia utilis*
8.	Shyau	*Malus domestica*
9.	Pipal	*Ficus religiosa*
10.	Chumli	
11.	Mel	*Pyrus pashia*
12.	Guyali	
13.	Bhijpatra	*Betula utilis*
14.	Okhar	*Juglans regia*

15.	Dhupi	*Juneperus spp.*
16.	Bhaluphul	

(Source: Profile of Jagadulla RM, 2076 B.S.)

Most of people are involving to collect NTFPs (Medicinal herbs) and it is major source of income. Major NTFPs are as follows.

Table 5: Major NTFPs around Jagadulla RM

S.N.	Nepali Name	Scientific Name
1.	Jatamasi	*Nardostachys grindiflora*
2.	Kutaki	*Neo-picrorhiza scrophulariiflora*
3.	Bojo	*Acorus calamus*
4.	Satuwa	*Paris polyphylla*
5.	Padamchal	*Rheum austral*
6.	Panchaaunle	*Dactylorhiza hatagirea*
7.	Setochini	
8.	Pakhanbedh	*Bergenia ciliate*
9.	Atish	*Aconitum heterophyllum*
10.	Bhutkesh	*Selinum tenuifolium*
11.	Banlasun	*Allium ursinum*
12.	Guchhi Chyau	*Morchella conica*
13.	Chiraito	*Swertia chirayita*
14.	Lauth Salla	*Taxus baccata*
15.	Chuthro	*Berberis aristata*
16.	Dhupjari	*Canarium strictum*
17.	Pudina	*Mentha arvensis*
18.	Bish Jara	*Aconitum spicatum*
19.	Hattijara	*Cistus ladanifer*
20.	Yarshagumba	*Cordyceps sinensis*
21.	Khiraulo	*Polygonatum cirrhifolium*
22.	Ninayajari	*Aerva lanata*
23.	Bayojari	*Tenacetun dolichophyllum*
24.	Silajit	*Organic exudate*
25.	Kaladana	*Eulophia spp.*
26.	Timur	*Zanthoxylum armatum*
27.	Nigalo	*Arundinaria falcate*
28.	Kurilo	*Asparagus racemosus*
29.	Nagbeli	*Lycopodium clavatum*
30.	Sunpati	*Rhododendron anthopogon*

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.4.2 Faunal Diversity

Most of part of Jagadulla RM is covered by Shey-Phoksundo National Park and forest area. The wild animal listed according to local inhabitants are as follows.

Table 6: Major Wild Animals around Jagadulla RM

S.N.	Nepali Name	Scientific Name
1.	Chituwa	*Panthera pardus*
2.	Himali Kalo Bhalu	*Ursus thibetanus*
3.	Dhwasw Chituwa	*Unica unica*
4.	Him Chituwa	*Panthera uncia*
5.	Bwaso	*Canis lupus*
6.	Ratuwa Mriga	*Muntiacus munjak*
7.	Kasturi Mriga	*Moschus crysogaster*
8.	Ghoral	*Nemorhaedus goral*
9.	Naur	*Ovis ammon*
10.	Jharal	*Hemitragus jemlahicus*
11.	Dumsi	*Hytrix indica*
12.	Bandar	*Macaca mullata*
13.	Langur	*Presbytis entellus*
14.	Shyal	*Canis aureus*
15.	Phyauro	*Vulps montana*
16.	Bandel	*Sus scrofa*
17.	Chamero	*Pteropsus spp.*
18.	Malsapro	*Martes flavugulia*

(Source: Profile of Jagadulla RM, 2076 B.S.)

The following avi-fauna species are frequently seen. The major bird species are listed below in the table.

Table 7: Major Avi-Fauna around Jagadulla RM

S.N.	Nepali Name	Scientific Name
1.	Kalo Chil	*Milvus migans*
2.	Seto Gidda	*Neophron percenopterus*
3.	Danphe	*Lophophorus impejanus*
4.	Munal	*Tragopan satyra*
5.	Kalij	*Lophura leucomelana*
6.	Chir	*Catreus wallichii*
7.	Chyakhura	*Lophophorus impejanus*
8.	Nyauli	*Megalaima virens*
9.	Titra	*Francolinus fracolinus*
10.	Fiste Chara	*Orthotomus sutorius*

11.	Thople Dhukur	*Streptopellia chinensis*
12.	Jureli	*Pycnonotus leucogenys*
13.	Huchil	*Bubo bubo*
14.	Koili	*Lophophorus impejanus*
15.	Kaag	*Corvus macrohynchos*
16.	Dhukur	*Strptopelia senegalensis*

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.5 Tourism Area

The Jagadulla Rural Municipality is popular in tourism sector, Muktinath trekking route and Shey-Phoksundo lake trekking route also passes from there. Many mountain, lake, grassland, etc. have great potential of tourism sector some of them are listed below.

Table 8: Possible Tourist Area of Jagadulla RM

S.N.	Tourist Area	Address
1.	Jagadulla Lake	Jagadulla RM-01
2.	Kasiralba Lake	
3.	Bahira Puduwa Lake	
4.	Latang Lake	
5.	Kanjirowa Lake	
6.	Aamadolma Lake	
7.	Tripura Lake	
8.	Kasiraba Mountain	
9.	Tinchuli Mountain	
10.	Khakkar Mountain	
11.	Jagadulla Grassland	
12.	Pahile Mountain	Jagadulla RM-02
13.	Suka Daha Lake	Jagadulla RM-03
14.	Bhalu Grassland	Jagadulla RM-04
15.	Maure Grassland	
16.	Paija Grassland	
17.	Dudhkundali Mountain	
18.	Duudhkundali Lake	
19.	Maluwa Mountain	
20.	Khajya Grassland	
21.	Bayaldi Grassland	

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.6 Demography and Socio-Economic

5.6.1 Population and Population Density

The total population of Jagadulla RM according to the Housing and Population census (Profile of Jagadulla RM, 2076 B.S.) is 2,897 (Male: 1,440 and female: 1457). The population density for the Rural Municipality covering 777.59 Km^2 is 3.72 persons per km^2 and The sex ratio is the ratio of total males to total females which is found to be 98.83 which is nearly equal to 99 meaning, there are 99 men for every 100 women.

5.6.2 Ward wise Population and Households Structure

The population distribution according to the ward wise, gender and household is given in the table below. As observed from the table the average household size is 4.9 which when compared to the national profile is high since average household size of Nepal is 4.5 (4.1 in urban and 4.7 in rural).

Table 9: Ward Wise Population Distribution

Ward No.	Households	Population Distribution		
		Male	Female	Total
1.	71	186	159	345
2.	72	169	191	360
3.	94	220	248	468
4.	124	304	275	579
5.	114	264	283	547
6.	114	297	301	598
Total	**589**	**1,440**	**1,457**	**2,897**

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.6.3 Population by Age Group and Sex

According to the Population and Housing Census by Rural Municipality (Profile of Jagadulla Rural Municipality, 2076 B.S.), more than 55% of the population is the active group i.e.15-59 year. While there is low number of old age population i.e. 163 but significant number of population below 15 years i.e. 1,117 who need significant programs by the Rural Municipality for their care and development. The table below shows the population of Jagadulla RM.

Table 10: Population of Different Age Group

Ward No.	Age Group			
	0-14	15-59	60+	Total
1.	117	201	27	345
2.	113	212	35	360
3.	224	229	15	468
4.	209	329	41	579
5.	194	332	21	547
6.	260	314	24	598
Total	**1,117**	**1,617**	**163**	**2,897**

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.6.4 Population by Caste/Ethnicity

There is absent of Bramin caste. Majority of Chhetri community followed by Janajati and Janajati are the major inhabitants of this place by number. The population is variant and inclusive of a number of ethnicities. The distribution of population according to the ethnic group or caste is given in the table below.

Table 11: Population According to Caste/Ethnicity

Ward No.	Chhetri		Janajati		Dalit	
	HHs	Population	HHs	Population	HHs	Population
1.	45	166	15	134	11	45
2.	51	248	21	112	0	0
3.	47	255	12	63	35	150
4.	97	433	17	88	10	58
5.	55	294	11	68	42	209
6.	47	253	22	117	45	228
Total	**342**	**1,649**	**98**	**542**	**143**	**690**

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.6.5 Population by Religion

According to the Population and Housing Census by Rural Municipality (Profile of Jagadulla Rural Municipality, 2076 B.S.), about 57.68% people follow Hindu religion and rest of them follow Boudha.

Table 12: Population According to Religions

Ward No.	Hindu		Boudha		Total
	HHs	Population	HHs	Population	
1.	0	0	71	345	345
2.	50	240	22	120	360
3.	82	405	12	63	468
4.	0	0	124	579	579
5.	108	547	0	0	547
6.	93	479	21	119	598
Total	**333**	**1,671**	**250**	**1,226**	**2,897**

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.6.6 Economic Activities and Occupations

There are several aspects to economic factors that have been considered in the development of this document including yearly NTFPs collection, animal husbandry, agricultural production, services sector, etc. in Jagadulla RM.

Table 13: Major Occupations

Ward No.	Occupation					
	Agriculture	Animal Husbandry	Industry	Business	Hotel	Services
1.	2	52	5	7	1	4
2.	45	7	3	3	6	8
3.	64	10	10	5	1	4
4.	35	62	2	12	3	10
5.	90	8	3	2	0	11
6.	53	36	4	5	5	11
Total	**289**	**175**	**27**	**34**	**16**	**48**

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.6.7 Major Agriculture Products

Agriculture is the major occupation in Jagadulla RM. Due to the located at Trans-Himalayan Zone and steep slope, there is not available of sufficient productive land but available some agriculture land nearby the settlement area. The productivity is very low but people are farming maize, wheat, millet, buck wheat, barley, bean and other vegetables.

5.6.8 Tentative Annual Income

Regarding to geographical difficulty and not available of regular transportation facility, the development activities is not easy task in the Dolpa district. Major income sources are NTFPs collection and animal husbandry. According to the Population and Housing Census by Rural Municipality (Profile of Jagadulla Rural Municipality, 2076 B.S.), the annual income is presented in the below table.

Table 14: Households According to Income

Ward No.	Annual Income (Rs.)			
	< 50,000	50,000 – 1,00,000	1,00,001 – 3,00,000	> 3,00,000
1.	16	34	19	2
2.	18	29	20	5
3.	45	33	15	1
4.	93	18	13	0
5.	75	20	14	5
6.	36	66	11	1
Total HHs	**283**	**200**	**92**	14

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.6.9 Bank and Financial Institutions

Most of the local transaction is done by the cooperative institution (Sahakari) in the Jagadulla RM. One branch of Nepal is established at Kaigaun (Jagadulla RM-02). There is operation of three cooperatives. The detail about bank and financial institution are presented below.

Table 15: Financial Institutions

S.N.	Name of Financial Institutions	Address
1.	Nepal Bank Ltd.	Kaigaun (Jagadulla RM-02)
2.	Bharipurna Multi-purpose Cooperative	
3.	Nandina Himali Agriculture Cooperative	
4.	Laligurans Women Cooperative	

(Source: Profile of Jagadulla RM, 2076 B.S.)

The location of bank and cooperatives are shown in ***Figure 11***. There is a branch of Nepal Bank Ltd. and others are cooperatives.

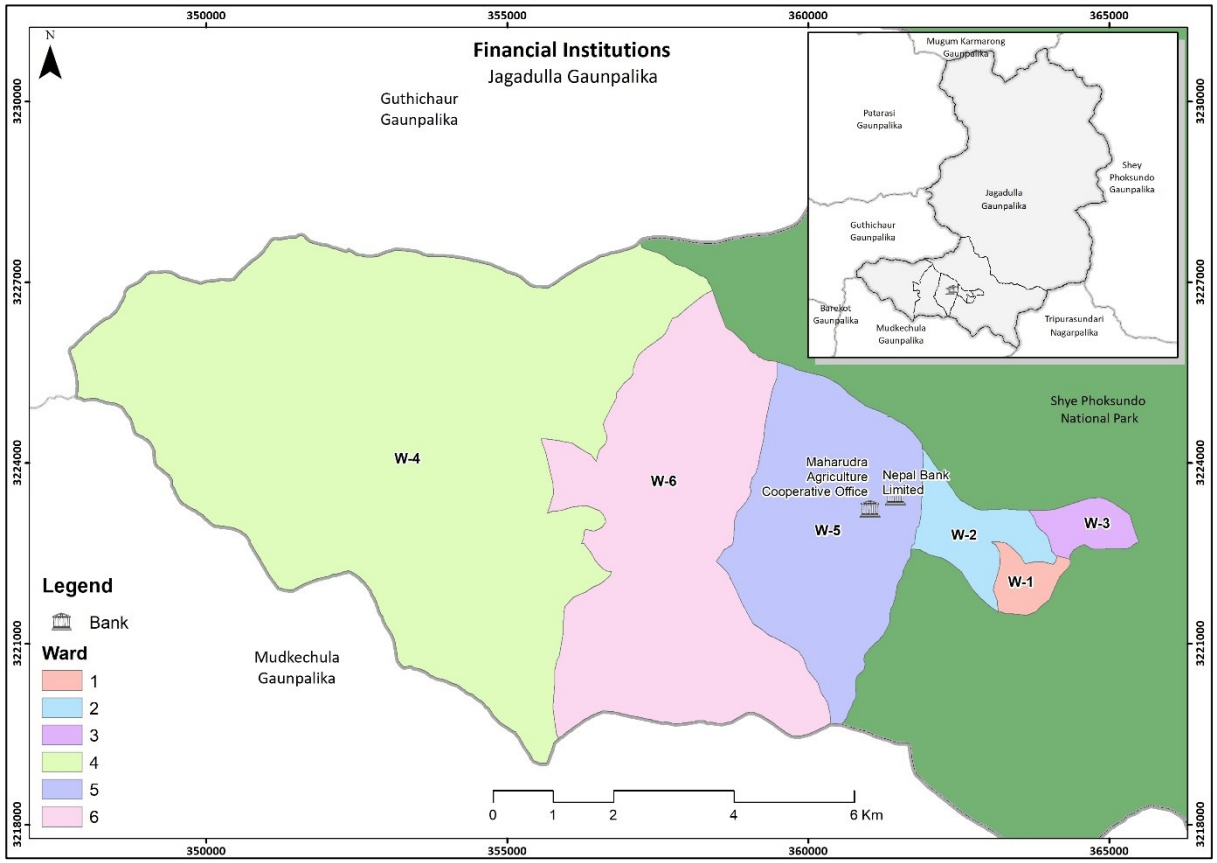


Figure 11: Map of Existing Financial Institution in Jagadulla RM *(Source: Field Survey, 2019 A.D.)*

5.6.10 Settlement and Housing Structures

A per the field visit time seen that all the settlement are clustered type and the whole RM is divided in seven cluster of settlement. Most of the traditional houses are having stone mud bonded structure with mud roof. But the latest houses are stone and mud bonded wall with Galvanized Iron Sheet roof. Some houses are also seen having roof of wooden materials.

5.7 Literacy and Educational Institution

5.7.1 Population Detail according to Literacy

The literate and illiterate rate of population as per the Population and Housing Census by Rural Municipality (Profile of Jagadulla Rural Municipality, 2076 B.S.) is tabulated below. About 66.89% population are literate and rest of them are illiterate. The scenario is gradually changing nowadays. Almost all childs are attaing school and most of child are continuing their study from city area like Birendranagar, Nepalgunj and Kathmandu.

Table 16: Ward Wise Literacy Rate

Ward No.	Literate People	Illiterate People	Total Population
1.	214	131	345
2.	261	99	360
3.	423	45	468
4.	381	198	579
5.	305	242	547
6.	354	244	598
Total	**1,938**	**959**	**2,897**

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.7.2 Educational Institutions and Status

There is existing of 7-basic school (1 to 8 grade) and 2-seccondary level (One school have 1 to 10 grade and another have 1 to 12 grade). The location of schools are shown in ***Figure 12***.

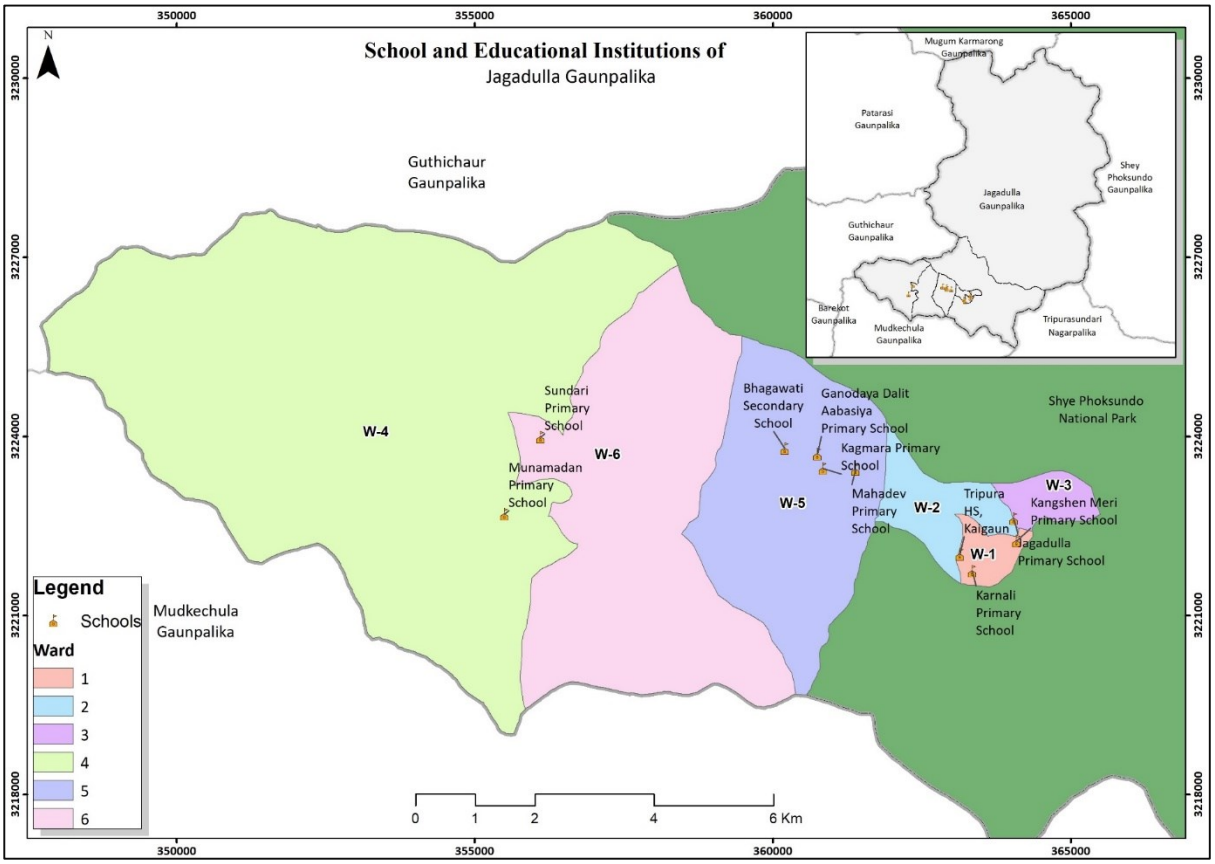


Figure 12: Map of Existing Schools in Jagadulla RM *(Source: Field Survey, 2019 A.D.)*

The detail about school and students till Jesta, 2076 are presented at table.

Table 17: School and Student Details

S.N.	School Name	Education Level					
		ECD	1-5 Class	5-8 Class	9-10 Class	11 and 12	Total
1.	Shree Tripura General and Technical Secondary School	-	-	76	145	95	316
2.	Shree Bhagawati Secondary School	28	67	67	46	-	208
3.	Shree Mahadev Basic School	16	98	42	-	-	156
4.	Shree Munamadan Basic School	10	48	-	-	-	58
5.	Shree Sundari Basic School	7	-	-	-	-	7
6.	Shree Karnali Basic School	19	30	-	-	-	49
7.	Shree Ganodaya Basic School	31	89	-	-	-	120
8.	Shree Kagmara Basic School	18	37	-	-	-	55
9.	Shree Jagadulla Basic School	7	56	-	-	-	63
Total		**136**	**425**	**185**	**191**	**95**	**1,032**

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.8 Health Institutions

There is existing of five health institution in Jagadulla RM. The location is shown in ***Figure 13***.

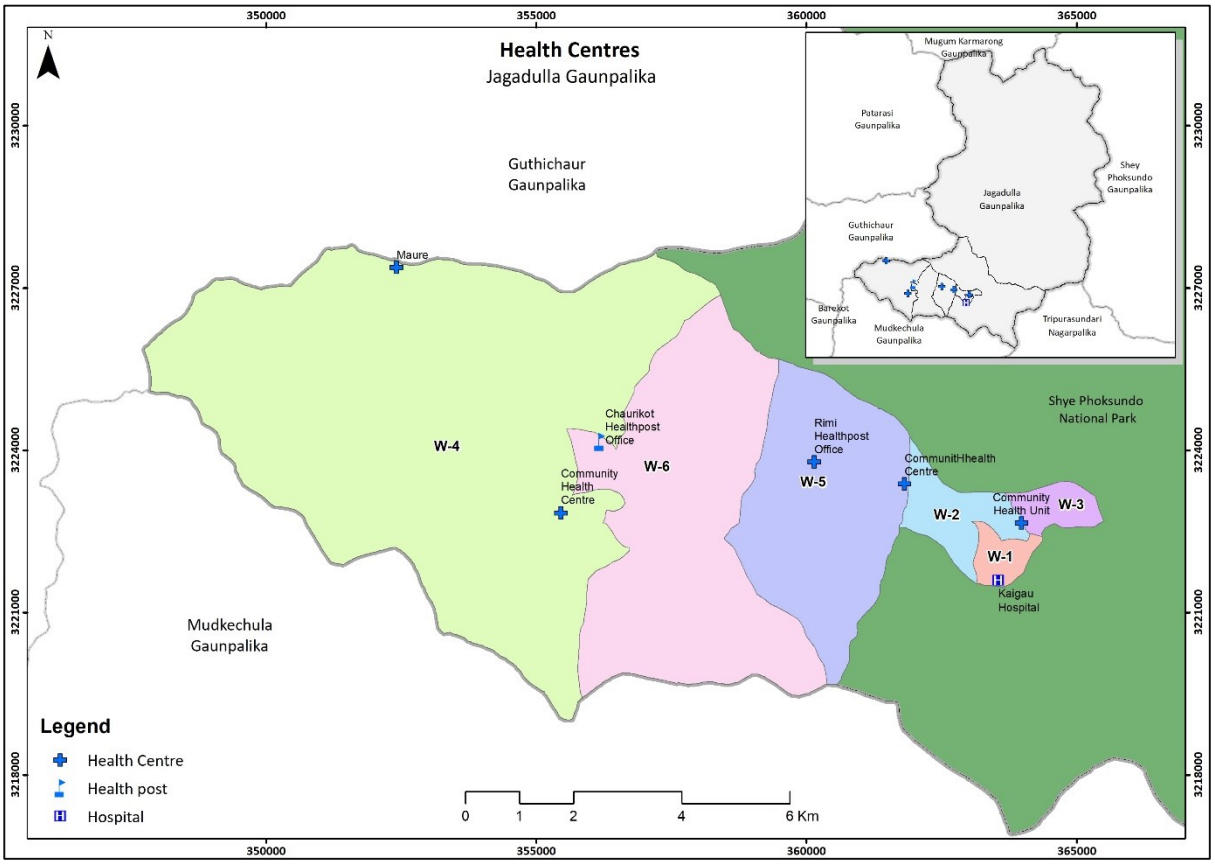


Figure 13: Map of Existing Health Institutions in Jagadulla RM *(Source: Field Survey, 2019 A.D.)*

The existing health institution is presented in table.

Table 18: Existing Health Institutions

S.N.	Name of Institution	Address	Service Area
1.	Kaigaun Health Post	Jagadulla RM-2, Kaigaun	Rural Municipality
2.	Rimi Sub-Health Post	Jagadulla RM-6, Jhyakot	Ward
3.	Chaurikot Sub-Health Post	Jagadulla RM-4, Chaurikot	Ward

4.	Community Health Centre	Jagadulla RM-4, Chanchu	Ward
5.	Community Health Centre	Jagadulla RM-1, Hurikot	Ward

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.9 Road Networks

As per the area bigger but most of part of RM covers by Shy-Phoksundo National Park. Although it is nearest Rural Municipality from Jumla district. The basic infrastructures of development such as bridge and roads are yet not to be facilitated to some parts of the RM and existing road (About 57 Km) are earthen and without drainage facility. The detail name and length of road is tabulated below.

Table 19: Existing Road Networks

S.N.	Road Name	Length (Km)	Types
1.	Maure-Chaurikot-Majhgaun-Kaigaun Road	22.5	Earthen
2.	Ring Road	26.4	
3.	Maure-Bhalu-Khitila-Jajarkot Road	10.5	
4.	Chukhiyana Agriculture Road	2.5	
5.	Mahune Khola Road	2.4	
6.	Thapahaun-Kaigaun Sub-Road	2.5	
Total (10.5 Km of Ring road is Part of Maure-Chaurikot-Majhgaun-Kaigaun Road)		**56.3 Km**	

(Source: Profile of Jagadulla RM, 2076 B.S.)

The existing road network is shown in ***Figure 14***. But all the roads are single lane with earthen type and not have drainage structure.

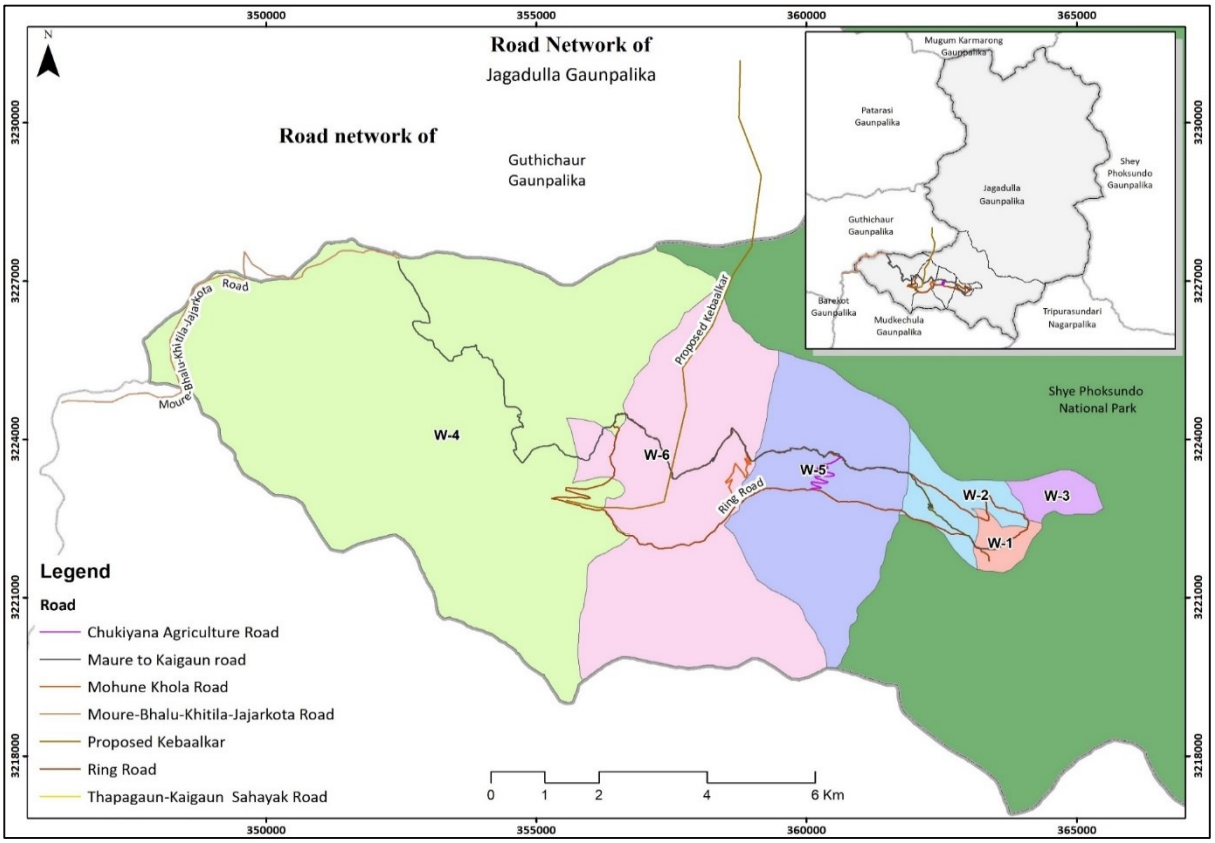


Figure 14: Map of Road Networks in Jagadulla RM *(Source: Field Survey, 2019 A.D.)*

5.10 Cooking Fuel and Lighting Sources

Most of the population, almost 96.43% HHs use firewood as fuel for cooking. About 21 HHs use LP gas as cooking fuel. The detail about cooking practice is tabulated below.

Table 20: Households by Cooking Fuel

Ward No.	Firewood	LP Gas	Total
1.	68	3	71
2.	67	5	72
3.	92	2	94
4.	120	4	124
5.	109	5	114
6.	112	2	589
Total HHs	**568**	**21**	**589**

(Source: Profile of Jagadulla RM, 2076 B.S.)

Out of the total households, 237 HHs use electricity of micro-hydro as lighting source. Besides electricity, people also use solar power as major source of lighting. The detail about lighting source is presented below.

Table 21: Households by Lighting Sources

Ward No.	Electricity	Solar Power	Total
1.	71	0	71
2.	72	0	72
3.	94	0	94
4.	0	124	124
5.	0	114	114
6.	0	114	589
Total HHs	**237**	**352**	**589**

(Source: Profile of Jagadulla RM, 2076 B.S.)

5.11 Institutional Developments

Rural Municipality and Municipality are the newly formed lower administrative division in Nepal. The Ministry of Federal Affairs and General Administration dissolved the existing village development committees and announced the establishment of this new local body. There are currently 753 local bodies among them 460 Rural Municipalities and 293 Municipalities in Nepal. The list offices are as follows existing in Jagadulla RM.

- Rural Municipality Office- Jagadulla RM-05 (Majhgaun)
- Ward office of six wards
- Police Station- Jagadulla RM-02 (Kaigaun)
- Health Post of Rural Municipality Level- Jagadulla RM-02 (Kaigaun)
- Veterinary and Agriculture Office- Jagadulla RM-05 (Majhgaun)
- Office of Khadhya Sansthan Store- Jagadulla RM-02 (Kaigaun)
- Different Cooperatives
- Different Schools
- Different women group
- Different Youth Group, etc.

Government of Nepal is going to establish all the concerned office establish at Rural Municipality level. So that some kinds of office is already established and some office are going to start. The location of map of existing and purposed office in Jagadulla RM is shown in ***Figure 15***.

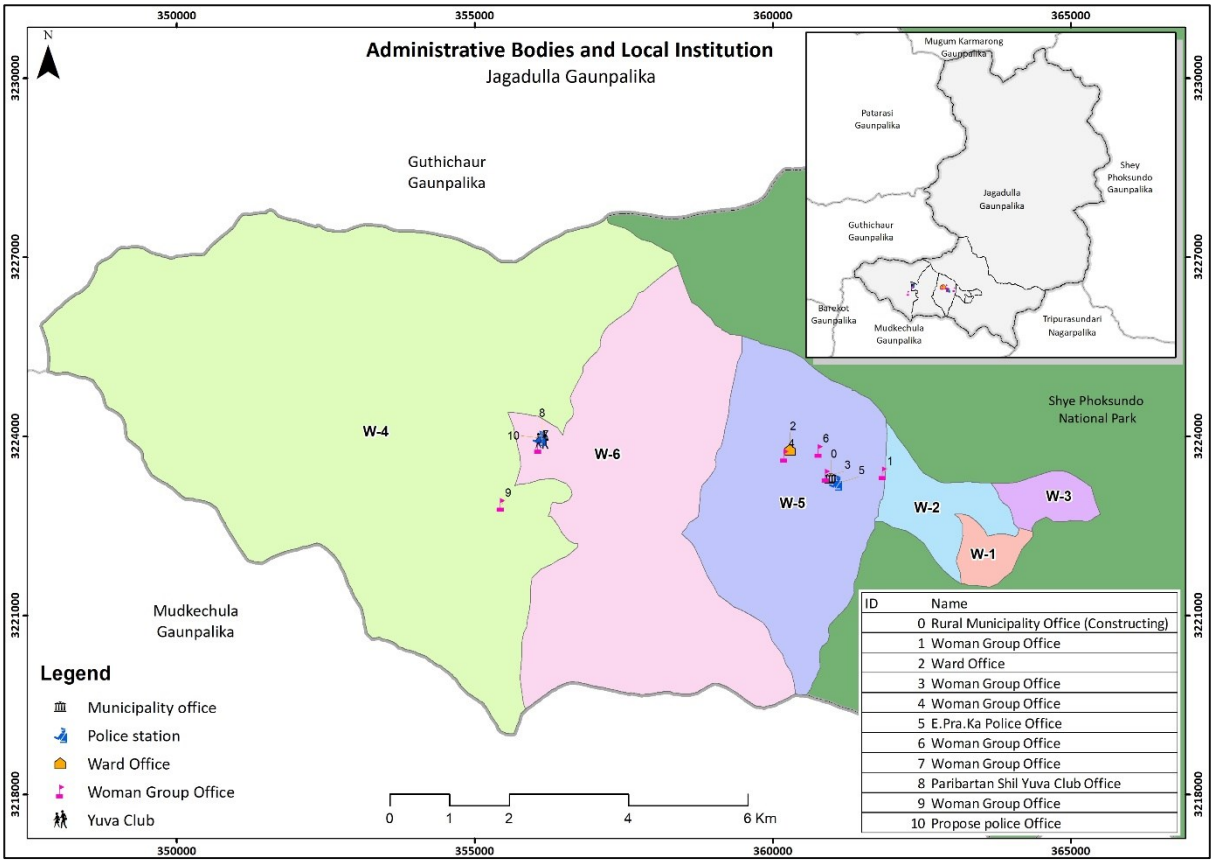


Figure 15: Map of Administrative Institutions in Jagadulla RM (Source: Field Survey, 2019 A.D.)

CHAPTER VI: PERSPECTIVE PLANNING

This chapter basically deals with future projection of the population along with the allocation of future potential development areas. It also covets the formulation of hierarchy of development with various proposed right of way for different class of plan along with relationship of future oriented land use and development planning. It also deals with the various infrastructure planning and how they will help to enhance the facility, mobility and accessibility scenario. Finally, it covers the aspect of Short-term, Medium-term and Long-term development planning.

6.1 Population Projection

The population of Jagadulla Rural municipality is 2,897 according to Housing and population census of Jagadulla RM (2076 B.S.). But as per CBS (2011), the total population was 2,273. From the above data found that the present population growth rate of Jagadulla RM is 1.89. The population and growth rate in different census year is shown in Table below. Population projection is done by using geometric formula. The population projection using different growth rate as shown below.

Table 22: Population Projection of Jagadulla Rural Municipality

S.N.	Year (B.S.)	Projection of population
1.	2068	2,273
2.	2078	3,044
3.	2088	4,076
4.	2098	4,558

6.2 Planning Concept and Vision Setting

The planning concept of Rural Municipality is set with the identification of lead and possible sector. The vision is set for at least 20 years' timeframe which is the time frame. To develop the vision, the existing trends and resource potential was identified which was done during the vision setting exercise. Master plan is new approaches to sustainable and environment friendly development in light of existing and emerging challenges of sustainability, increased resiliency and mitigation and adaptation to the effects of climate change. The development trend, disaster issues, haphazard settlement issues are well studied before proposing the land use plan which is one of the major components of the indicative plan.

6.2.1 Indicative Development Potential

Indicative Development Potential (IDP) is basically the indication of the existing and potential market centre/service centres (key growth centres) and the areas having various development potentials such as agro-based industries, NTFPs, animal husbandry, orchard farm, high value cash crops and tourism. Thus, IDP shows high value cash crops, tourism area, and area of service centres such as hospital, post office, tele-communication, school, campus, security offices and large settlements, important historic and religious places. Finally, it prepares the ranking of the markets of the Rural Municipality as the basis of infrastructure and network planning.

- Existing/potential areas for development of agriculture pocket area.
- Areas with extensive animal husbandry.
- Potential area of orchard farm.
- Potential area of NTFPs collection and protection.

- Area with service centres such as hospital, post office, tele-communication, school, campus, security offices, sport and recreational centres, etc.
- Potential areas for tourism development.
- Potential area of secure settlements.
- Area with important historic and religious places.
- Areas with extensive high value cash crops.
- Sustainable and feasible road network development, etc.

6.2.2 Planning Sector

Long term strategic vision planning will basically form the structural guide for the development of the Rural Municipality. It is expected that long term vision set during the sustainable development will be considered as the basic development strategy for next 20-30 years' development plan. The questionnaire sets were provided to authorities to inquire how they envisioned their city in next 20 years. The lead sector of Jagadulla Rural was identified as:

- Agriculture Pocket Area
- Livestock Farming Pocket Area
- NTFPs Pocket Area
- Road Networks
- Market Centres
- Recreational Centres and Tourism Sector
- Health Sector
- Playground
- Settlement and Roadside Drainage Management
- Hydropower
- Education Sector
- Helipad
- Rural Municipality Office and Ward Offices

6.3 Sectoral Planning of Jagadulla Rural Municipality

Jagadulla Rural Municipality is planning to develop different sector with multi-year planning basis. The detail about planning sector is described below.

6.3.1 Agriculture Pocket and Horticulture Pocket Area

Jagadulla Rural Municipality, has envisioned different long term and sustainable agriculture pocket area. The Rural Municipal Council has formulated policy regarding agriculture pocket area development project with high prioritized project in collaboration with like local government and non-government organization. The ultimate goal of this project is to enhance agriculture and economic status of the people and get sufficient agriculture products for their livelihood. The Jagadulla RM is selected five-different agriculture pocket area.

a. Kaigaun, Majhgaun, Thapagaun, Chachu and Jhyakot Agriculture Pocket Area

This is a vibrant economic development project for the local people of Jagadulla Rural Municipality as 90% more people are dependent upon agriculture occupation. There is located area of agriculture pocket area of Jagadulla RM and there is existing of cultivated land. The RM is planning to cover by cemented peg and wire to protect from domestic animals. From the field visit found that these area is suitable for grain farming such as wheat, millet, maize, buck wheat, barley, etc. Due to the cold climate the agriculture productivity is very low and people

are buying grins from Khadya Sanstha Dipo and market of Jumla bazaar. To avoid this scarcity of food materials, the RM is planning to develop four different agriculture pocket area which area Kaigaun, Majhgaun, Thapagaun, Chachu and Jhyakot Agriculture Pocket Area.

Under this pocket area development long term perspectives plan, Jagaulla Rural Municipality will explore programmatic, thematic and infrastructure development support to Karnali Province government in cost sharing basis as Rural Municipality has initiated to construct basic infrastructure like: Jagadulla Rural Municipality has been initiating compounding around the large agricultural land of Chachu village of ward no-4, Jhakot village of ward no-6, Majgaun village of ward no-4, thapagaun village of ward -3 and Kaigaun village ward no-2. The located is presented in ***Figure 16, 17, 18, 19 and 20*** below respectively.

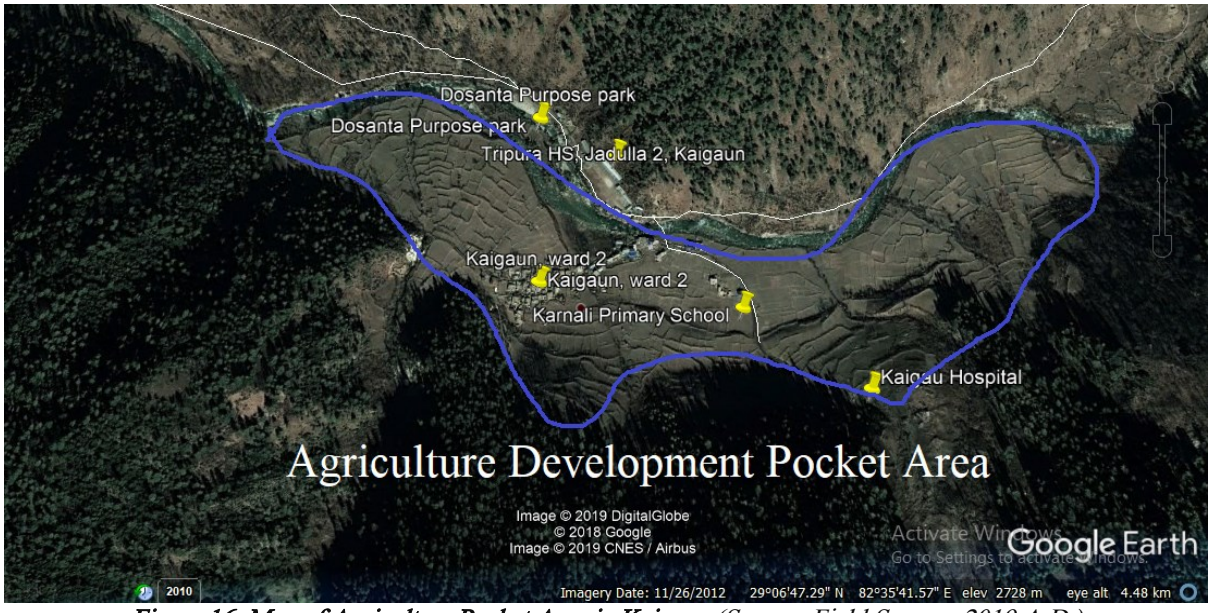


Figure 16: Map of Agriculture Pocket Area in Kaigaun *(Source: Field Survey, 2019 A.D.)*

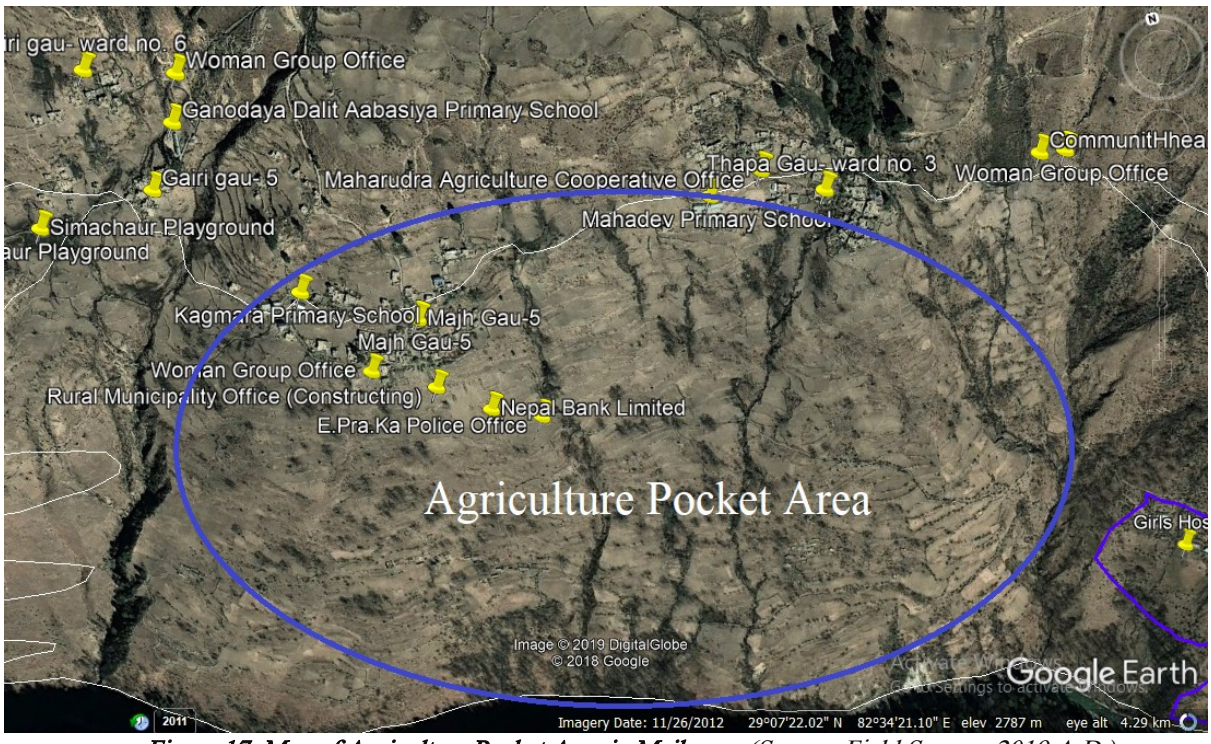


Figure 17: Map of Agriculture Pocket Area in Majhgaun *(Source: Field Survey, 2019 A.D.)*

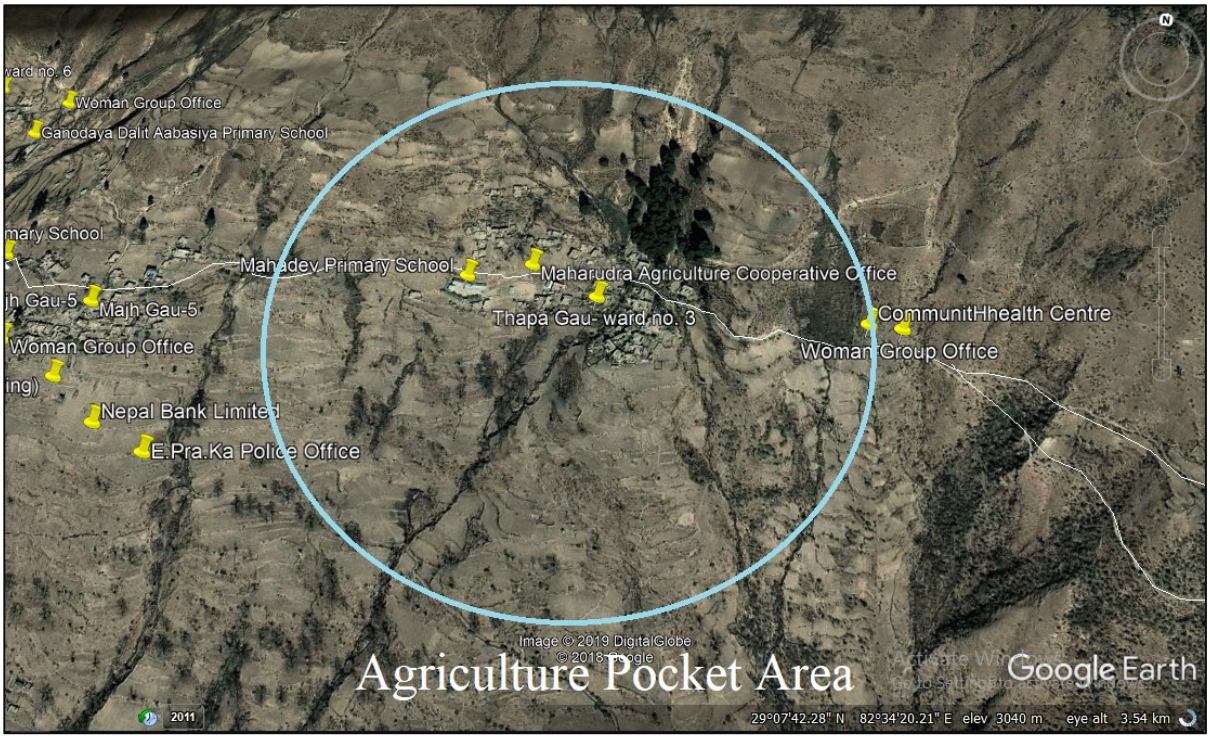


Figure 18: Map of Agriculture Pocket Area in Thapagaun (Source: Field Survey, 2019 A.D.)

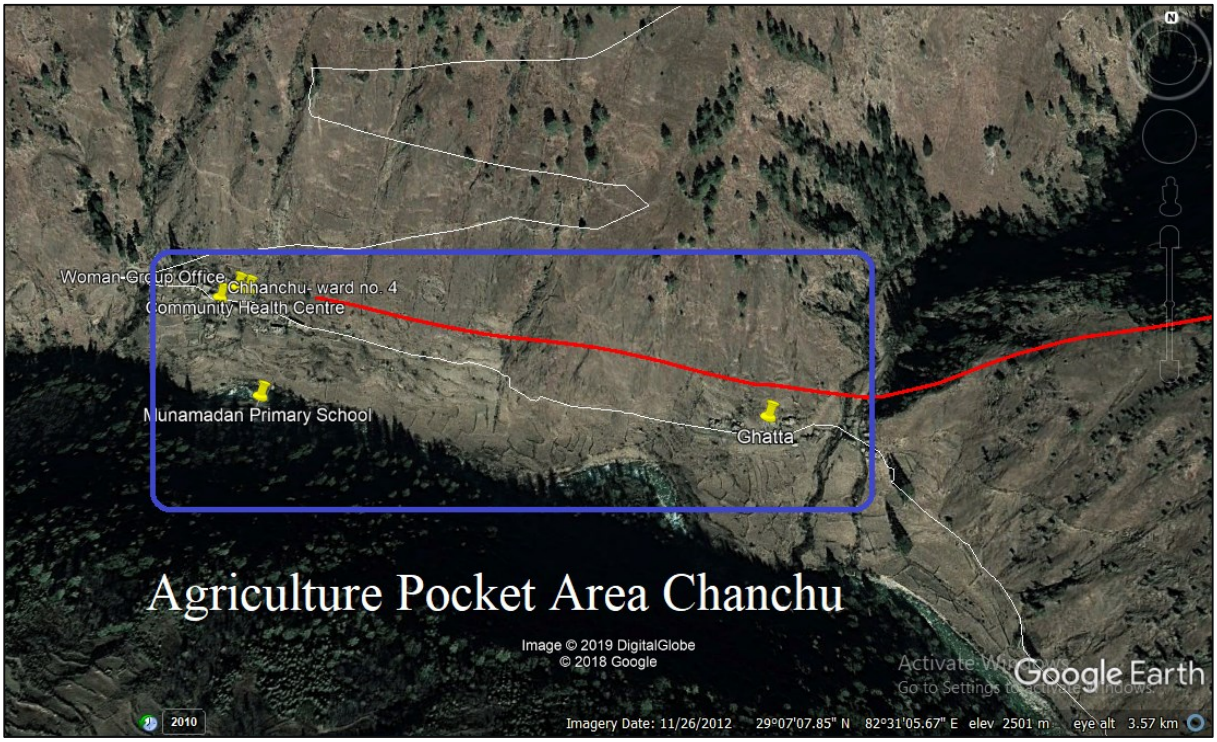


Figure 19: Map of Agriculture Pocket Area of Chanchu (Source: Field Survey, 2019 A.D.)

This project will be developed as model agriculture development project with innovation, research, study and resource centre for the farmers of entire Karnali province. This is envisioned that the project will support to foster Jagadulla Rural Municipality as agro-tourism hub, agro-industrial hub and ago-production and marketing hub.

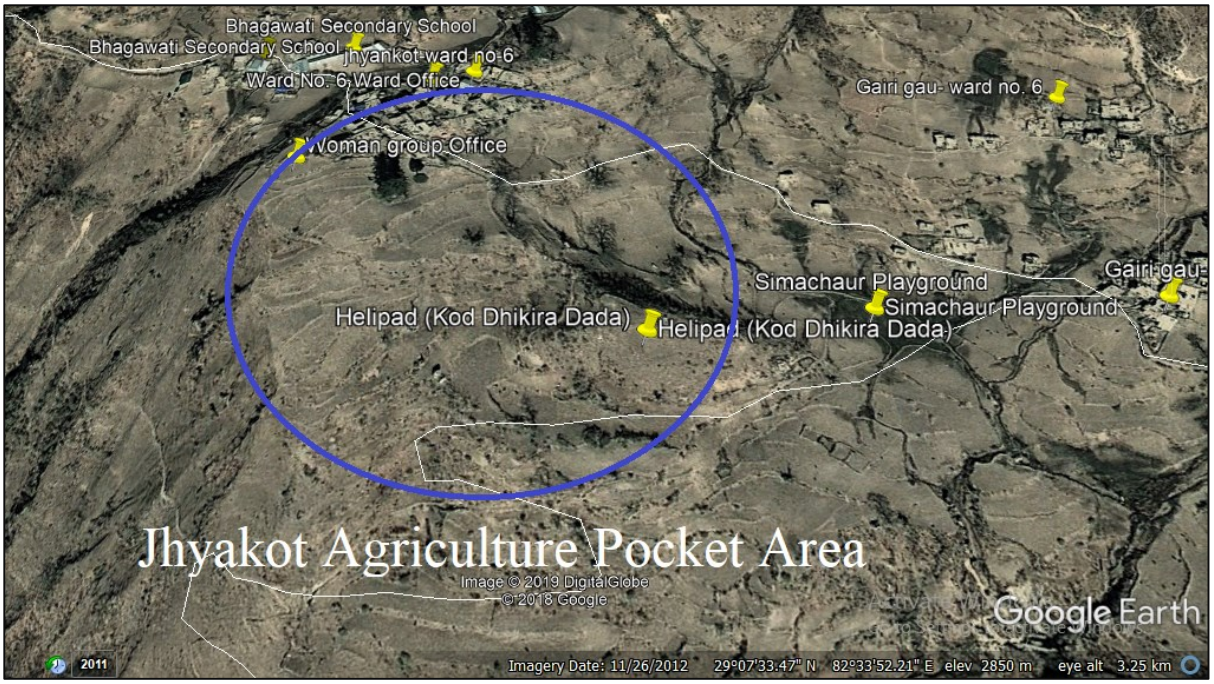


Figure 20: Map of Agriculture Pocket Area of Jhyakot (Source: Field Survey, 2019 A.D.)

b. Horticulture Pocket Area

About10 hectors is allocated for plantation of organic apples, walnuts, etc. and other climate suitable fruits. HHs will be directly engaged on economic activities and will be benefited by this proposed large scale of economic development project. The Major activities such as compounding, irrigation, organic farming and Integrated Waste Management (IPM) framing approach, plantation of apples and other fruits, trainings, knowledge and skill development activates for the local farmers, small and large scale of technology and machinery support for the poor farmers for apple post harvesting management support like chopping and storing , apple grading, packaging, branding and marketing support, exposure visit will be undertaken under this project. The propose farm is located at upper part of Majhgaun and Jhyakot (Ward no. 5 and 6 of Jagadulla RM).

Figure 21: Map of Apple and Walnut Farm (Source: Field Survey, 2019 A.D.)

6.3.3 Livestock Pocket Area

Under this project mega project will be explored to establish the area of Chaurikot and Hurikot as Live stoke development, research and study centre in support of Federal Government and Province Government. A research based report will be published by Rural Municipality resource to undertaken the project.

The project will contribute on the local and national economy as people will be deployed systematically on this occupation as they are practicing form the generation to generation. This is the high potential area for livestock farming in Nepal. There are so many enormous grass pasture lands for grazing near by the Chaurikot and Hurikot village. The cow will support raise milk for nutrition and Himalayan milky products like ghee, cheese, butter and so on. The home base cottage industry to be explored and developed to promote the cow and yaks. The yaks are useful for making warm cloths and meats as well.

Animal husbandry is major occupation as well as income source of inhabitants. To promote the livestock farming Jagadulla Rural Municipality has formulated program and budget to develop Livestock pocket area in Chaurikot village of ward no-4 and Hurikot village, ward no-1 of Jagadulla Rural Municipality. The pocket area will be developed as large scale of cows, yaks, Goats and Himali Sheep's research and study area. This project will increase the live standard of the people and reduce the poverty line to contribute over the Sustainable Development Goal (SDG) and National Poverty reduction.

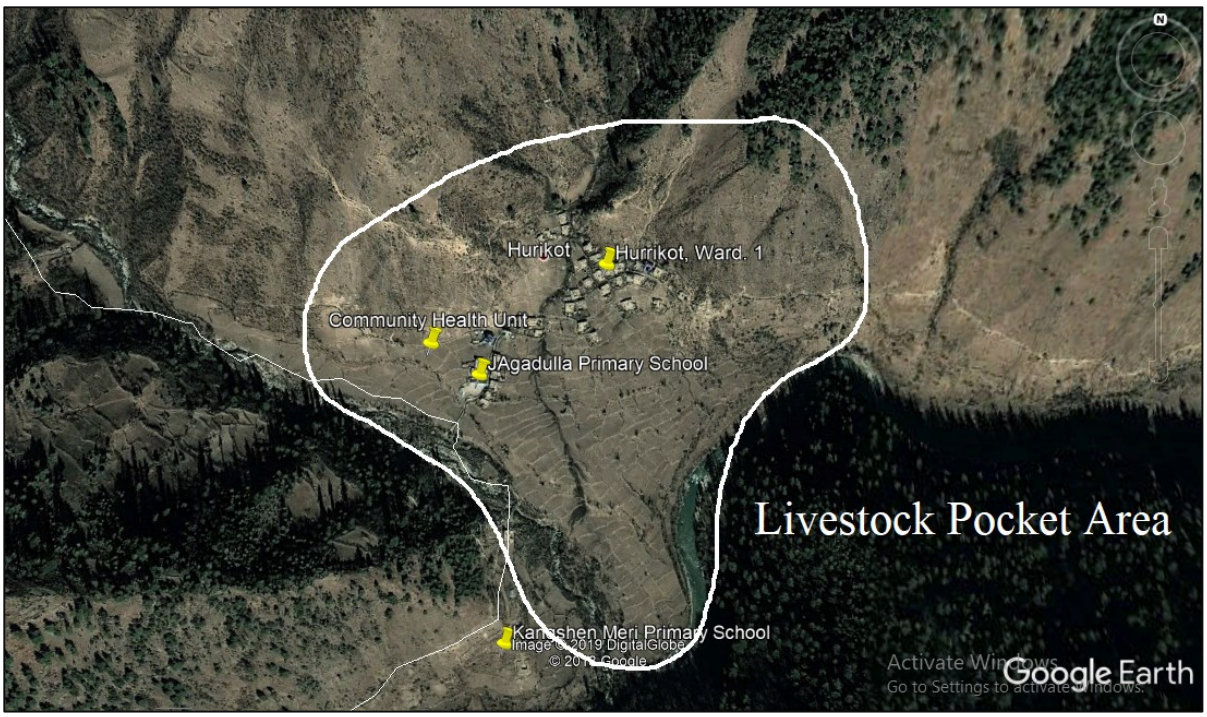


Figure 22: Map of Livestock Pocket Area of Hurikot *(Source: Field Survey, 2019 A.D.)*

During the field visit also find that Chaurikot and Hurrikot ki appropriate place for animal husbandry due to available of forest area and grassland.

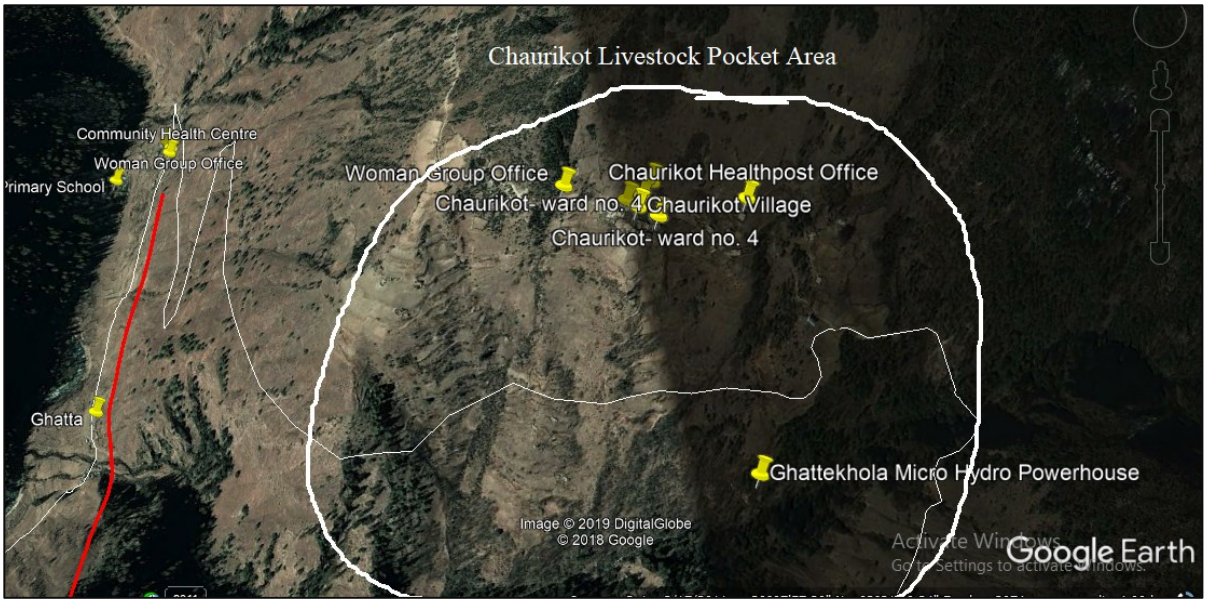


Figure 23: Map of Livestock Pocket Area in Chaurikot *(Source: Field Survey, 2019 A.D.)*

6.3.4 NTFPs Pocket Area

The major seasonal income source of local people based diversity in Non-Timber Forest Products. Most of parts of Jagadulla RM is covered by parts of Shey-Phoksundo National Park, so that there sufficient available of medicinal herb. The major medicinal and high value Himalayan herbs are Yarsha Gumba. This is the major source of cash income of the local people. The other verities of herbs are Jatamasi, Katuki, sugandwal, Pachauli, Hatijara, etc. Major places like Kagmara patan, Jagadulla patan, etc. are famous for medicinal herb collection.

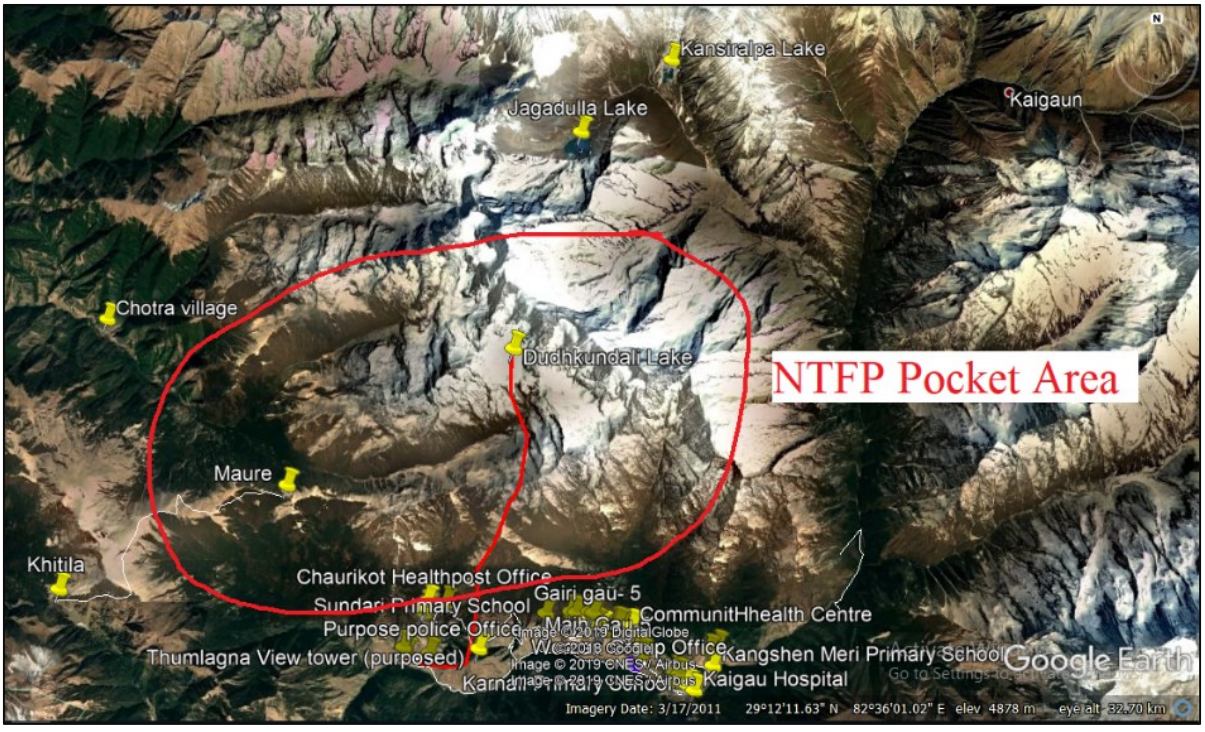


Figure 24: Map of NTFP Pocket Area and Dudhkundali area *(Source: Field Survey, 2019 A.D.)*

Jagadulla Rural Municipality has planned to have expert level study to take inventory of available hurbs and identify its medicinal values. In this regards rural municipality will invest on protection, conservation and promotion of local high value medicinal flora and fauna.

6.3.5 Road Networks

Roads are the major infrastructure for development as road construction eases the access to trade and market centres, health and education services, brings in new opportunities of employment and business and enhances the overall living standard of the people benefiting from the road. There is earthen single lane track open road only with absence of drainage and gravelling. So that Jagadulla RM is planning to construct drainage and gravelling of existing road network. The road network from Jumla bazaar is also planning to connect with Dunai bazaar (Headquarter of Dolpa). There is not regular transportation vehicle from Jumla bazaar and only tractor and some truck is operating to transport the goods. Therefore, RM is planning to operate regular Jeep service from Jumla bazaar. The present road network of Jagadulla RM is presented in ***Figure 25***. The road widening and extension of road network is further priority of RM.

The ring road project of Jagadulla Rural Municipality is long term Sustainable Project initiated by internal fund of Rural Municipality. The project has been implementing and accomplished track opening. It will be updated and within up-coming 3 years. The ring road touches almost all settlements of jagadulla Rural Municipality. It links from Churikot –Chachu-Kaigaun-Hurikot-Thapagaun-Majgaun. The ring road is 25.4 km in length.the start point would be at Chanchu at 29° 7'12.52"N, 82°30'38.73"E and rouding point would be at 29° 7'6.28"N, 82°36'2.87"E, Kaigaun. It will support to join the inter-relationship among all villagers and Market centers.

It will support to foster economic activities of all people ensure easy access to village to market centers where as three nearby markets centers to be developed in Churikot Market centers , Majgaund Market centers and Kaigaun market centre . It starts from chanchu and run upstream along the ridge line of Jagdaulla Khola upto Hurikot via Kaigaun.

Figure 25: Map of Existing Road Network *(Source: Field Survey, 2019 A.D.)*

6.3.6 Market Centres

Jagadulla Rural Municipality has identified to develop planned market centers at three points. The centre point of Jagadulla Rural is Majgaun where Municipal office and other government office have been established after the local election. Another major market centre is Kaigaun, the previous market and official centre was situated. Recently higher secondary school, illka police office, health post and other offices are situated in Kaigaun centre. The third proposed market centre is Chaurikot which is nearer settlement to Jumla. The market centre will be transit point for transportation and mobility from Jumla to Dolpa as there is road linkage from Jumla to Jagadulla Rural Municipality.

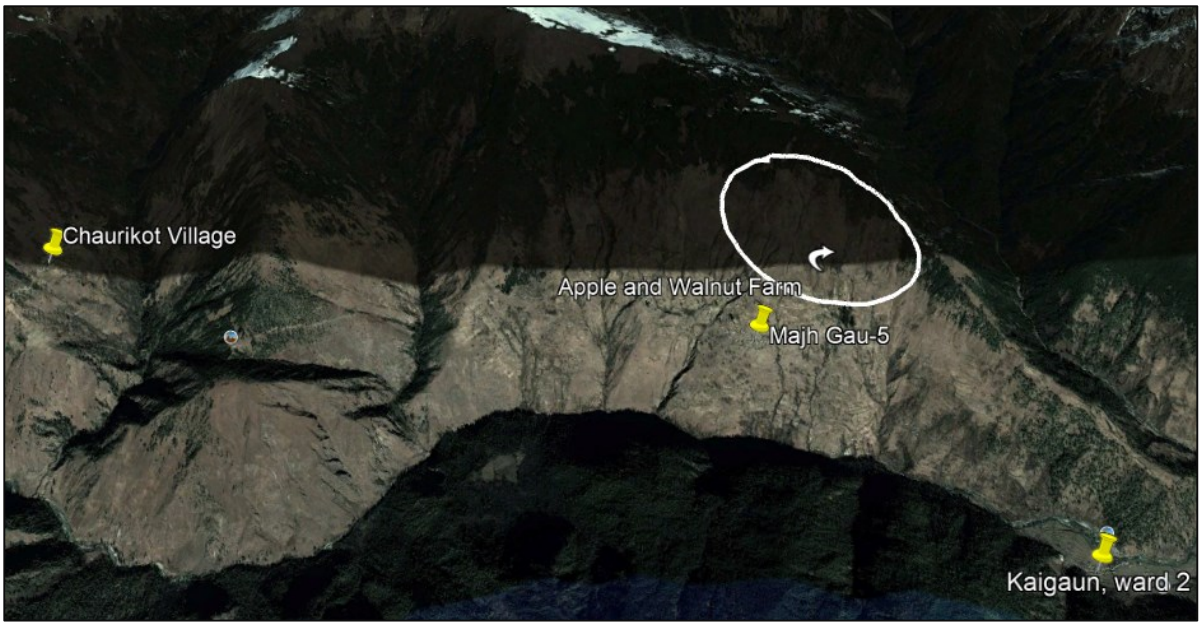


Figure 26: Proposed Market Centres (Source: Field Survey, 2019 A.D.)

Figure 27: Photo of Kaigaun proposed Market Centre *(Source: Field Survey, 2019 A.D.)*

6.3.7 Recreational Centres and Tourism Development

a. Cabal Car Project:

Cabal car is a long term perspective project dreamed by the chair-person of Jagadulla Rural Municipality. In fiscal year 2077/078 the feasibility study will be undertaken in consultation with expert's team. The cabal car project will be a milestone for economic development of this area by attracting internal and external tourists. The projected stating point Chachu (Jagadulla

RM-4) to Jagadulla lake and Dudhkundali lake. The tentative length of this proposed cable car project is about 12 Km.

The project will only possible in seeking hands in public, private partnership approach. This feasibility report and Detail Project Report (DPR) will share to Federal Government of Nepal, Provincial government of Nepal and private investor approaching on investment summit which to be organized by Jagadulla Rural Municipality.

Figure 28: Map of Proposed Chanchu-Thumlagna Dada-Dudhkundali Cable Car *(Source: Field Survey, 2019 A.D.)*

b. Thumlanga Danda View Tower and Picnic Spot

Thumlagna Dada is a natural place with peak shape and height, which located at Jagadulla RM-04. According to field visit found that it is appropriate for construct view tower and picnic spot. Nowadays local people are using as a picnic spot at this place and RM Municipality is planning to develop view tower as well as picnic spot. Long term vision of tourist area and recreational place for inhabitants is necessary as per consultation with RM official and elected representatives. Selected location is appropriate for view tower due to height and location. Jagadulla RM is trekking route of Shey-Phoksundo lake and Mustang. RM is planning to DPR of project and budget allocation in next fiscal year.

It can be one of the best tourism desitination in Jagadulla RM. The geographical coordinates of this place is 29° 7'11.64"N, 82°32'4.52"E and lies at height of 3195 m. It is situated at a height from which a perfect view of nature can be taken. It's safe from geological point of view as it solidly rest on a strong bedrock. A small road can be made to view up there and resort and restaurants can be run which could gather funding from RM. The google map is shown below which shows Thumlagna view tower and picnic spot.

Figure 29: Photo of Thumlanga Danda View Tower and Picnic Spot (Source: Field Survey, 2019 A.D.)

c. Dosanta Eco-Park

Dosanta Eco-park lies in Jagadulla Rural Municipality ward -2, Kaigaun village. This can be one of the most tourist destination that lies in between Kaigaun and Majgaun. This would be called Dosanta Eco-park. This place lies at the mid- point of Jagadulla river and is surrounded by crystal clean water with perfect natural view.

Figure 30: Photo of Proposed Dosanta Eco-park Area (Source: Field Survey, 2019 A.D.)

Figure 31: Google Map of Dosanta Eco Park (Source: Field Survey, 2019 A.D.)

Jagadulla Rural Municipality is on the urban planning process. The Dostana Eco-Master plan will be prepared in support of consultant Experts. The funding will be in sharing basis with Ministry of Tourism of Federal Government of Nepal and Local Investment. This park is feasible from technical point of view. Construction of gabion walls around the park boundary with some bioengineering technique could help to establish the place in easy and economical way.

d. Jagadulla lake Tourism Place

This lake is located North to Jagadulla RM and lies at 29°14'55.72"N, 82°33'49.24"E. It takes around 2 days walking from Majhgaun to reach the Jagadulla lake. It is formed by melting of ice around the area. This place has importance from tourism point of view. Better paths to reach, home stay facilities and security is major thing needed to develop this tourism destination.

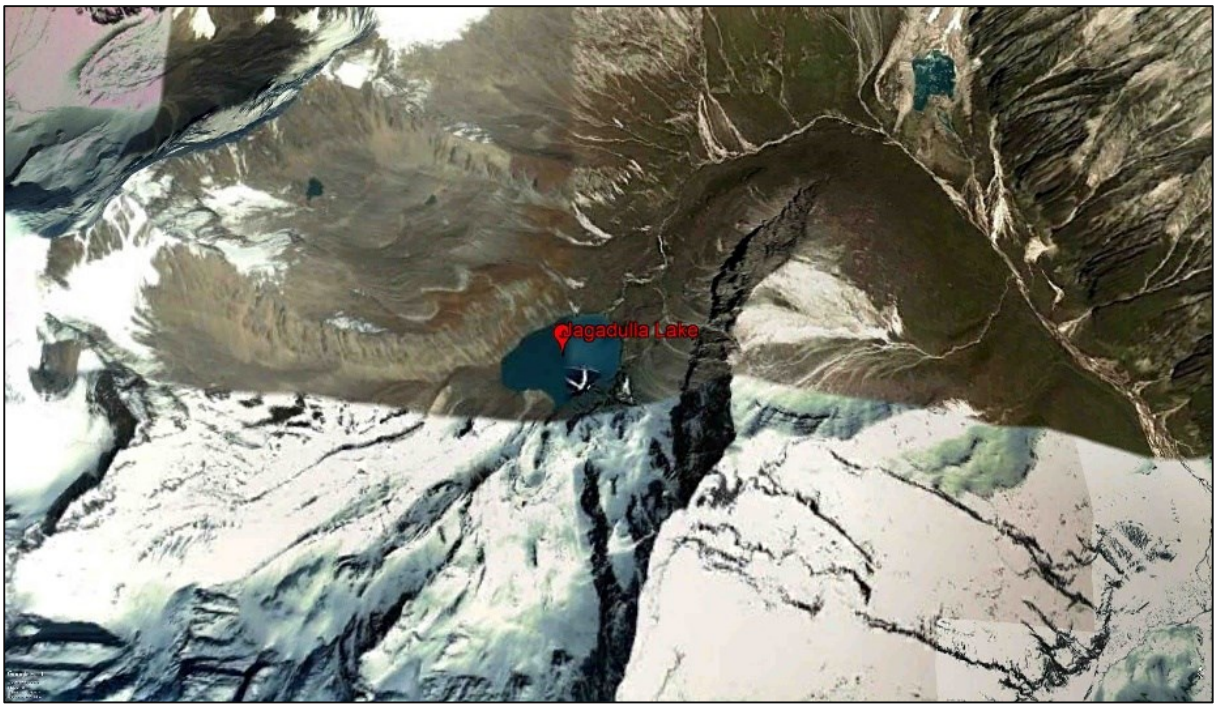


Figure 32: Google Image of Jagadulla Lake *(Source: Field Survey, 2019 A.D.)*

6.3.8 Kaigaun Hospital

Jagdulla Rural Municipality has envisioned constructing Hospital at Kaigaun with 30 bed seats and specialization services. The Detail Project Report to be prepared then extends support from Ministry of Health and Social Development of Karnali Province Government and Ministry of Health of Government of federal Government of Nepal.

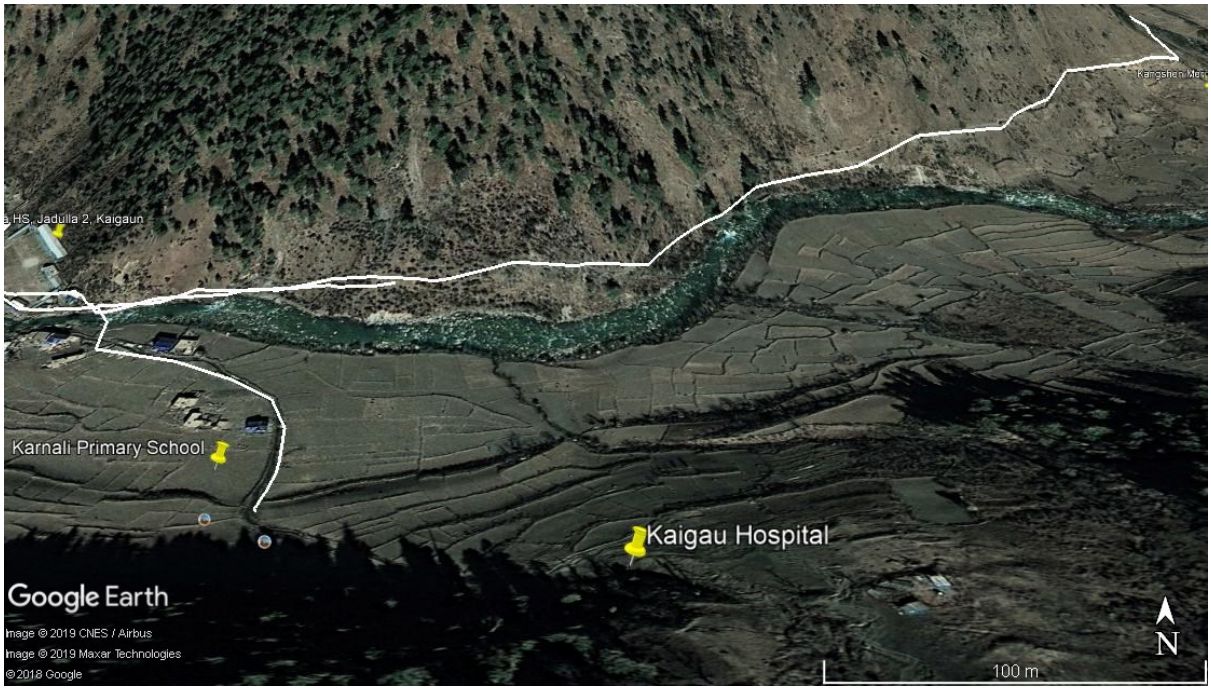


Figure 33: Google Map of Proposed Kaigaun Hospital (Source: Field Survey, 2019 A.D.)

6.3.9 Simchaur –Playground:

This is one of the proposed playground that lies between Kaigaun and Majhgaun. The main objective of this project is to facilitate sportsmen with play spaces. The area is plain and with slope at some places. Is also feasible from technical point of view. This is the only tar available to construct such a great playground in Jagadulla RM near from residing place of people.

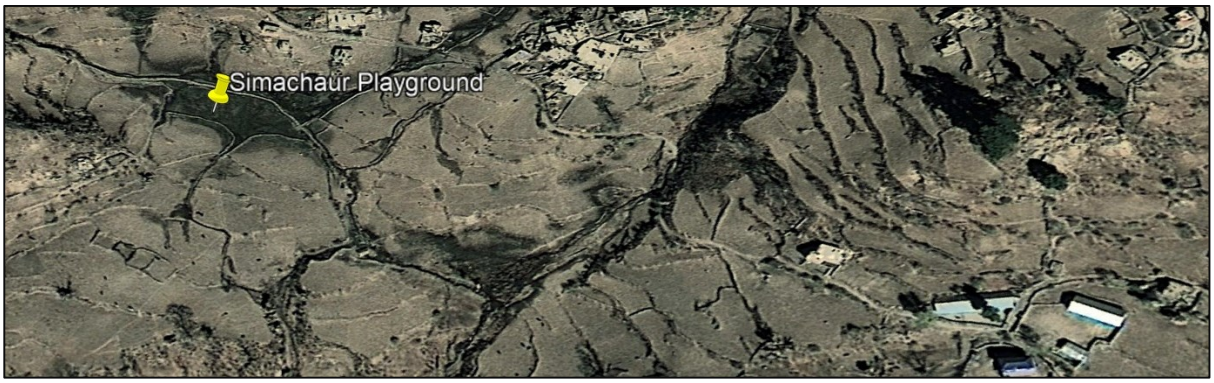


Figure 34: Google Map of Proposed Simchaur Playground (Source: Field Survey, 2019 A.D.)

6.3.10 Settlement and Roadside Drainage Management

During the rainy season there is problem of sewerage management and filthy area easily can be seen. To remove that problem underground drainage system should be installed around the settlement. Roads will affect the natural surface and subsurface drainage pattern of an individual hillslope. Road drainage design has as its basic objective the reduction and/or elimination of energy generated by flowing water. The destructive power of flowing water increases exponentially as its velocity increases. Therefore, water must not be allowed to develop sufficient volume or velocity so as to cause excessive wear along ditches, below culverts, or along exposed running surfaces, cuts, or fills. A good drainage system in road is necessary in Jagadulla RM. Each year the rain water discharging into road degrades the quality of road which would lead to piping failure of retaining walls and ultimately would trigger a landslide in hill roads.

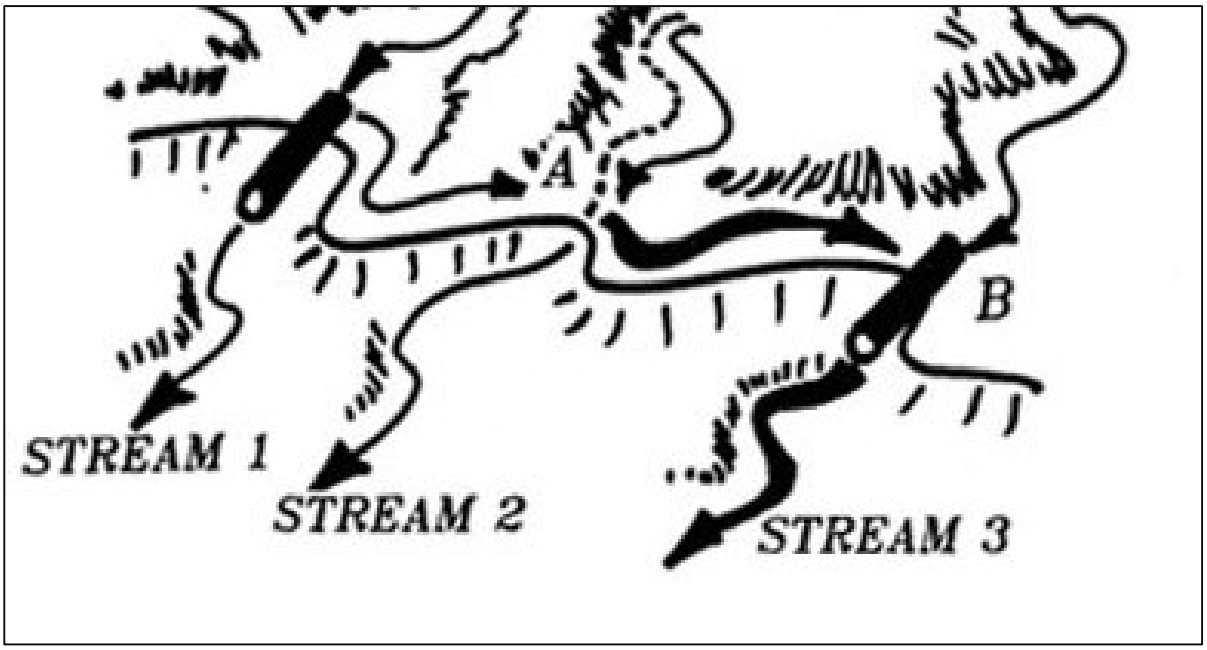


Figure 35: Drainage Function in Road

Provision for adequate drainage is of paramount importance in road design and cannot be overemphasized. The presence of excess water or moisture within the hill roadway will adversely affect the engineering properties of the materials with which it was constructed. Cut or fill failures, road surface erosion, and weakened subgrades followed by a mass failure are all products of inadequate or poorly designed drainage. As has been stated previously, many drainage problems can be avoided in the location and design of the road: Drainage design is most appropriately included in alignment and gradient planning.

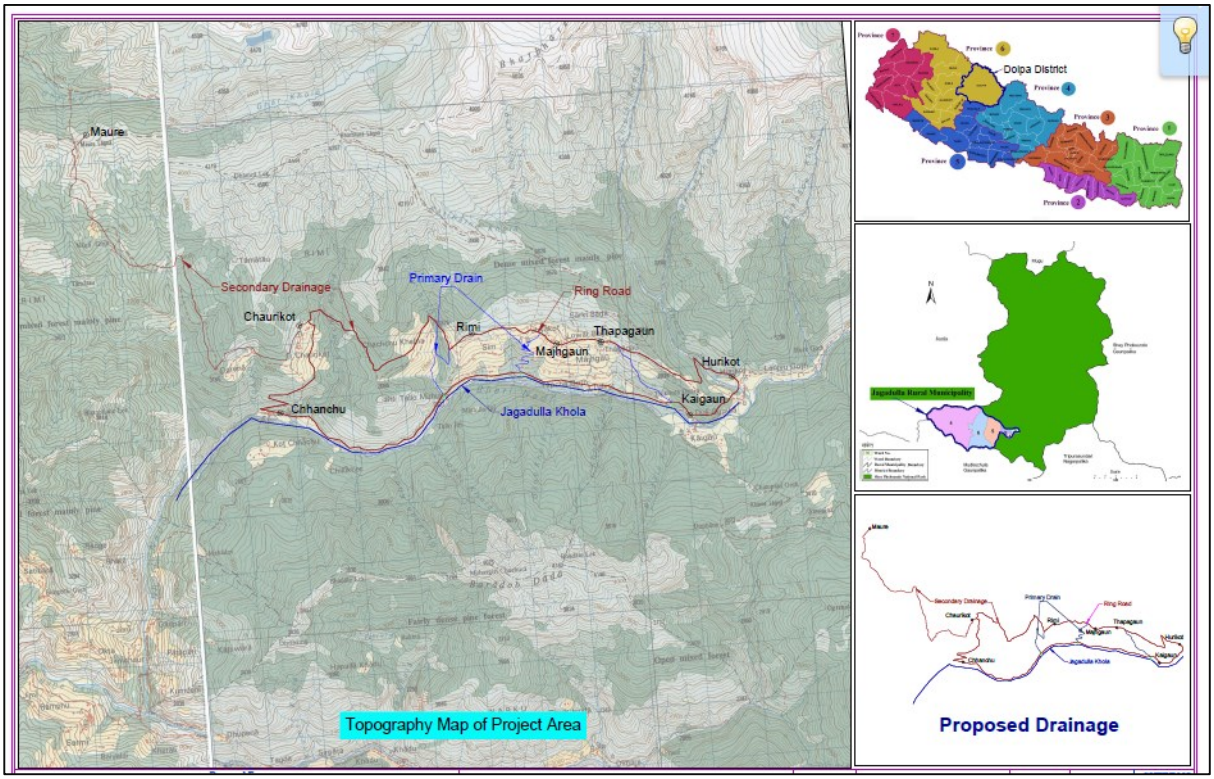


Figure 36: Proposed Drainage of Jagadulla RM

The continued presence of water on the road surface weakens the pavement causing pot holes and ruts; similarly, the presence of water in the subgrade reduces its bearing power and load dispersion capacity. Loss of subgrade support leads to the failure of the road pavement under traffic loads. Hence efficient drainage is an imperative need. Lack of drainage or inadequate drainage has been the primary reason for the failure of road pavements in Jagadulla RM. The roads in Jagadulla RM being earthen road needs drainage for efficient collection and passing of water to Jagadulla river. This would reduce the damage to road and thereby reducing the construction cost. Since, maintenance cost is always less than construction cost. So that Jagadulla RM is planning to construct drainage of settlement and road. RM will be bid open in next dfiscal year for DPR and basis of DPR the drainage will be constructed.

6.3.11 Jagadulla Hydropower

Project: Jagadulla Hydro-power project is a long term perspective plan is under construction phase. This project is going under construction phase in support of Nepal Electricity Authority. The Mega project will lead to develop Jagadulla Rural Municipality.

The project will generate directly and indirect employment to youth of Jagadulla. The hydro-project will contribute to establish industry, factories. The capacity of the jagadulla Hydro-power project is 307 MW. This would be connecting to national grid line. The feasibility study work is done and first phase construction work is going on.

6.3.12 Girls Hostel

To increase access of girls to education and ensure the quality in education for girls from the poor, vulnerable and deprived community, Jagdulla Rural Municipality has planned to construct a Girls Hostel in the middle part of Majgaun and Kaigaun village.

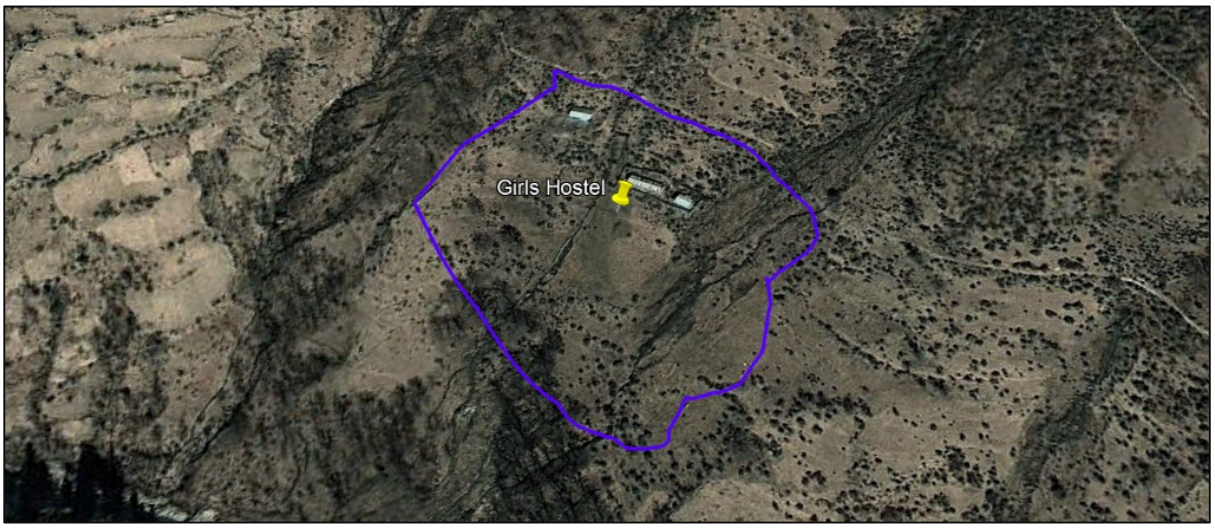


Figure 37: Proposed Location for Girls Hostel at near Majhgaun *(Source: Field Survey, 2019 A.D.)*

6.3.13 Education Sector

Most of the children are reading their formal education from Birendranagar, Nepalgung and Kathmandu. There is lacking of trained and experience teacher. To improve the education system and return the local children from outside of RM, the quality of education should be maintained. There is sufficient o building and infrastructure but lacking of good management and appropriate manpower to provide quality education. So that RM is planning to start smart education as well as announce the price for good performance holding school. The RM is planning to provide day food and hostel for students.

6.3.14 Helipad at Kod Dhikira Dada

The location of Jagadulla RM is remote due the transportation facility and health facilities. Emergency situation of transportation, rescue of patients, transportation of food, etc. as well as transportation in winter situation; the helipad is necessary. So that RM is planning to develop Kod Dhikira Dada as the helipad. The appropriate budget will be allocated to maintain and flight to make regular. Which is located at ward no. 6 of RM.

Figure 38: Proposed Location for Helipad *(Source: Field Survey, 2019 A.D.)*

6.3.15 Construction of Rural Municipality Office and Ward offices

The equipped building is necessary to provide service to people. But there is lacking of own office building of Jagadulla Rural Municipality. So that RM is allocated to build the office building at Majhgaun (Jagadulla RM-05). The 3-years plan of building construction is in operation from the fiscal year 2075 and it will complete in 2077 B.S. As per the location the construction place is center from the all village and settlements. The building will be 3-storey and multi chamber. All the offices like Rural Municipality, health post, veterinary, agriculture and post office will be set in this building. After the complete of this building almost services of RM will be provided from this building. The building will be RCC structure and earthquake resistance. Only ward no. 5 have own office, so that RM has plan to construct ward office of all remaining five wards of Jagadulla RM.

Figure 39: Under construction office of the Jagadulla Rural Municipality at Majhgaun *(Source: Field Survey, 2019 A.D.)*

CHAPTER VII: PRIORITIZATION CRITERIA

7.1 Theoretical Concept of Project Selection

Project selection is one of the major tasks of infrastructure development planning. Especially when large number of projects are floated during the planning process, it is important to prioritize those in order to ensure the proper use of funds on the most needed infrastructure. This process is known Infrastructure Project Prioritization. Various models are under practice for project prioritizations. Social Cost Benefit Analysis (SCBA) is one of the most comprehensive and sound project appraisal process, when systematically applied, provides a basis for project's prioritization (Marcelo, Mandri-Perrott, House, & Schwartz, 16-04-23-Infrastructure-Prioritization-Framework-Final-Version, 2016). But in most of the cases, in developing countries, the data and even the budget for infrastructure may not be sufficient as required and also the planning has to be carried out in less time with relatively even lesser timeframes. SCBA incorporates extensive economic analysis and is time consuming on the one hand, on the other, processes with in depth data and information regarding the cases. For such instances, various other models are already practiced and have been proven to be effective. Infrastructure Prioritization Framework (IPF) is one of them. 'It is a multi-criteria decision support tool that considers project outcomes along two dimensions- social-environmental and financial-economic' (Marcelo, Mandri-Perrott, House, & Schwartz, 16-04-23-Infrastructure-Prioritization-Framework-Final-Version, 2016). As IPF is based upon Multi-Criteria Decision Analysis, it allows for two critical policy choices, the selection of criteria by which alternatives will be assessed and the weighting of criteria. And both of these choices are performed with the active consultation to expert guidance. As per the World Bank PPP Group (Marcelo, Mandri-Perrott, House, & Schwartz, 16-04-23-Infrastructure-Prioritization-Framework-Final-Version, 2016) which has already used this model for project selection, the first step of IPF is to identify the set of indicators that will be combined to construct the social-environmental (SEI) and financial-economic indices (FEI) in term of application context based upon government policy goals and stakeholder consultations. Next step is to combine the quantitative and qualitative variables via an additive model. The following step is to condense dissimilar data types and scales of measurement into indices. For that, qualitative data and ordinal quantitative data are transformed into usable scalar data, wherein the intervals between values reflect degrees of difference. The criteria measurement, as such, are standardized into common scale and weights for each criterion in the additive models are established (2016, p. 11). Thus, standardized indicators are multiplied by weights to create the index score. Weighting, on one hand helps to structure the discussions on relative importance of component indicators and policy goals, on the other, could be a way of manipulation of selection process in pursuit of prevailing interests. As such, experts consultation is important with the critical discourse of indicators importance, weightage for each indicator is figured out. This has to be a transparent process and the weightage, as such is fixed with the expert's guidance, already set Policy goals and the contextual project appropriateness identified in advance of analysis (p. 12).

In case of Vietnam five indicators were figured out under SEI: Direct jobs Created (DJ), Number of Beneficiaries (NB), People Affected by Repurposing Land Use (PA), Cultural and Environmental Risks (CER) and Pollutions in term of CO_2 equivalent emission (CO_2).

Similarly, for FEI, indicators used were Financial Internal Rate of Return (IRR), Multiplier Effects (ME), Categorical score indicating the project's locus in designated Priority Economic Zones (PEZ), a qualitative measure of Complementarily/ Competition effects (CC). The indicators further prioritized with the weightage were extrapolated to the budget envelope with

a Cartesian matrix and as such, 268 projects were selected out of approximately 3000 projects. Thus, the pilot project in Vietnam was executed successfully with some lessons to learn. One was the sensitivity of the composite indices. Another was about Technical or even political problems that could be created by subjective weightage. Third was the role of proper definition of the metrics to avoid the possible biases. Fourth was the appropriate use of financial and economic indicators in low information conditions. Fifth lesson being the success of the IPF to monitor the efficacy and efficiency consideration and final lesson was the appropriateness in using IPF to strengthen data weaknesses (p. 22).

7.2 Applied Prioritization Criteria

A development and plan consists of several links. Simply defining, master plan is the theme of development plan. Each development of importance in some aspect, some serve large population, whereas some serve the purpose of service, access facilities and some link acts as connectors between two wards or Rural Municipality. It is not possible to construct/maintain or upgrade at a time due to various constraints as: time, resources and cost constraint. Thus, each development plan needs to be prioritized and various interventions need to be taken based on the prioritization. In simple words, rank of each plan need to be assessed based on its importance and the intervention is taken based on the rank.

Then the question arises how the development plan can be prioritized, for that we need to adopt the same criteria for master plan. All the plan need to be assessed based on the same criteria for prioritization. This will help to reduce the biasedness and the fair result will be obtained free from any influence. The selection of criteria for prioritization can be site specific, but ensuring that it remains same for all development within the study area. Theoretically, basic criteria may include existing population within the zone of influence of the settlement, present demand, future potential, accessibility situation, land use pattern, environmental and social safeguard, proximity to the market/service centres, religious and tourism places. The selection of criteria is one of the complicated task, we need to ensure no major criteria have been excluded and the selected criteria are independent. There will be different level of importance of each criterion and thus, each criteria is given certain score or weightage. Finally, weightage average of all the criteria is summed up to come with a priority of intervention. If the summation of score assigned to each criteria is equal to 100, simply sum of score will gives us the Total/Final score, otherwise the final score will be equal to weightage average of each criteria. The final score will be the sole basis of prioritization. Higher the score, high will be the rank and the intervention will be taken soon. The development plan and intervention that get high score will be ranked as Number 1 priority intervention and it is the first intervention to be carried out. The scoring criteria and their weightage/score remains the same for all plan as well as for all type of intervention.

7.3 Proposed Scoring Criteria

After rigorous study (literature around the world and past experience) and ToR, following prioritization criteria is published. Ten ranking/prioritization indicators is proposed as prioritization indicator, which includes following:

Table 23: Project Selection Criteria

S. No	Infrastructure Prioritization Matrix			
	Indicators	Scoring Values	Weightage	Remarks
1	Location	0: >5km away from settlement 2/3: from 1 to 4 km from settlement 5: Within 1km from settlement	0.5	Some project will get reverse marks like land fill site

2	**Development Need**	0: Luxurious Amenities 2/3: Development Amenities 5: Basic Infrastructure	0.8	Luxurious means fun park, swimming pool while basic are like WS, Drainage
3	**Development Catalyst**	1: Low Impact on Economy 3: Triggers land use change 5: Triggers Industrial/Commercial/ Service sector Development and a Land use change	0.5	
4	**Urban/Rural Linkage**	1: Low Impact on Linkage 3: Enhance Market Centre-Hinterland Linkage 5: Export/Consumption Potential (Promote export)	0.5	
5	**Beneficiaries (Size and GESI)**	0: up to 30% of total HHs 2: 30-50% of total HHs 3: 50-70% of total HHs 5: More than 70% of total HHs	0.8	
6	**Impact on Environment**	5: Positive impact to environment 3: Neutral to environment 0: Negative impact to environment	0.7	
7	**Land Availability**	1: Private Land 3: National/ Guthi/ Federal Land 5: Rural Municipal Land	0.8	
8	**Strategic Alignment**	0: Eccentric projects 1: Readiness of the Implementation 3: Aligned with Manifesto and Rural Municipal Council approved project 5: Aligned with lead sector and Vision	0.7	
9	**Municipal Capacity Development**	0: Contribute to None 1: Contribute to Institutional Capacity 3: Contribute to Revenue 5: Contribute to Institutional and Revenue	0.5	
10	**Disaster Resilience and Climate Change**	0: Negative impact on climate change and Disaster Resilience 3: Climate change and Disaster Resilience neutral 5: Positive impact on climate change and Disaster Resilience	0.7	

Rural Municipal Projects identified in the stakeholder consultative workshops are listed in the attached sheet and are prioritized as per the indicators mentioned above.

Some other prioritization criteria are as follows.

- Demand priority of wards
- Population served
- Future potential development
- Link to other development
- Social equity

CHAPTER VIII: PROJECT BANK

8.1 Project Management

Great project management means much more than keeping project management's iron triangle in check, delivering on time, budget, and scope; it unites people and RM, creates a vision for success and gets everyone on the same page of what's needed to stay on track for success. When projects are managed properly, there's a positive impact that reverberates beyond delivery of 'the stuff'. Without project management, a team can be like a ship without a rudder; moving but without direction, control or purpose. Leadership allows and enables a team to do their best work. Project management provides leadership and vision, motivation, removing roadblocks, training and inspiring the best implementation.

Without proper project management, budget estimates and project delivery timelines can be set that are over-ambitious or lacking in analogous estimating insight from similar projects. Ultimately this means without good project management, projects get delivered late, and over budget. Effective project managers should be able to negotiate reasonable and achievable deadlines and milestones across stakeholders, teams, and management. Too often, the urgency placed on delivery compromises the necessary steps, and ultimately, the quality of the project's outcome.

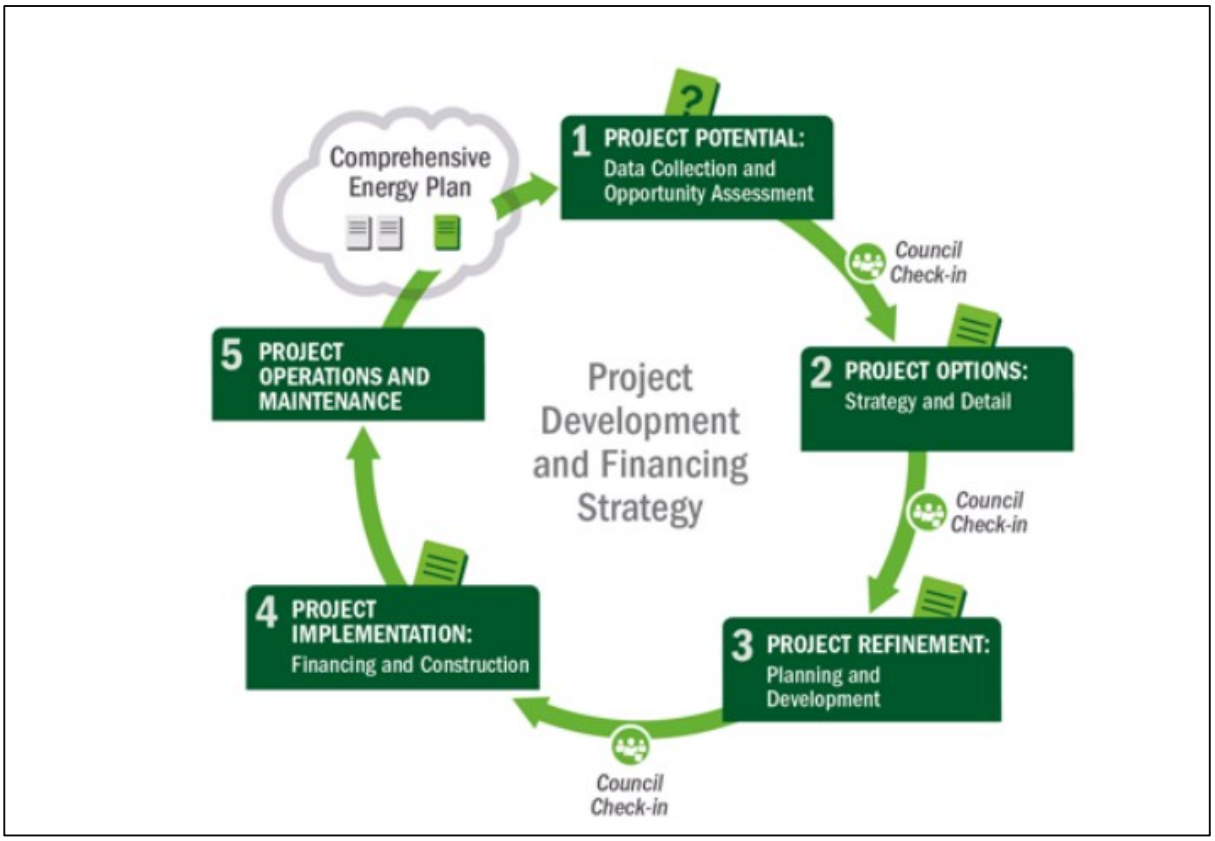


Figure 40: Project Implementation Cycle

Following steps are the important five-implement activities for best result of project.

a. Pre-construction

- Financial closing (if applicable)
- Project kickoff
- Design and construction documents, plans/schedules, submittals

b. Contract execution
- Contract oversight/quality control
- Change control

c. Interconnection
- Application review and approval process
- Final building inspection
- Paperwork submittal to utility

d. Project Construction
- Contract oversight/quality control
- Change control

e. Commissioning
- Testing and verification
- Interconnection verification (utility)
- Utility permission to operate

8.2 Project Bank

Project bank is the collection of project as per demand of people, national situation and global context. The following projects are the realistic and economically feasible project of Jagadulla RM. The collection of project is sub-divided into short-term, middle-term and long-term and presented in different table.

8.2.1 Short-Term Projects

Short term projects are those projects which can be completed in short period of time and requires less amount of money. This project can be run by the budget from local government and less than five years.

Table 24: Short-Term Projects

Project Code	Project Description	Ward No.
1.	Tirbeni -Sarmi-Kaigaun Road construction work	-
2.	Maure-Bhalu-Kidilla Road construction	-
3.	Kaigaun Campus Building construction	-
4.	Bhagawati Seocndary School building	-
5.	Ganodaya Dalit School Building construction	-
6.	Munamadan Basic school Building	-
7.	Karnali Basic school Building construction	-
8.	Kagmara Basic School construction	-
9.	Kaigaun Girls Hostel construction	-
10.	Kagmara Basic School construction	-
11.	Rimi Health post Building construction	-
12.	Hurikot community Health center construction and management support	-
13.	Chaurikot Health post construction and management support	-
14.	Kaigaun Health post construction and management support	-
15.	Rimi Drinking Water construction support	-
16.	Kaigaun drinking water construction project	-

17.	Chaurikot Drinking water construction project	-
18.	Thapagaun Drinking water construction project	-
19.	Thumplagna viwe tower construction project	-
20.	Tourism food trail to Jagadulla lake	-
21.	Kaigaun -Dosngta tourism development project	-
22.	Jagadulla Rural Municipality Office Building construction	-
23.	Medicinal herbs processing and packaging plant	-
24.	Jagadulla River Protection project	-
25.	Damarkhola protection project	-
26.	Bhut Khola protection project	-
27.	Ghatte Khola protection project	-
28.	Kachhe Khola protection project	-
29.	Charakhola protection project	-
30.	Surkikhola Protection project	-
31.	NTC/World line tower construction	-
32.	Kaigaun Helipad construction	-
33.	Chaurikot Helipad construction	-
34.	Koddikira Helipad construction	-
35.	Rallai chaur playground construction	-
36.	Khim Chaur Playground construction	-
37.	Mahadev temple construction	-
38.	Gad Machhala temple construction	-
39.	Samling Gumba construction	-
40.	Thuplang Gumba construction	-
41.	Jagadulla lake tourism promotional	-
42.	Tripura Himal Tourism Promotion	-
43.	Kodsera Ralba Himla Tourism Promotion	-
44.	Ward no-1 office building construction	1
45.	Hurikot community health management and construction support	1
46.	Hurikot Micro -hydro management and extension project	1
47.	Agriculture and livestock area development project -Hurikot	1
48.	Hurikot DWS repairing and maintenance project	1
49.	Hurriokot sanitation and drainage project	2
50.	Kaigaun ward office construction	2
51.	Kaigaun Drinking Water and Sanitation project	2
52.	Computer and technology support to School	2
53.	RCC-bridge construction of Kaigaun	2
54.	Dosangala Tourism promotion Master Plan	2
55.	Ward -level profile	2
56.	Kaigaun to Mudkechula link road construction	2
57.	Kaigaun Irrigation project	2

58.	Paihele Himal tourism promotion	1
59.	Thumling tourism development project	
60.	Dudkundali lake religious tourism promotional Activity	5
61.	Bhalu religious promotional project	
62.	Maure Area tourism development project	4
63.	Kota Chachu Irrigation project	4
64.	Chachu Irrigation project	4
65.	Chaukhore Irrigation project	6
66.	Jagadulla irrigation project	5,3
67.	Garapari Irrigation project	1
68.	Kuchhe Irrigation project	4,6,5,3
69.	Kaigaun Irrigation Project	2
70.	Water Mill and Electricity Mill	3
71.	Disister Risk Management project to protect settlement	3
72.	Ward office construction	3
73.	Drinking water operation and maintenance	3
74.	Dhaneli Chaur suspension bridge maintenance	3
75.	Transper to Jhusearo road consruction	3
76.	Compounding of Mahadeve Basic school	3
77.	Livestock insurance program	-
78.	Compounding of agriculture land	3
79.	Chorpani to Nunepani road construction	3
80.	Tharpadhunga to Dhamelebagar road construction	3
81.	Gumbachaur swampy area conservation project	3
82.	Shay-Dauti temple construction	3
83.	Deplaikohola flood mitigation project	3
84.	Sarudha lake tourism promotion project	3
85.	Ward -level social , cultural museum	3
86.	Ward -profile prepare	3
87.	F.M Radio station establishment	3
88.	Ward -Office construction project	5
89.	Community Health Post construction	5
90.	Hojam to Nunthala protection wall construction	5
91.	Phulpule Chaur to Chukena machinery wall construction project	5
92.	Koli to Chita Protection wall construction	5
93.	Chukena to Galli road construction	5
94.	Chukena to Muhune road construction	5
95.	Dalit residential hostile construction	5
96.	Majgaun to Dudkundali truism trill road construction work	5
97.	Garigaun Simsar management drainage construction	5
98.	Majgaun-Ghatta-Thakurdhara to Galchi drainage construction	5

99.	Kagmara Basic School construction & toilet construction	5
100.	Golani to Gumchur plantation project	5
101.	Sukdaha lake conservation and promotional project	5
102.	Maj Gaun Drinking Water and Sanitation project with One house on tap	5
103.	Co-operative building construction	5
104.	Maila co-operative building construction	5
105.	Sukakoti temple construction	5
106.	Mai temple construction	5
107.	Gura temple construction	5
108.	community Building construction	5
109.	Improved Water mill construction	5
110.	Churikhor to Chitra Irrigation project	5
111.	Majgaun Irrigation project	5
112.	Garigaun agriculture irrigation project	5
113.	Agriculture tools , machine support to lead farmers	5
114.	Jagadulla to Mukechula link road construction	5
115.	Hi-Tech nursery management	5
116.	Rural Municipality office to Chukena road	5
117.	Dalit youth employment program	5
118.	Dalit Scholarship program	5
119.	Income Generating trainings for single women , poor and dalit	5
120.	Health camp	5
121.	Kolti to Khali trail left construction project	5
122.	Chaurikot health post compounding	4
123.	Chaurikot mother group's building construction	4
124.	Chachu mother's group building repair and maintenance	4
125.	Patbisha to Phulkuna compounding wall construction	4
126.	Chaurikot Sabling Gumba construction work	4
127.	Chilikhera compounding wall construction	4
128.	Sundari Basic school building construction work	4
129.	Sivokthron processing plant	4
130.	Kota Chachu Irrigation project	4
131.	Kota Chachu to Ghattakhola compounding wall	4
132.	Aaida drinking water for cattle	4
133.	Kuchhe to Butau simdhara compounding wall	4
134.	Chauriktot field construction	4

8.2.2 Mid-Term Projects

These types of project will be completed five to ten years' time period and strategically important. These strategically Important project plays great role in development, social and service sector. These types of projects are generally multi-year as well as chain types. The mid-term projects of Jagadulla RM are presented in table below.

Table 25: Tentative Plan for 5 to 10 Years Strategic Period

S. N	Name of Project	Project Location		Supporting Agency
		Ward	Settlement	
1	Jagadulla Ring Road Construction and upgrading Project	1,2,3,4,5,6,	All settlement	Karnali Province Government and Jagadulla Rural Municipality .
2	Jagadulla Rural Municipality level Hospital with 15 Beds	6	Jhyakot	Ministry of Social Development -Karnlai Province Government
3	Jagadulla River Risk management	2	Kaigaun	Local Government
4	NTFP Processing Plant establishment	-	-	Local level
5	Himalyan Pure Water Purification Plant	1	Hurikot	-
6	NTC/World link Tower establishment	1 & 4	Chaurikot and Kaigaun	-
7	Rimi Drinking Water Project	-	-	Local Government
8	Kaigaun Drinking Water Project	2	Kaigaun	Local Government
9	Majgaun Drinking Water Project	3,4 &5	Thapagaun ,Majhgaun, Garigaun and Jhakot	Local Government
10	Thumlangna Tourism Development Project	-	-	Karnali Province
11	Jagadulla lake Tourism Development Project	-	-	Ministry of Federal Affairs and General Administration
12	Girls Hostel construction	-	-	Karnali Province Government

8.2.3 Long-Term Projects

The overall objective of the project of which this contract will be a part is as follows: To support the development of the local capacity to improve long term strategic planning and enhance the sustainable development economic diversification. Sustained economic growth, a foundation for poverty reduction and social development, occurs within the framework of good planning, with strong leadership and institutions. Sustained and inclusive growth in Jagadulla RM is needed to ensure that the have sufficient food, acquire a good education, are healthy and productive and live to their full potential. In addition, endemic income inequality in RM as well inequities in access to basic social services is a challenge and requires careful planning for inclusive growth and social cohesion. And these averages and broad ranges mask the large intra- and inter-RM gaps in both poverty and inequality.

The long term project refers the time duration ten to thirty years. These types of multi-year project are important to social change and gradual development of community. Support the long term strategic economic development, capacity building and institutional strengthening are major task of long terms project. The long projects of Jagadulla RM are listed in the table.

Table 26: Long-Term Projects

S.N	Name of Project	Project Location		Sector	Supporting Agency
		Ward	Settlement		
1	Jumla-Gothichaur - Manisagu-Chorta-Maure-Chaurikot-Kaigaun - Tripurakot-Dolpa Road Upgrade	-	-	Road	Ministry of Physical Infrastructure Development , Karnali Province Government , Divisional Road Office-Jumla & Department of Road
2	Agricultural , Animal Husbandry and Non - Timber Forest Product (NTFP) Pocket Area development Project	All RM	All wards	Economic - infrastructure	Ministry of Agriculture , Ministry of Forest and Environment, Ministry of Federal Affairs and General Administration
3	Kaigaun , Majgaun and Chaurikot Market Centre Development Project			Urban development	Ministry of physical Infrastructure Development, Karnali Province Government, Ministry of Urban Development, World Bank and Asian Development Bank.
4	Jagadulla Mega Hydro - Power Project	2	Kaigaun	Emery and Electricity	Nepal Electricity Authority
5	Chachu-Thumlangna - Dudkundali cabal car Project	4	-	Infrastructure development	Ministry of Tourism Development Federal Government
6	Jagadulla Lift -Irrigation Project	-	-	-	Ministry of Irrigation of Federal Government
7	Jagdulla Rural Municipality level long term Drinking Water and Sanitation Project	-	-	-	Ministry of Water Supply of Federal Government
8	Rural Municipality level Play ground with covered Hall	-	-	-	Ministry of Sports
9	Dosanta Eco-Park	2	Kaigaun	-	Ministry of Tourism of Federal Government and Province Government
10	Jagdulla Rural Municipality's office and line ministry's office construction Project	-	-	-	Ministry of urban development & Building Construction
11	Jagadulla Industrial Area Development	-	-	-	Ministry of Urban development and

CHAPTER IX: CONCLUSIONS

Six ward Jagadulla Rural Municipality lies in Dolpa district, Karnali Province and is the place of settlement of 2,897 populations (Housing and Population Census by Jagadulla RM 2019 A.D) in the area of 777.59 Km^2. The population density of the Rural Municipality is 3.72 people per Km^2, which is low while comparing it with other district. Field work was conducted after agreement, various social data, consultation with local representative, interaction with local people and workshop were carried out as well as field visit by experts was done. As every plan starts with present scenarios, the team has determined present status of infrastructure and demands of people, geo-physical feasibility and economic viability were conducted by conducting field inventory and the data are then coded in GIS software for developing the maps. Finally, the inventory map was prepared and the land cover map has also been prepared as data of Department of Survey. The potential development map and visionary plan has used for the preliminary classification of the demand and budget availability. The valid prioritization criteria have been used.

Jagadulla Rural Municipality is popular for its scenic beauty, Jagadulla lake, Kagmara grassland and potential location for NTFPs collection. There are many more viewpoints and beautiful hills within the Rural Municipality. The Municipality is adorned with lots of natural beauty and beautiful mountains, viewpoints, hills as well as animal husbandry potential area, it has been playing a greater role in tourism sector for economic development. Agriculture pocket area, horticulture pocket area, livestock farming pocket area and NTFPs pocket area has been created to sustain and commercial products production.

Long-term, Middle-term and Short-term projects were formulated based on interaction, field visit and economic viability. The short term plan can complete less than 5-years, middle term can complete generally five to ten years and long term plan will be completer ten to thirty-year time interval. If the mentioned plan will be implemented in local level, there is no doubt the Jagadulla Rural Municipality achieve more targets and community will also be benefitted. Due to the low population, cooperative people and nearest RM from Jumla bazaar, the Jagadulla RM has better opportunity to targets of development and implement the project mentioned in master plan report.

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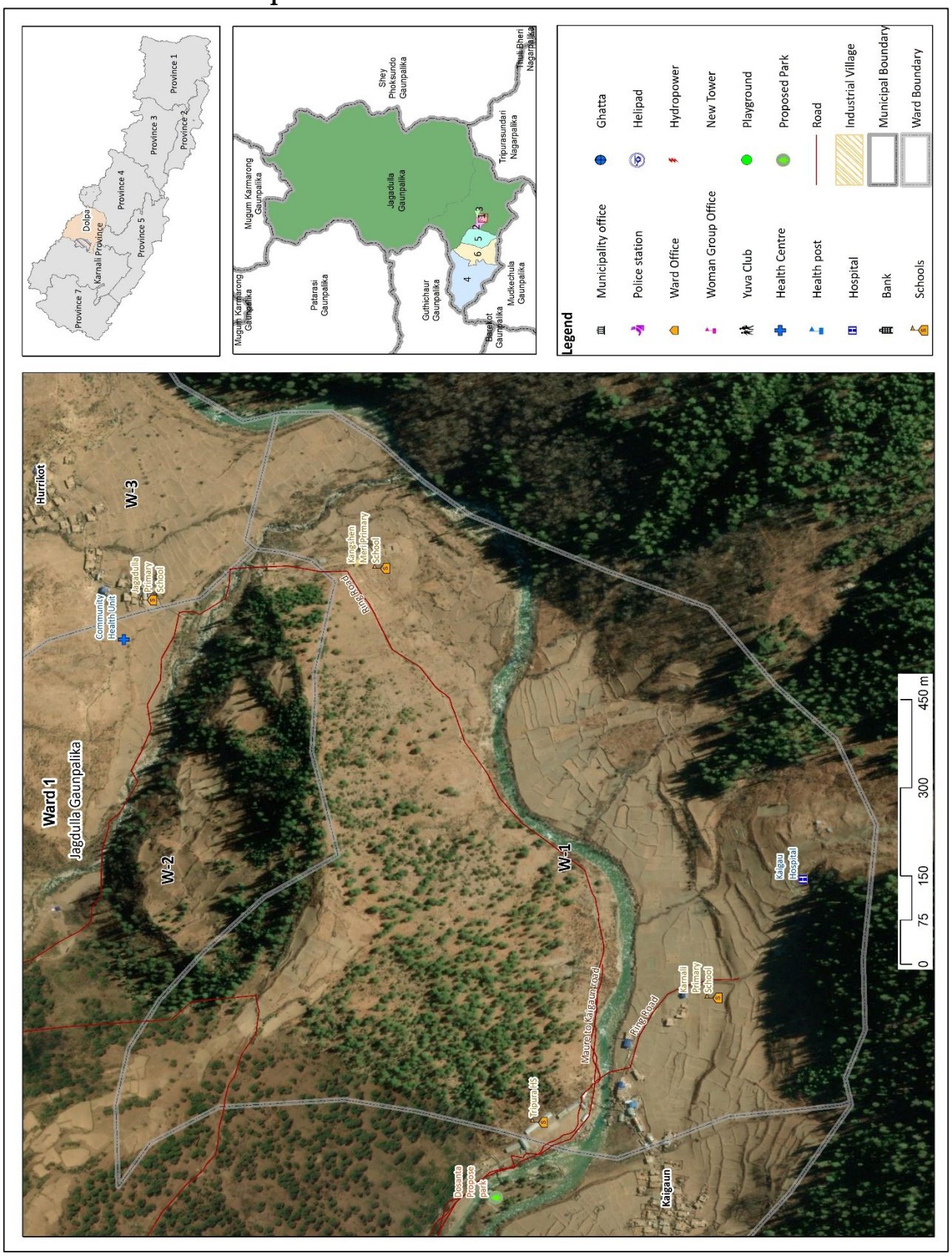
ANNEXES

Annex I: Related Maps



Province 1
Province 2
Province 3
Province 4
Province 5
Province 7
Karnali Province
Dolpa
Shey Phoksundo Gaunpalika
Tripurasundari Nagarpalika
Mudkechula Gaunpalika
Jagadulla Gaunpalika
Patarasi Gaunpalika
Gutichaur Gaunpalika
Mugum Karmarong Gaunpalika
Legend
Municipality office
Police station
Ward Office
Woman Group Office
Yuva Club
Health Centre
Health post
Hospital
Bank
Schools
Ghatta
Helipad
Hydropower
New Tower
Playground
Proposed Park
Road
Industrial Village
Municipal Boundary
Ward Boundary
Ward2
Jagdulla Gaunpalika
W-1
W-2
W-3
W-5
Community Health Unit
Jagadulla Primary School
Kangshen Mul Primary School
Ring Road
Kaigau Hospital
Karnali Primary School
Tripura HS
Kaigaun
Doanta Propose park
Thapagaun-Kaigaun Sahayat Road
Ring Road
Maure to Kaigaun road
Woman Group
Community Health Centre
Thapa Gau
Mahandra Agriculture Cooperative
Mahadev Primary School
0 100 200 400 600 m

Ward 3
Jagdulla Gaunpalika
W-3
W-2
W-1
Hurrikot
Community Health Unit
Jagadulla Primary School
Ring Road
Kangshan Madi Primary School
0 100 200 400 600 m
Province 1
Province 2
Province 3
Province 4
Province 5
Province 7
Karnali Province
Dolpa
Mugum Karmarong Gaunpalika
Jagadulla Gaunpalika
Shey Phoksundo Gaunpalika
Tripurasundari Nagarpalika
Patarasi Gaunpalika
Guthichaur Gaunpalika
Mudkechula Gaunpalika
Bagakot Gaunpalika
Legend
Municipality office
Police station
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Woman Group Office
Yuva Club
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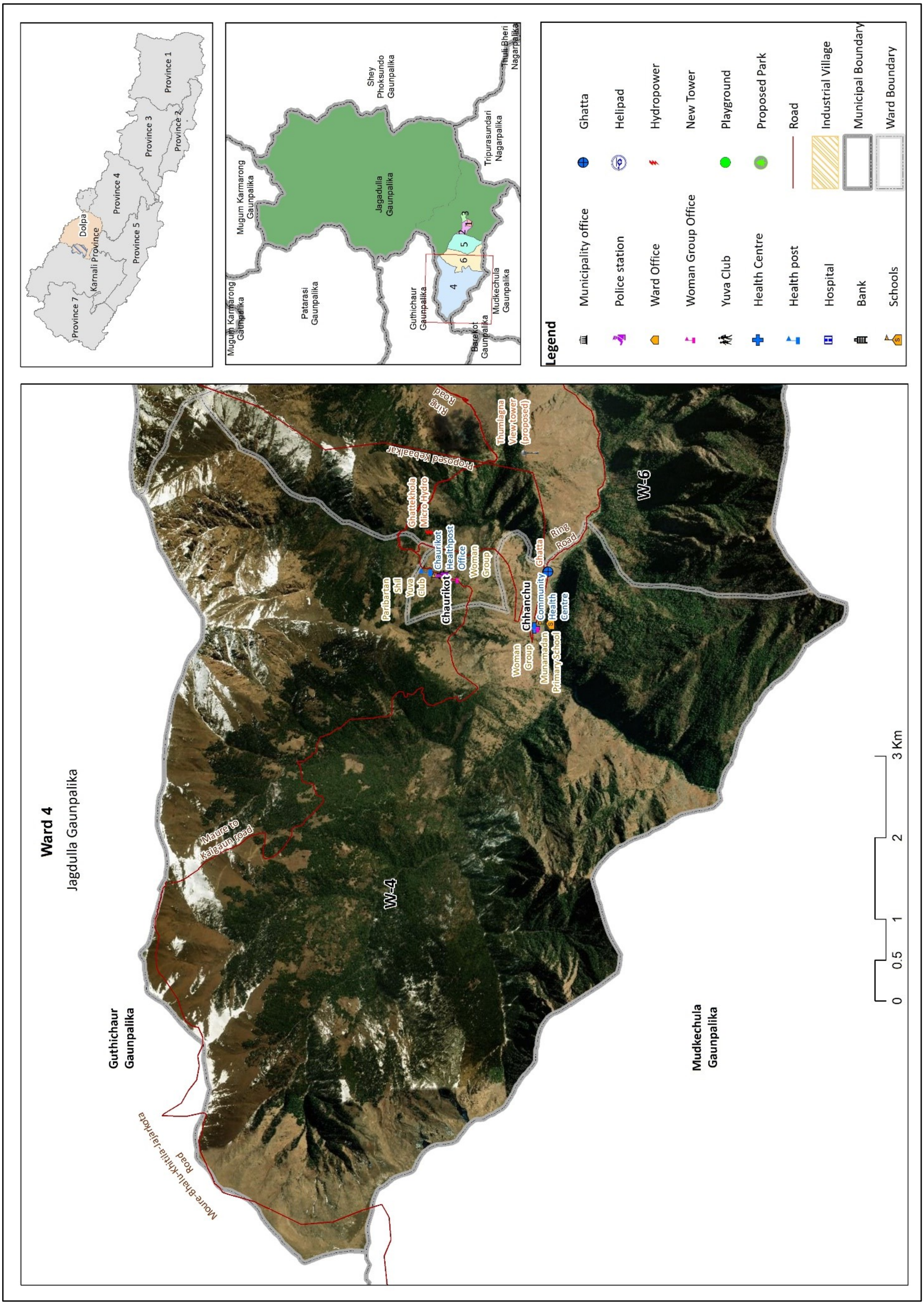
Hospital
Bank
Schools
Ghatta
Helipad
Hydropower
New Tower
Playground
Proposed Park
Road
Industrial Village
Municipal Boundary
Ward Boundary


Ward 4
Jagdulla Gaunpalika
Guthichaur Gaunpalika
Mudkechula Gaunpalika
W-4
W-6
Maure to Kaigaun road
Ring Road
Chaurikot
Chhanchu
Paribartan Shil Yuva Club
Chaurikot Healthpost Office
Woman Group
Community Health Centre
Ghatta
Munamadan Primary School
Thumlagne View tower (proposed)
0 0.5 1 2 3 Km
Dolpa
Karnali Province
Province 1
Province 2
Province 3
Province 4
Province 5
Province 7
Mugum Karmarong Gaunpalika
Patarasi Gaunpalika
Guthichaur Gaunpalika
Barekot Gaunpalika
Mudkechula Gaunpalika
Jagadulla Gaunpalika
Shey Phoksundo Gaunpalika
Tripurasundari Nagarpalika
Thuli Bheri Nagarpalika
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Province 2
Province 3
Province 4
Province 5
Province 7
Karnali Province
Dolpa
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Jagadulla Gaunpalika
Tripurasundari Nagarpalika
Shey Phoksundo Gaunpalika
Patarasi Gaunpalika
Guthichaur Gaunpalika
Mudkechula Gaunpalika
Basnkot Gaunpalika
Thuli Bheri Nagarpalika
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Playground
Proposed Park
Road
Industrial Village
Municipal Boundary
Ward Boundary
Ward 5
Jagdulla Gaunpalika
W-1
W-2
W-3
W-4
W-5
W-6
Kaigaun
Thapa Gau
Majh Gau
Gairigau
Jhyankot
Balasa
Ring Road
Mudkechula
0
350
700
1,400
2,100 m

Province 1
Province 2
Province 3
Province 4
Province 5
Province 7
Karnali Province
Dolpa
Shey Phoksundo Gaunpalika
Tripurasundari Nagarpalika
Mudkechula Gaunpalika
Jagadulla Gaunpalika
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Mugum Karmarong Gaunpalika
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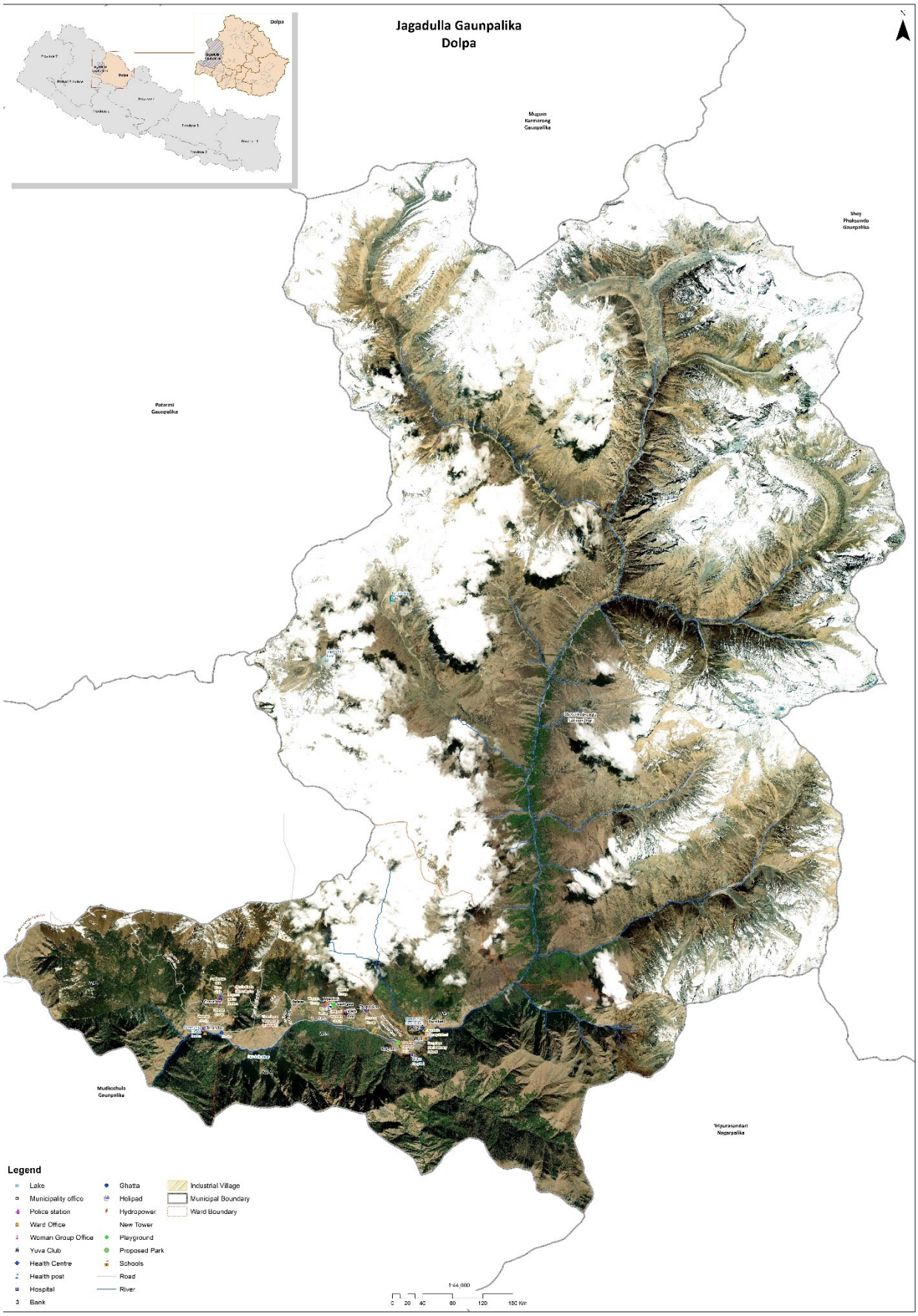
Municipal Boundary
Ward Boundary
Ward 6
Jagdulla Gaunpalika
W-2
W-4
W-5
W-6
Thapa Gau
Majh Gau
Gairigau
jhyankot
Balasa
Chaurikot
Chhanchu
Ghatta
Mudkechula
Mudkechula Gaunpalika
0 350 700 1,400 2,100 m


Jagadulla Gaunpalika
Dolpa
Dolpa
Mugum Karmarong Gaunpalika
Shey Phoksundo Gaunpalika
Putarasi Gaunpalika
Mudkechula Gaunpalika
Tripurasundari Nagarpalika
Legend
Lake
Municipality office
Police station
Ward Office
Woman Group Office
Yuva Club
Health Centre
Health post
Hospital
Bank
Ghatta
Helipad
Hydropower
New Tower
Playground
Proposed Park
Schools
Road
River
Industrial Village
Municipal Boundary
Ward Boundary
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0 20 40 80 120 160 Km

Annex II: Photographs

Jagadulla RM Executive office

Walnut Farm

Tripura Secondary School

Nepal Bank Ltd. Branch office at Kaigaun

Kagmara Primary School

Jagadulla River HEP Powerhouse Area (Proposed)

Goats Crossing Jagadulla river over Wooden bridge

Illake post Office and Phoksundo Cinema Hall

Community Development Centre for Women

Medicinal Herbs Collection Centre and Food Supply Office

Kaduri Micro Hydro Power House

Kaduri Micro Hydro Sub-Station Area

Thapagaun Village

Majhgaun Village

Kaigaun Village

Hurikot Village

Masta Puja at Jhyakot

Panighatta near Hurikot

Meeting with RM Chairperson

Workshop of Master Plan

Consultation Session with Stakeholder

Consultation with Chairperson of Ward no. 1

Stakeholder Meeting

Data Collection from public