Gharapjhong Rural Municipality

Office of The Rural Municipal Executive

Jomsom, Mustang

Gandaki Province , Nepal

Preparation of Land Use Plan and Land Use Classification of Gharapjhong Rural Municipality

Final Report

2024

- Municipality Profile
- Present Land Use
- Land Use Zoning
- Cadastral Superimpose map on present land use and land use zoning

Submitted by:

Global Era Engineering Consultancy

Pokhara-25, Kaski

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We acknowledge our sincere gratitude to Gharapjhong Rural Municipality for giving us an opportunity to prepare Updated Land use Map, Updated Land use Zoning Map with Cadastral Superimposed and their support, cooperation and invaluable suggestions for the project.

We also extend our gratitude to all the authorities of local level body; Chairperson, Deputy Chairperson, Chief Administrative Officer, Engineers, and Local Community for their continuous support, information and cooperation that was essential for the development of the project. Staffs of ward office have also been a great help to us in collecting various information.

We are sincerely thankful to the various government and non-government organizations in Mustang District. The residents of the study Municipality (Rural Municipality) who supported and provided valuable information during the field investigation are deeply acknowledged.

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List of Abbreviations

CBS	Central Bureau of Statistics
DEM	Digital Elevation Model
DSM	Digital Surface Model
DTM	Digital Terrain Model
FAO	Food and Agricultural Organization
GCP	Ground Control Point
GoN	Government of Nepal
GIS	Geographic Information System
RM	Rural Municipality
NLUP	National Land Use Project
PLUP	Present Land Use Planning
LUZ	Land Use Zone
SAR	Synthetic Aperture Radar
USGS	United States Geological Survey
VDC	Village Development Committee
WGS	World Geodetic System
3D	Three Dimensional

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

Land is one of the important and precious natural resources of the earth surface. The demands for arable land, grazing, forestry, wild-life, tourism and urban development are greater than the land resources available.

Hence, land—use planning for making the best use of the limited land resources is inevitable Land-use planning is the systematic assessment of land and water potential, alternatives for land use and economic and social conditions in order to select and adopt the best land—use options (FAO, 1993). Except sporadic attempts for the urban areas (GoN, 2002), Nepal has not practiced land-use planning for the country as a whole, although attempts were made for balanced use of country's existing natural resources in the past through different policies and national planning efforts.

Land-use planning can be applied at three broad levels: national, district and local. Local level planning is about getting things done on particular areas of land — what shall be done, where and when, and who will be responsible. It requires detail basic information about the land, the people and services at local level. However, Nepal has only regional level data base on land use, land system and land capability which were produced by Land Resource Mapping Project (LRMP, 1983/84). Realizing this fact, the Ministry of Land Reform and Management of Government of Nepal established the National Land Use Project (NL-UP) in 2057/058 fiscal year to generate the necessary data bases on the land resources of the country.

This digital database includes Municipality present land use, soil, land capability, land use zoning, cadastral layers and Municipal profile with bio-physical and socio-economic information

It is well known that the Government of Nepal has approved the National Land Use Policy, 2076 with amendment to National land use policy, 2069. Nepal has intended to manage land use according to land use policy of the government of Nepal and had outlined ten zones i.e. Agricultural zone, Residential zone, Commercial zone, Industrial zone, Mines and Minerals zone, Cultural and Archeological zone, River and Riverine Zones, Forest Zones and Public use and Open space zone and Others. The policy has defined the respective zones as per the land characteristics, capability and requirement of the lands. Further, for the effective implementation of land use zones in the country, the National Land Use Act, 2076 and National Land use regulation, 2079 has clearly directed for an institutional set up of Land Use Council at the top to the district level and Municipality / Rural Municipality level at the bottom and provided

standards for land use zoning.

1.2 OBJECTIVE

The main Objective of Project are:

i. Preparation of Present Land Use Map
ii. Preparation of Land Zoning Map
iii. Land Zones Classification of Parcels in the Rural Municipality

1.3 PROJECT AREA OVERVIEW

Gharpajhong is a Rural Municipality in Mustang District in Gandaki Province of Nepal. On 12 March 2017, the government of Nepal implemented a new local administrative structure, in which VDCs have been replaced with municipal and Village Councils. Gharpajhong is one of these 753 local units. Gharpajhong rural municipality is located in Mustang district. When the Ministry of Federal Affairs and Local Development implemented 744 local levels in 2073 BS, former Marpha, Tukucheko (8, 9) wards and Jomsom Village Development Committees have been declared as Gharapjhong rural municipality in Mustang district.

Geographically, this Rural Municipality spans from approximately 29°04'21" to 29°19'52" north latitude, and from about 83°44'59" to 84°12'20" east longitude. Its elevation ranges from a minimum of 2548 meters to a maximum of 6995 meters above sea level, with its administrative center (Jomsom) situated at an altitude of 2,743 meters.This rural municipality is divided into 5 wards. It is bounded by Manang district on the east, Dolpa district on the west, Baragung Free Zone municipality on the north, Thasang municipality and Myagdi district on the south.

In 5 wards of this village municipality, personal incident registration (birth, death, migration, marriage and divorce) is registered through online system (VERSP MIS) and social security allowance is distributed through banking system (Gharapjhong Gaunpalika Parshwachitra, 2075).

According to the population census survey of 2021, the total population of Gharpajhong Rural Municipality is 3,712. Out of which male population is 1943 and female population is 1769.

Gharapjhong was once an independent and strong kingdom called Lo ('Glo' or 'Blo') which was called 'Lobo gyalkhab'. There is an interesting story belongs to this region. Archaeological excavations have revealed that the area has developed into a remarkable site of human civilization since about the seventh century BC. Archaeological and historical studies have shown that for almost a thousand years, from the 6th to the 7th century AD, people lived with agriculture, animal husbandry, etc., but most of them lived in man-made caves due to the security perspective (cited as Gharapjhong Gaunpalika Parshwachitra, 2075).

Table 1: Formation of Gharapjhong Rural Municipality

S.N.	New Wards	Included GP	Population	Area (Sq.Km)	Settlements
1	1	Marpha (9), Tukuche (8,9)	217	49.4	Chhimang,Chhairo
2	2	Marpha (1-4)	683	19.62	Marpha
3	3	Marpha (5-8)	1085	72.04	Syang,Pulchok,Airport
4	4	Jomsom (5-8)	1214	64.41	Jomsom
5	5	Jomsom (1-4,9)	513	114.3	Thini,Dhumba,Samle
Total			**3,712**	**319.77**	

Source: Profile Gharapjhong 2074-75, National Population Census 2021, Nepal.

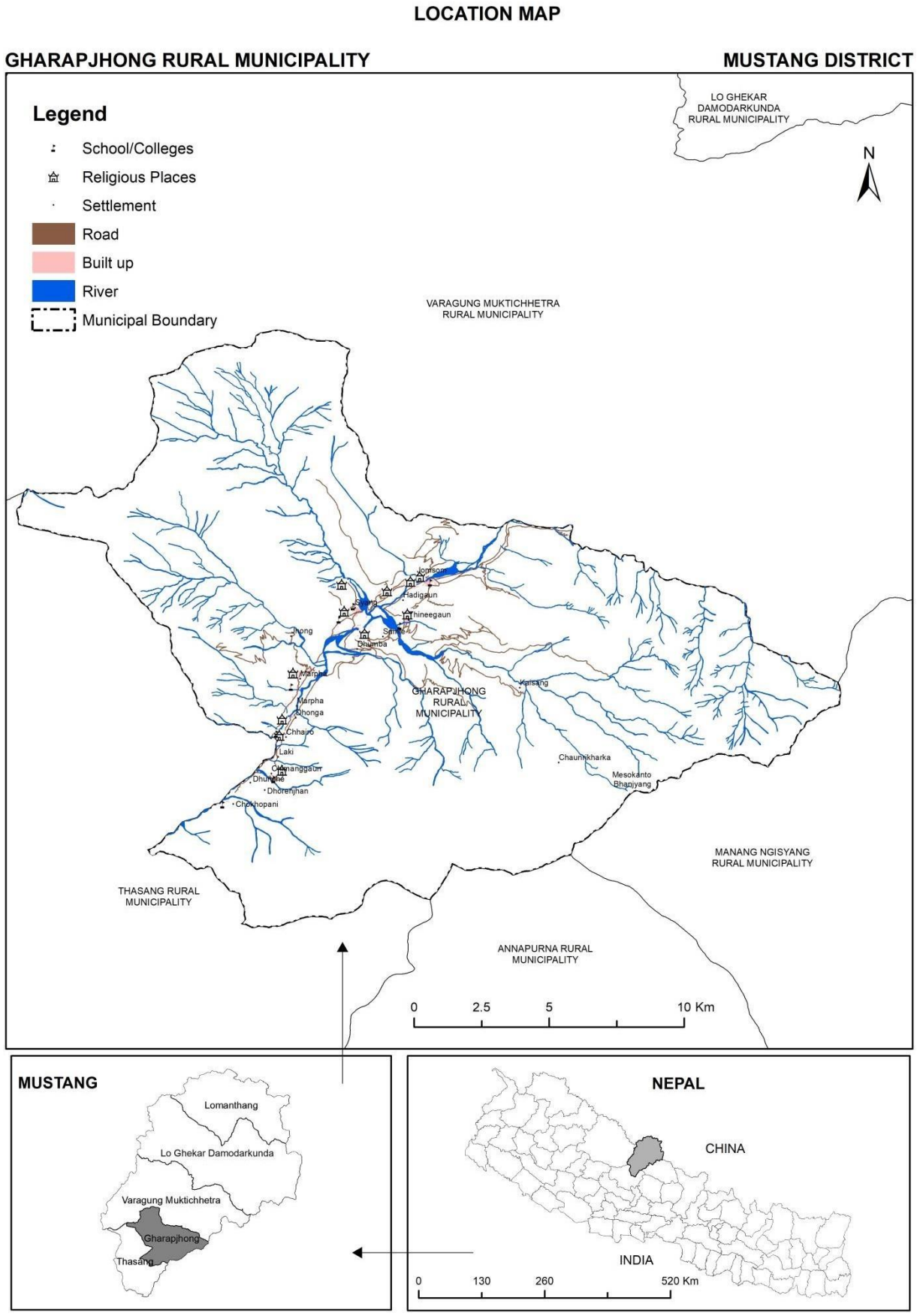


Figure 1: Study Area Map

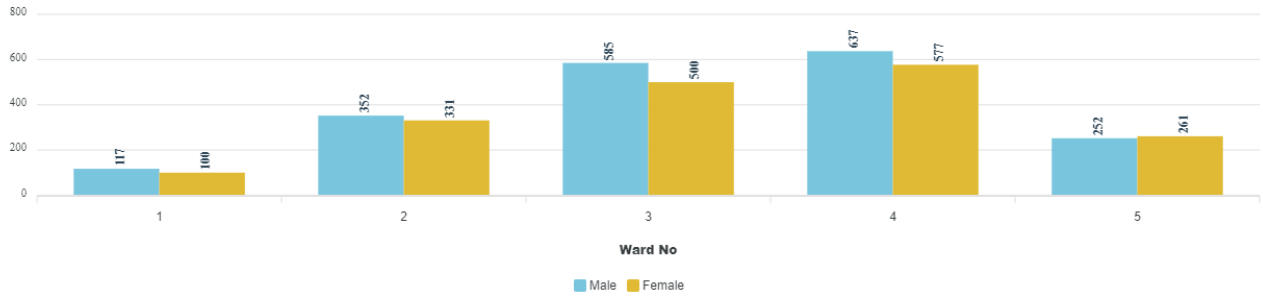
1.3.1 Population Distribution and Density

The total population of Gharapjhong Rural Municipality is 3712 (CBS, 2021). The percentage of male is 52.3 and female is 47.7. Ward wise population distribution by sex is shown in table below. The table shows that ward number four has the largest population size of 1214. Ward number one has the smallest population size of 217 as shown in the Table2.

Table 2: Ward Wise Population Distribution by Sex in Gharapjhong Rural Municipality

Ward No.	Male	Female	Total
1	117	100	**217**
2	352	331	**683**
3	585	500	**1085**
4	637	577	**1214**
5	252	261	**513**
Total	**1943**	**1769**	**3712**
Percentage	52.3%	47.7%	100.00%

Source: (CBS, 2021)



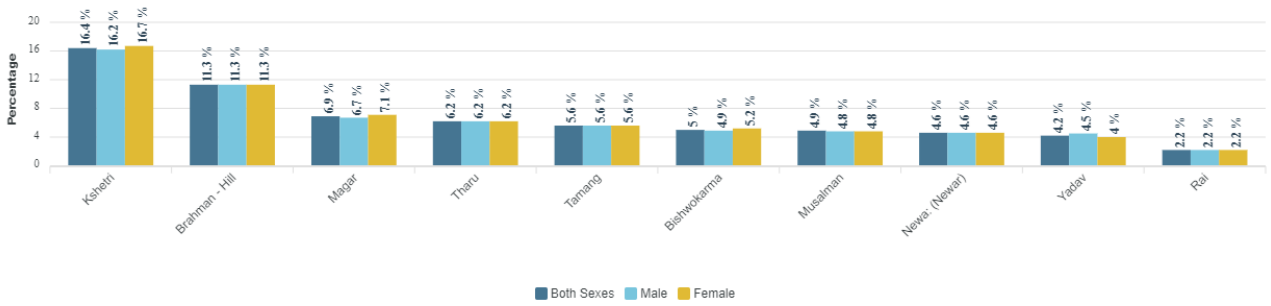
Source: (CBS, 2021)

Figure 2: Ward Wise Population Distribution by Sex in Gharapjhong Rural Municipality

1.3.2 Population by major ten caste/ethnic-groups and sex

The demographic composition of Gharapjhong Rural Municipality reveals a diverse distribution of ethnic groups, with Kshetri representing the highest percentage at 16.4%, slightly skewed towards females at 16.7% compared to 16.2% among males. Brahman - Hill follows closely behind at 11.3%, evenly split between genders. Magar and Tharu communities constitute 6.9% and 6.2% of the population, respectively, with Magar males slightly outnumbering females at 6.7% versus 7.1%. Meanwhile, Tamang and Bishwokarma each account for 5.6% and 5% of the

population, respectively, with an equal gender distribution. Among the lowest percentages are the Musalman community at 4.9%, Newa (Newar) at 4.6%, and Yadav at 4.2%, with relatively balanced gender distributions. Finally, the Rai community represents the smallest proportion at 2.2%, evenly distributed between males and females as shown in the figure below.

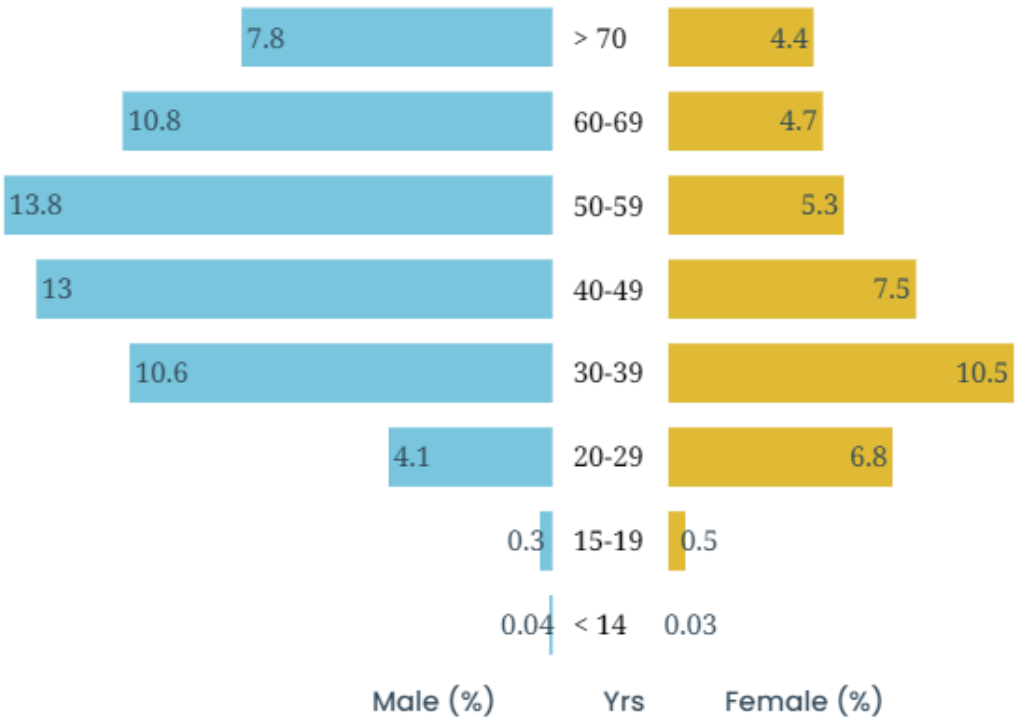


Source: (CBS, 2021)

Figure 3: Population by major ten caste/ethnic-groups and sex

1.3.3 Number of household heads by sex and age groups

According to CBS 2021, Total households of Gharapjhong Rural Municipality is 1127 and average household size is 3.29 persons per household.The data illustrates the percentage distribution of household heads by sex and age groups within Gharapjhong Rural Municipality. Among household heads aged over 70, males account for 7.8% of the total, while females represent 4.4%. In the 60-69 age bracket, males constitute 10.8%, compared to females at 4.7%. For the 50-59 age group, males make up 13.8%, and females comprise 5.3%. Similarly, in the 40-49 age range, males represent 13% of the household heads, while females make up 7.5%. In the 30-39 age group, both males and females have comparable percentages, with 10.6% and 10.5% respectively. The 20-29 age cohort sees a higher representation of females at 6.8% compared to males at 4.1%. Among the youngest household heads aged 15-19, males constitute 0.3%, while females represent 0.5%. Finally, in the <14 age category, males account for 0.04% and females for 0.03% of the total household heads. This data provides valuable insights into the gender and age distribution among household heads, crucial for understanding the demographic dynamics and shaping appropriate interventions and policies within the municipality as shown in the Figure 4.

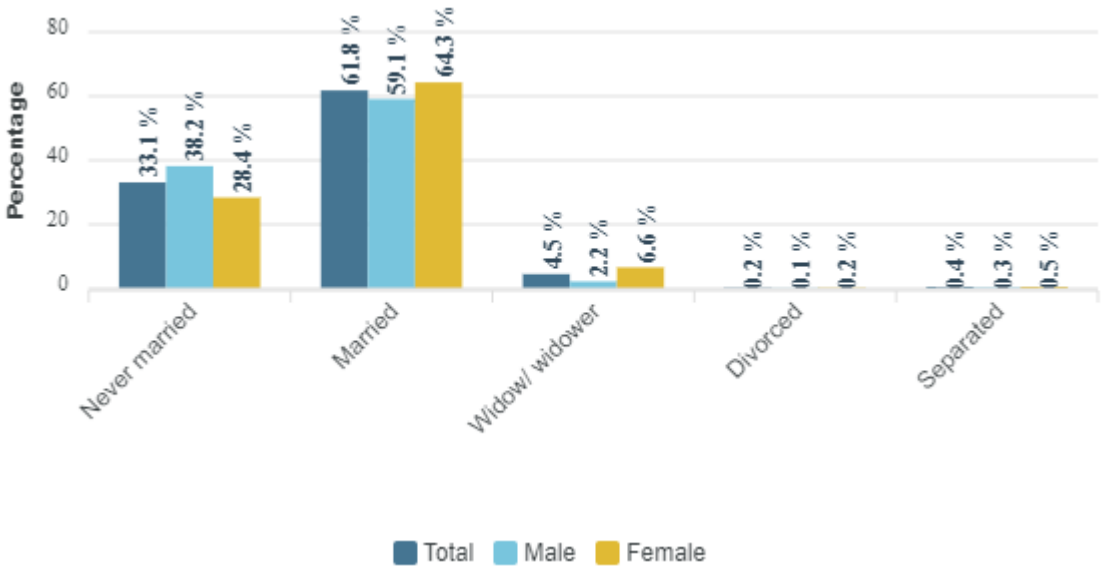


Source: (CBS, 2021)

Figure 4: Number of household heads by sex and age groups

1.3.4 Marital status

The data presents the marital status distribution within Gharapjhong Rural Municipality, expressed as percentages for different categories and gender. Among the population, the majority are married individuals, constituting 61.8% of the total, with a slightly higher representation of females (64.3%) compared to males (59.1%). Never married individuals account for 33.1% of the population, with males at 38.2% and females at 28.4%. Meanwhile, widow/widower status is observed in 4.5% of the population, with a notable gender discrepancy, where males make up only 2.2% while females represent 6.6%. Divorced individuals comprise a very small percentage at 0.2%, with minimal gender variation. Separated individuals are also a minority, representing 0.4% of the population, with slightly higher representation among females (0.5%) compared to males (0.3%). This data sheds light on the marital landscape within the municipality, highlighting variations in marital status distribution between genders, which can inform social welfare programs and community support initiatives.as shown in the Figure.

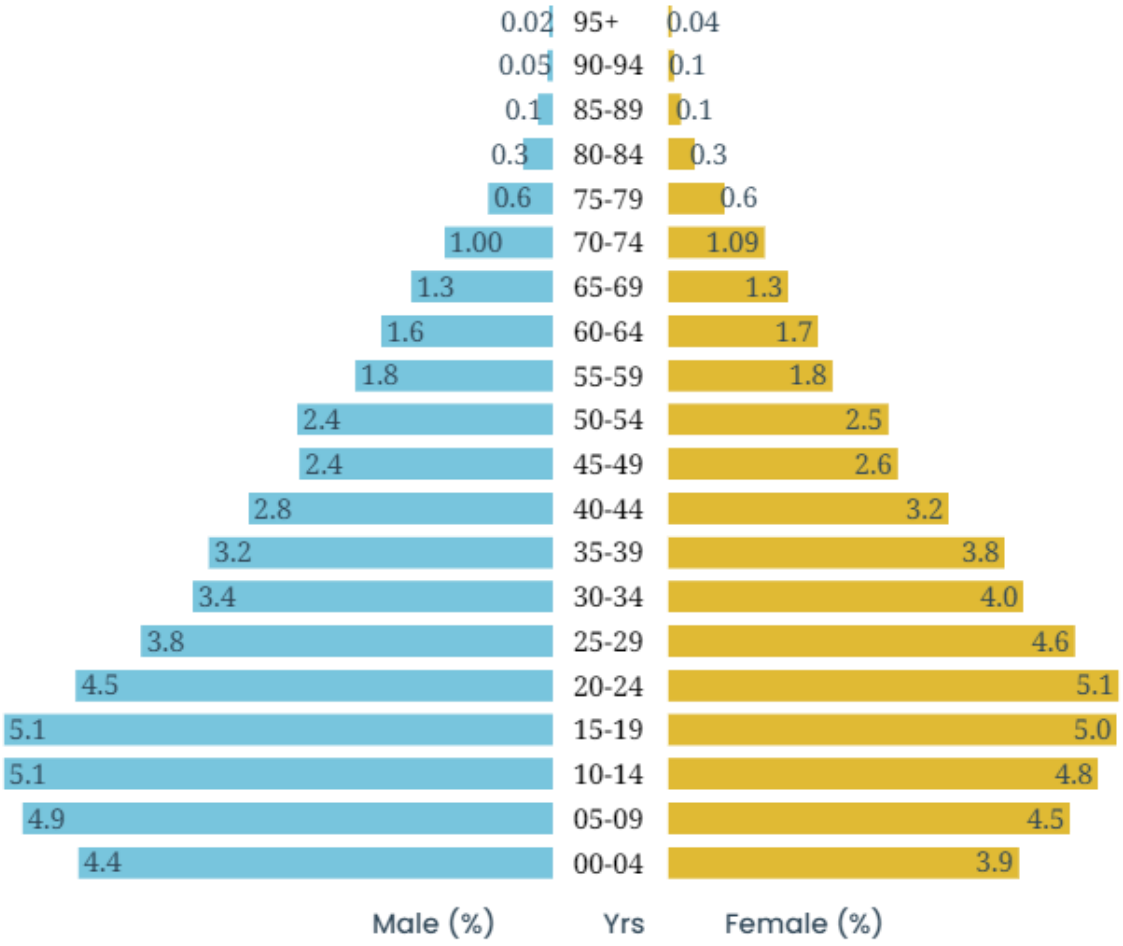


Source: (CBS, 2021)

Figure 5: Marital status

1.3.5 Population by 5 year age group and sex

In the population distribution by 5-year age groups and sex in Gharapjhong Rural Municipality, the highest number of individuals for males is observed in the age category 10-14 and 15-19 for male and 20-24 for female. Conversely, the lowest counts are found in the 95+ age group for both males and females as shown in the Figure.

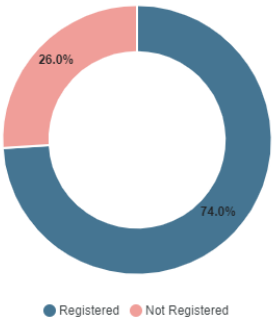


Source: (CBS, 2021)

Figure 6: Population by 5 year age group and sex

1.3.6 Birth Registration

According to CBS 2021, birth registration within Gharapjhong Rural Municipality. Specifically, 26% individuals are registered, indicating that their births have been officially recorded, while 78% individuals are not registered. This data underscores the importance of birth registration in ensuring legal recognition and access to essential services for individuals within the municipality as shown in the Figure.

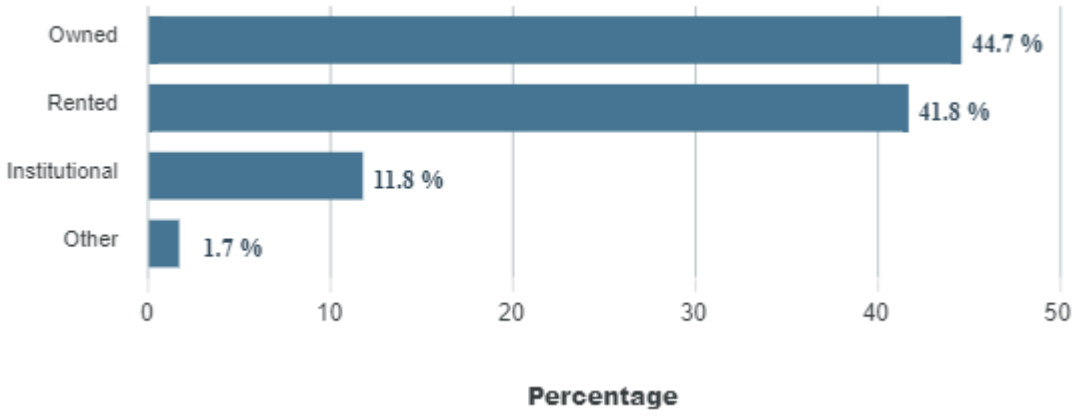


Source: (CBS, 2021)

Figure 7: Birth Registration

1.3.7 Households by Ownership of Housing Unit

According to CBS 2021, the data illustrates the distribution of households by the ownership status of housing units in Gharapjhong Rural Municipality, presented as percentages. The majority of households, accounting for 44.7%, own their housing units, while 41.8% rent their accommodations and 11.8% reside in institutional housing. A very small percentage, 1.7%, occupying other types of housing arrangements. This information underscores the predominance of homeownership within the municipality as shown in the Figure 8.



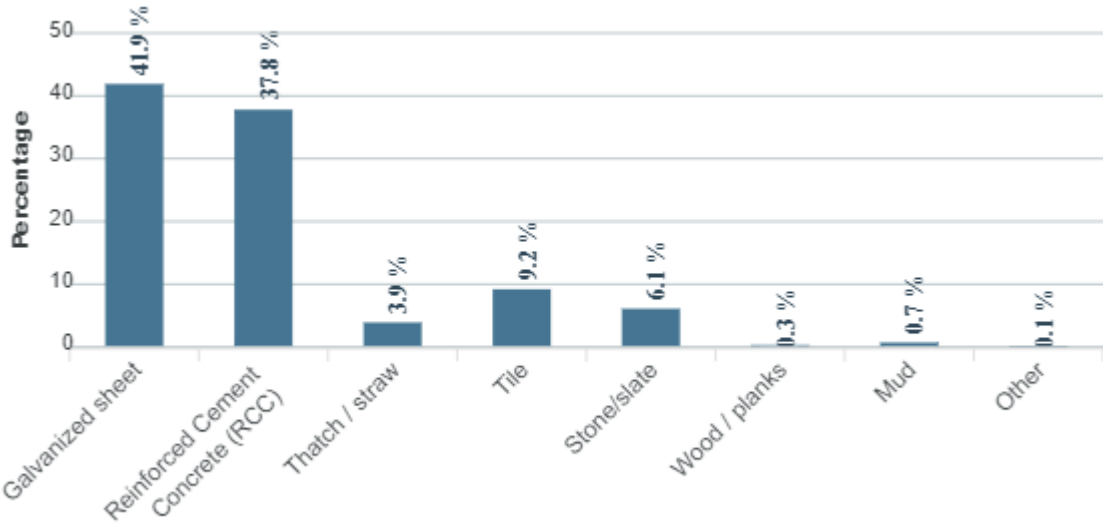
Source: (CBS, 2021)

Figure 8: Households by Ownership of Housing Unit

1.3.8 Households by Type of Material Used For Roof of Housing Unit

According to CBS 2021, the housing unit ownership data for Gharapjhong Rural Municipality reveals a varied landscape of residential structures. Galvanized sheet housing units dominate the

landscape, representing 41.9% of households, followed closely by reinforced cement concrete (RCC) structures at 37.8%. Traditional housing methods persist, with thatch/straw, stone/slate, and mud constructions collectively comprising 10.7% of households. Tile housing units account for 9.2%, offering a blend of durability and aesthetic appeal. Wood/plank housing units are least prevalent, representing only 0.3% of households. This diverse array of housing options reflects the community's adaptability to environmental and economic conditions, with a mix of modern materials and traditional building techniques shaping the residential landscape of Gharapjhong Rural Municipality as shown in the Figure 9.



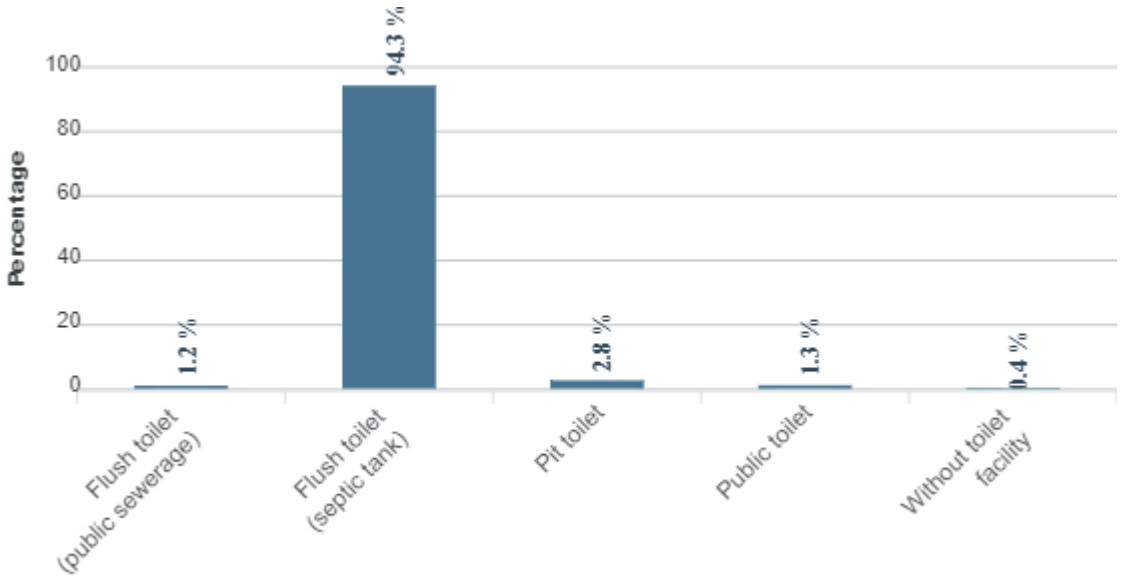
Source: (CBS, 2021)

Figure 9: Households by type of material used for roof of housing unit

1.3.9 Households by type of toilet facility

According to CBS 2021, the distribution of toilet facilities within Gharapjhong Rural Municipality showcases predominant sanitation practices within the community. The vast majority, accounting for 94.3% of households, utilize flush toilets connected to septic tanks, indicating a widespread preference for modern sanitation infrastructure with decentralized waste management. Pit toilets represent a smaller yet notable proportion at 2.8%, reflecting reliance on traditional sanitation methods. Flush toilets linked to public sewerage systems are relatively rare, comprising only 1.2% of households, possibly indicating limited access to centralized sewerage infrastructure. The presence of public toilets, constituting 1.3%, underscores communal efforts to ensure sanitation accessibility beyond individual households. However, a small fraction, 0.4%, still lacks access to any toilet facility, emphasizing the need for continued efforts to improve sanitation infrastructure and ensure universal access to adequate sanitation services within the rural municipality.as shown in

the Figure 10.

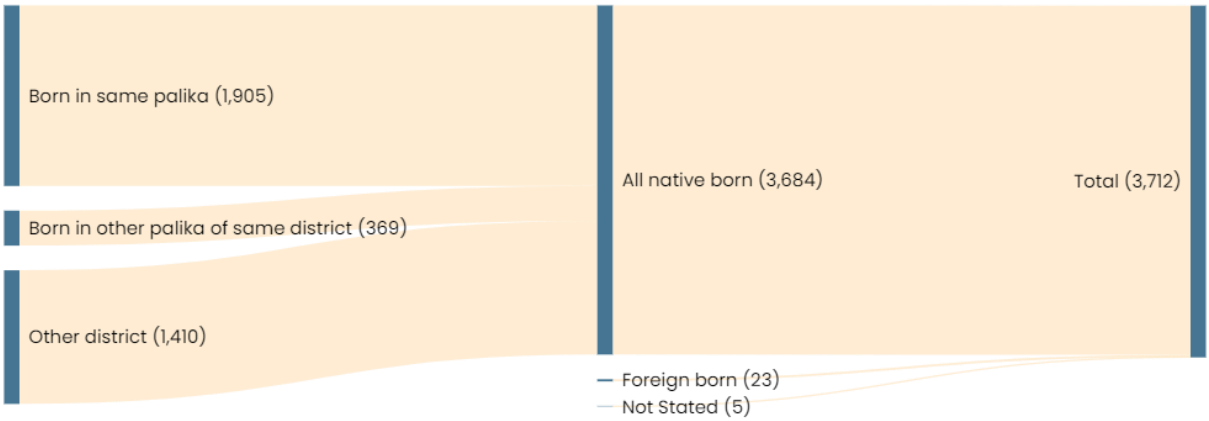


Source: (CBS, 2021)

Figure 10: Households by type of toilet facility

1.3.10 Population by place of birth

The data represents the population of Gharapjhong Rural Municipality categorized by their place of birth, presented as absolute values. Among the total population of 3,712 individuals, the majority, comprising 36, 84 individuals, are native-born residents. Within this group, 1,905 individuals were born within the same municipality (Palika), reflecting strong local roots. Additionally, 369 individuals were born in other Palika's within the same district, indicating intra-district migration. Notably, 1,410 individuals were born in other districts, suggesting inter-district migration. A smaller subset of the population, 23 individuals, are foreign-born, indicating immigration into the municipality. Lastly, 5 individuals did not state their place of birth. This data provides valuable insights into the demographic composition of Gharapjhong Rural Municipality, reflecting both local residency patterns and migration dynamics as shown in the Figure 11.



Source: (CBS, 2021)

Figure 11: Population by place of birth

1.3.11 Population Density

Overall density of the Gharapjhong Rural Municipality is 12 persons per square kilometer which is very lower than the average national density (198 persons per square kilometer). Population density varies according to wards. The population density across different wards of Gharapjhong Rural Municipality varies significantly. Ward 2 has the highest population density with 41 persons per square kilometer, indicating a relatively high concentration of people within its area. In contrast, both Ward 1 and Ward 5 have lower population densities of 4 persons per square kilometer, suggesting less densely populated areas. Wards 3 and 4 fall in between with population densities of 15 and 19 persons per square kilometer, respectively. These variations in population density reflect differences in the distribution and concentration of residents within the municipality's different wards as shown in the map.

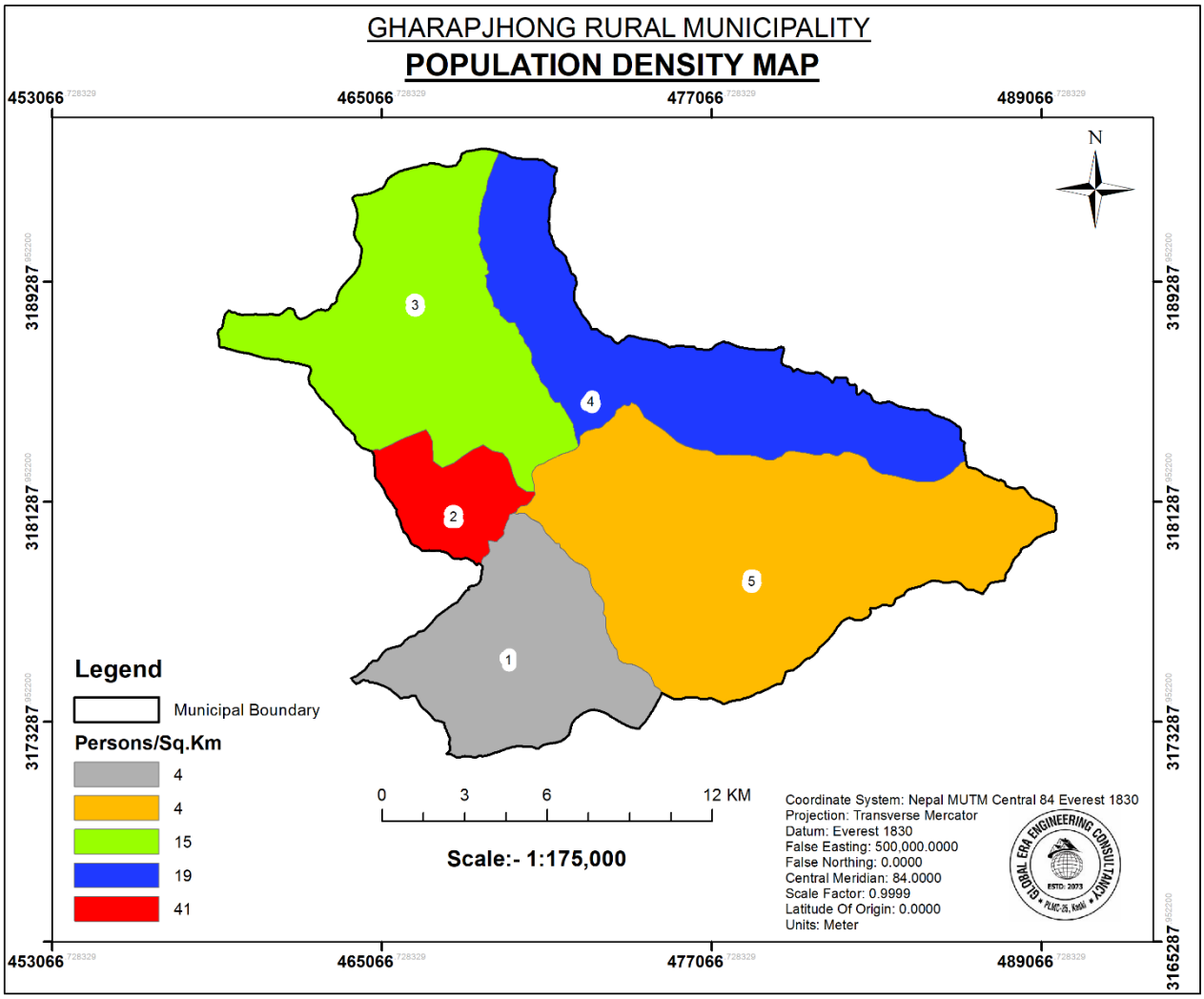


Figure 12: Population Density map of Gharapjhong Rural Municipality

1.3.12 Physiography

The study area is in the Gandaki Province of the Tibetan Sedimentary Zone, nestled in the hills of the Gandaki River Basin. It ranges in elevation from 2,548 meters to 6,995 meters, including the 7th highest summit, Mt. Dhaulagiri. The landscape features various formations such as moraines, river terraces, and steep slopes exceeding 65 degrees, leading to colluvial soil formation. The Kali Gandaki River is a significant contributor to mass wasting events, generating extensive debris flows. The area showcases distinct geological and climatic features, particularly evident in the narrowest part of the Himalayan range, creating a contrast between the southern and northern regions. It consists of moderate to steep slopes, river valleys, terraces, moraines, and barren lands, including the world's deepest Kali Gandaki Gorge. Consequently, the area experiences significant impacts from glacial and fluvial erosion, as well as hill slope activities.

Since the road to Mustang District was constructed, changes in the landscape have increased. According to Fort (2013), the road has been affected by various active or dormant natural processes. In places like Tatopani and Dana, slope instability and debris flows have threatened to block the Kali Gandaki Valley, causing floods and landslides. These events have resulted in shallow landslides, erosion of sediment, and collapse of soil on the slopes, putting settlements and the road at risk of being submerged or damaged (source: National Land use Project 2076 Report).

1.3.13 Climatic Condition

The climate in this Rural Municipality, similar to other hilly areas, is moderate to trans-Himalayan. It experiences minus degree temperatures for about three months, and there's no clear summer season as the highest temperature only reaches around 17°C. Rainfall is very low, barely reaching 250 mm annually. Most of the rain falls in July and August, with less than 80 mm each month, while the average yearly rainfall is only 250 mm. In simple terms, it's generally dry and wintery here all year round(source: National Land use Project 2076 Report).

1.3.14 Geology

The Gharapjhong Rural Municipality lies within the Tibetan Sedimentary Zone of the Gandaki River Basin. This zone encompasses a wide section of Paleozoic and Mesozoic rock formations, predominantly found in the Thakkhola area. The Tibetan Sedimentary Zone consists of the Thakkhola Valley and surrounding Lesser Himalayan sequences, boasting significant fossils like ammonites and graptolites. The area under study is characterized by Paleozoic Era rock sequences including phyllite, amphibolite, metasandstone, and schist, as depicted in the local geological map produced by DMG. The municipality is delineated by two distinct geological formations, covering an area of 31686.76 hectares. The lithostratigraphy of the municipality comprises Mesozoic Formation (Mz) and Paleozoic Formation (Pz) of the Tibetan Sedimentary Zone, as classified by DMG in ascending order (source: National Land use Project 2076 Report).

1.3.15 Slope

The angle and length of a slope affect how much rainwater runs off when it rains. The direction a hill faces affects the local weather. When a surface is steeper, it catches more sunlight, which heats it up and causes more evaporation. Slopes facing the sun get more sunlight and are warmer and drier than those facing away. This affects the type of plants that can grow there. The slope map of Gharapjhong Rural Municipality shows that it has a wide range of slopes, mostly steep, with many areas having slopes over 30%. The slopes vary from moderately steep to highly steep,

as indicated in the map.

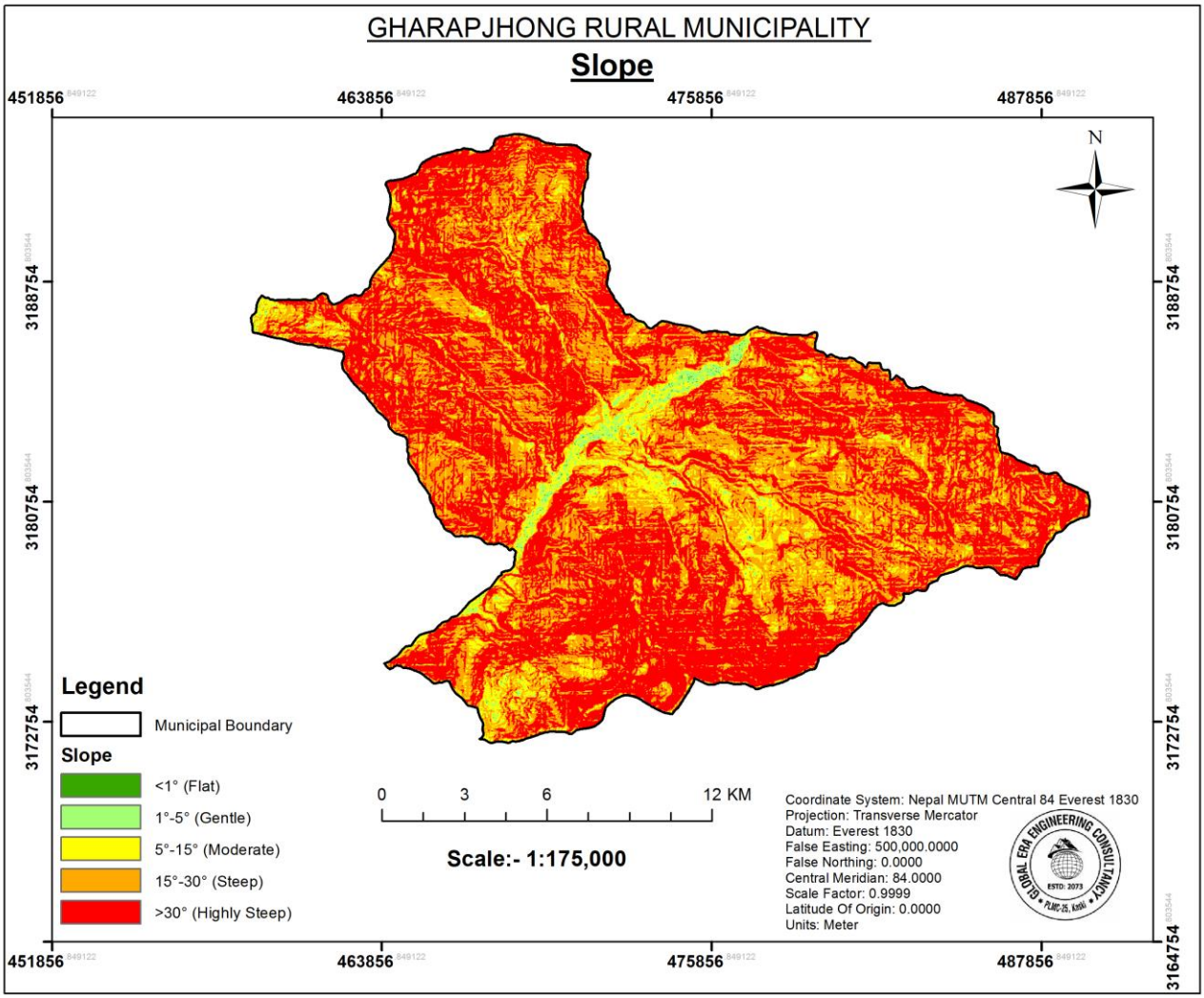


Figure 13: Slope map of Gharapjhong Rural Municipality

1.3.16 Digital Elevation Model (DEM)

A digital elevation model (DEM) or digital surface model (DSM) is a 3D computer graphics representation of elevation data to represent terrain or overlaying objects, commonly of a planet, moon, or asteroid. A "global DEM" refers to a discrete global grid. DEMs are used often in geographic information systems (GIS), and are the most common basis for digitally produced relief maps. A Digital Elevation Model (DEM) is a representation of the bare ground (bare earth) topographic surface of the Earth excluding trees, buildings, and any other surface objects. DEMs are created from a variety of sources. USGS DEMs used to be derived primarily from topographic maps. The shape of the land, its slope, and where it sits on the landscape play a big role in determining the type of soil that forms there. Higher areas with slopes tend to have well-drained soil, while lower areas get runoff from higher ground and may have water close to the

surface. The type of soil also depends on how easily water can move through it and how steep the slopes are. So, even if the soil's starting material and climate are the same, differences in elevation and landscape shape lead to different kinds of soil. In Gharapjhong Rural Municipality, the elevation ranges from about 2548 meters to 6995 meters above sea level. The elevation of the Rural Municipality is shown in Figure.

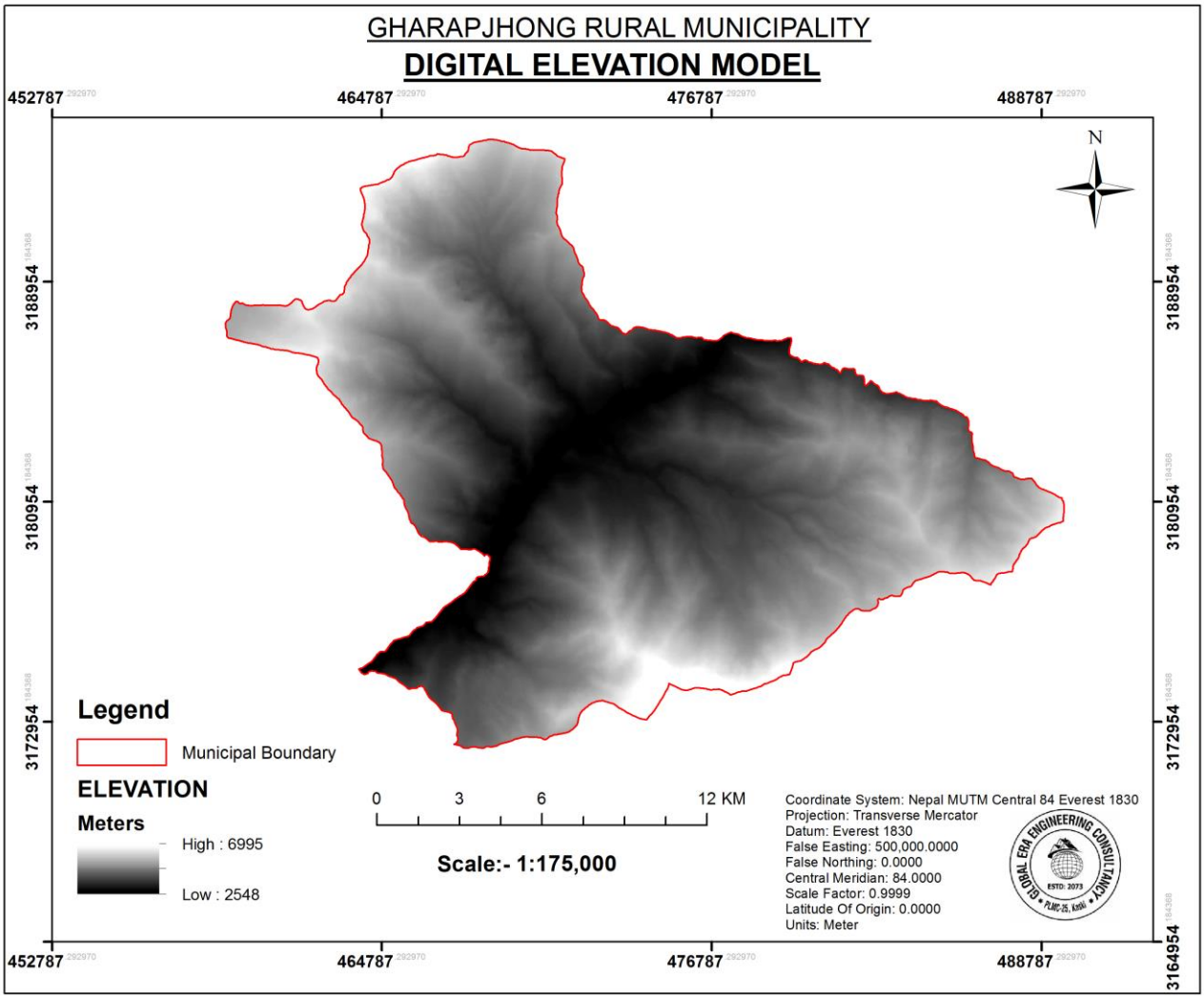


Figure 14: Digital Elevation Model of Gharapjhong Rural Municipality

1.3.17 Aspect Map

The Aspect map of Gharapjhong Rural Municipality provides information about the orientation of slopes across the area. It depicts the direction in which the slopes face, ranging from north, east, south, to west. This map is crucial for understanding the exposure of different areas to sunlight and prevailing winds, which can influence factors such as temperature, vegetation growth, and soil moisture distribution. It aids in land management decisions, such as agriculture and forestry, by highlighting areas with specific microclimates and potential environmental

challenges or opportunities.

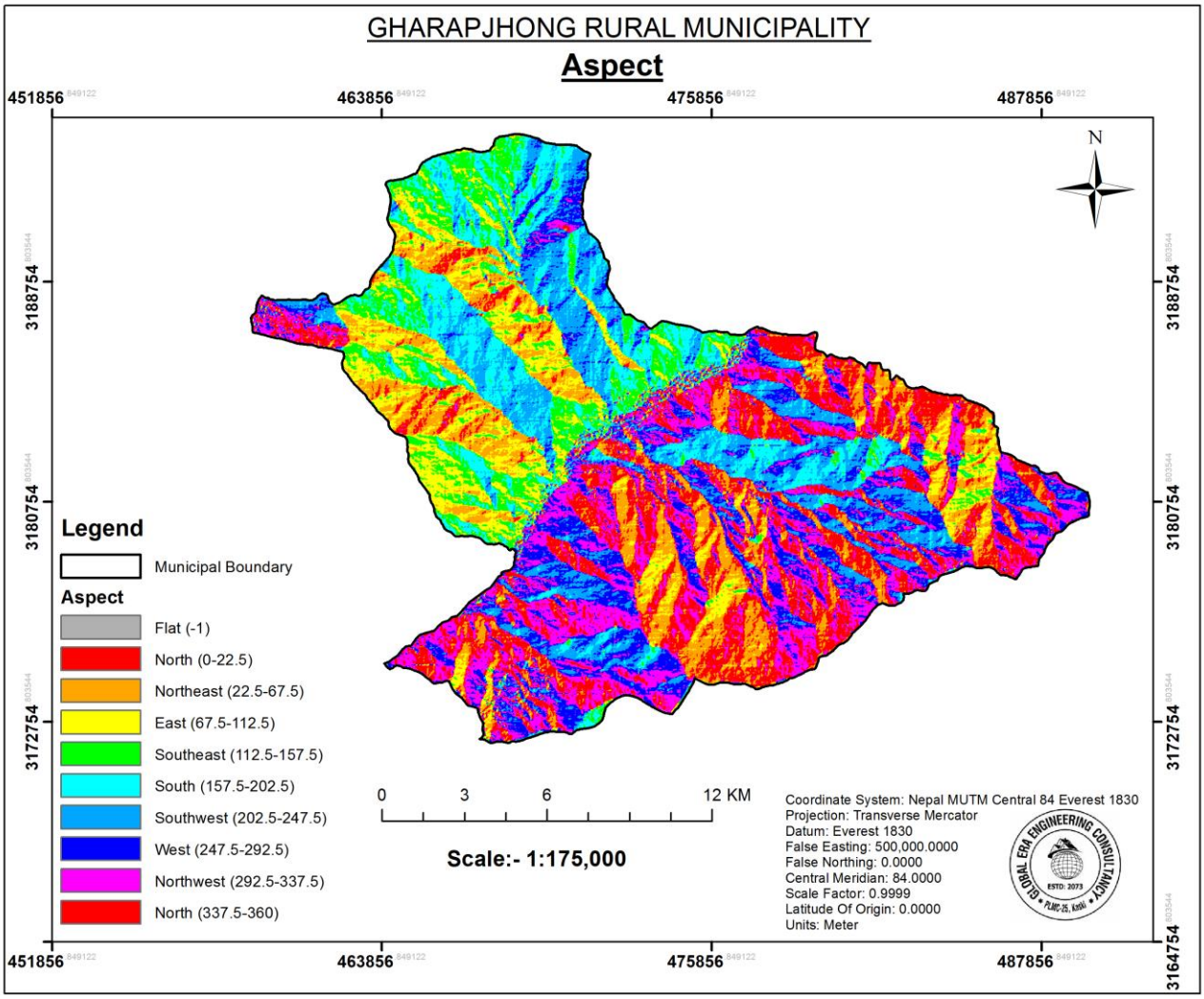


Figure 15: Aspect map of Gharapjhong Rural Municipality

1.3.18 Hillshade

The Hillshade map of Gharapjhong Rural Municipality presents a visual representation of the terrain's three-dimensional surface characteristics. It uses shadows to depict the variation in elevation, providing a realistic depiction of the landforms and slopes within the area. This map is valuable for assessing the steepness of slopes, identifying potential landslide-prone areas, and understanding the overall topography of the region. Additionally, it aids in visualizing the distribution of sunlight across the landscape, which is crucial for agriculture, infrastructure planning, and environmental management. Hillshade map of Gharapjhong Rural municipality is presented below.

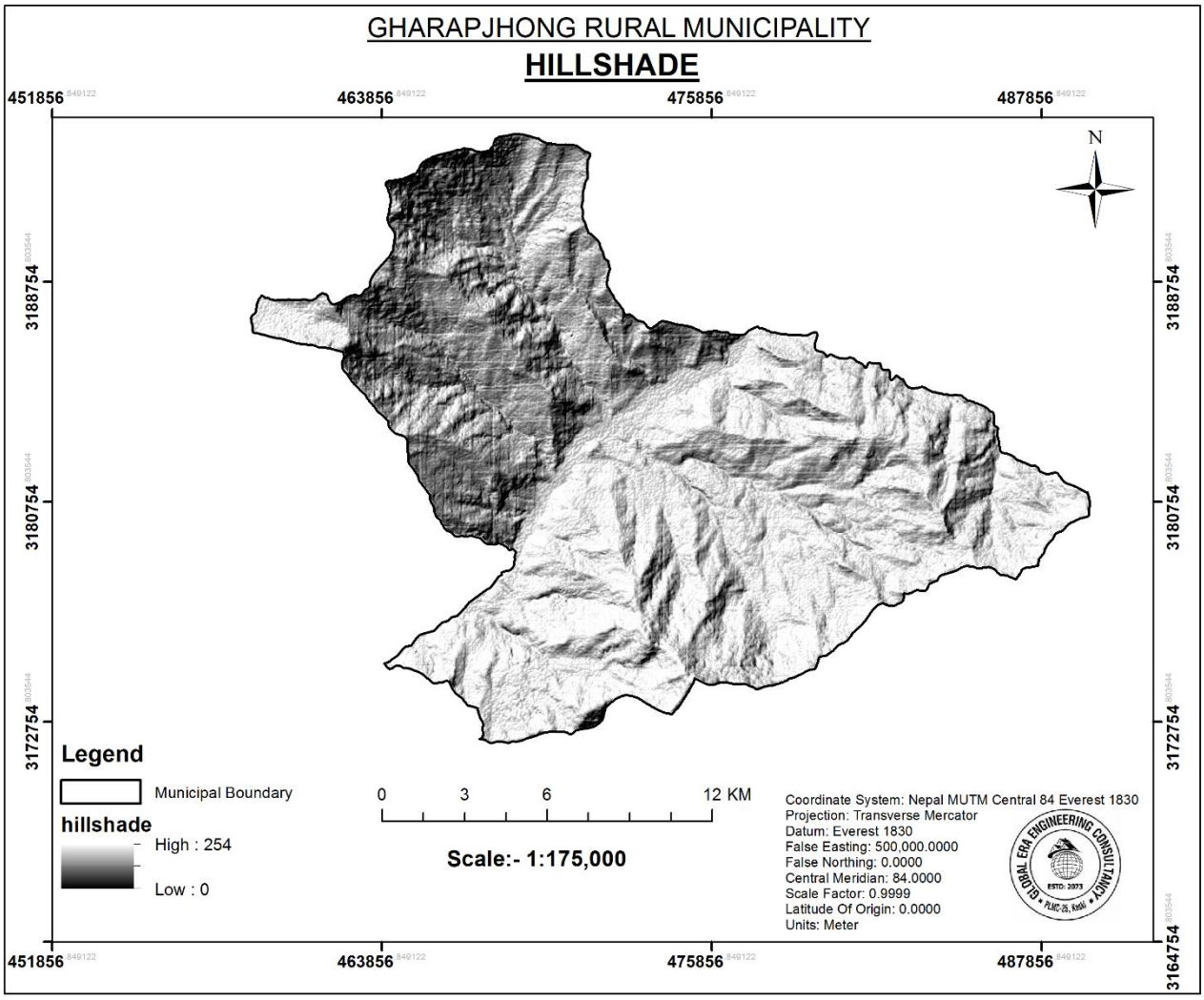


Figure 16: Hillshade Map of Gharapjhong Rural Municipality

1.3.19 Contour

Contour map of Gharapjhong Rural Municipality is presented in the map. The contour map of Gharapjhong Rural Municipality illustrates the elevation levels throughout the area, ranging from 2600 meters to 6800 meters above sea level. It reveals the diverse topography of the region, with higher elevations indicated by closely spaced contour lines and lower elevations depicted by more widely spaced lines. The map enables a visual understanding of the terrain, aiding in land use planning, infrastructure development, and natural resource management within the municipality.

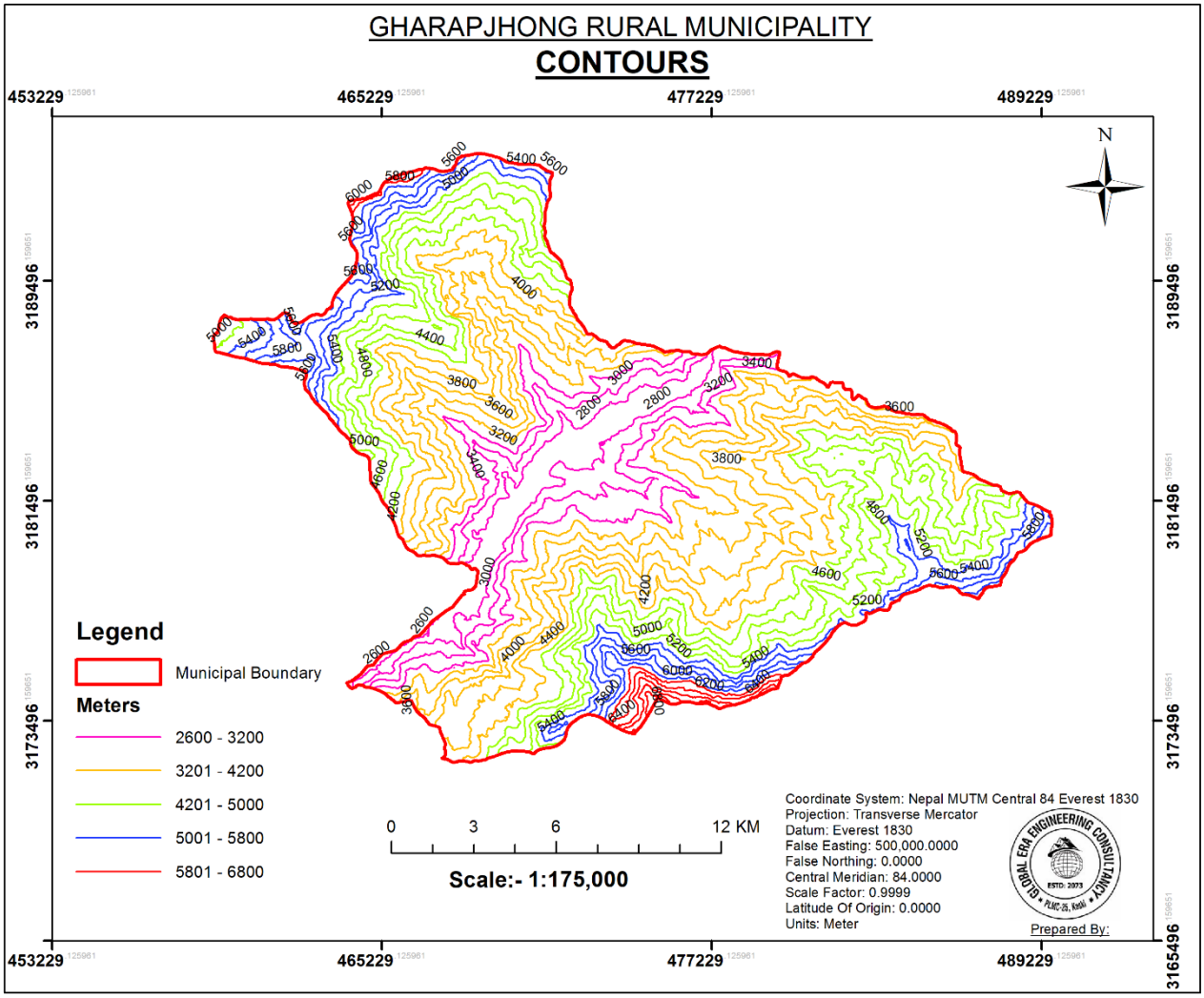


Figure 17: Contour Map of Gharapjhong Rural Municipality

1.3.20 Streams and Canals

Stream order maps are essential for land use planning as they reveal the hierarchy and connectivity of river networks. They help understand watershed dynamics, identify riparian zones for conservation, and inform decisions regarding erosion, sedimentation, and flooding, thereby enabling more effective land management practices and sustainable development initiatives within riverine landscapes.

Kali and Dumba are the primary rivers within Gharapjhong Rural Municipality. These rivers experience low water levels in winter, but during the rainy season, they swell significantly. Additionally, there are other significant rivers like Puchchherdong Khola, Thini Khola, etc., as depicted in figure 18. Rainfall and water from streams and canals contribute to these rivers, occasionally causing flooding with alluvial soil and sand. These rivers also serve as vital sources of irrigation water for major crops.

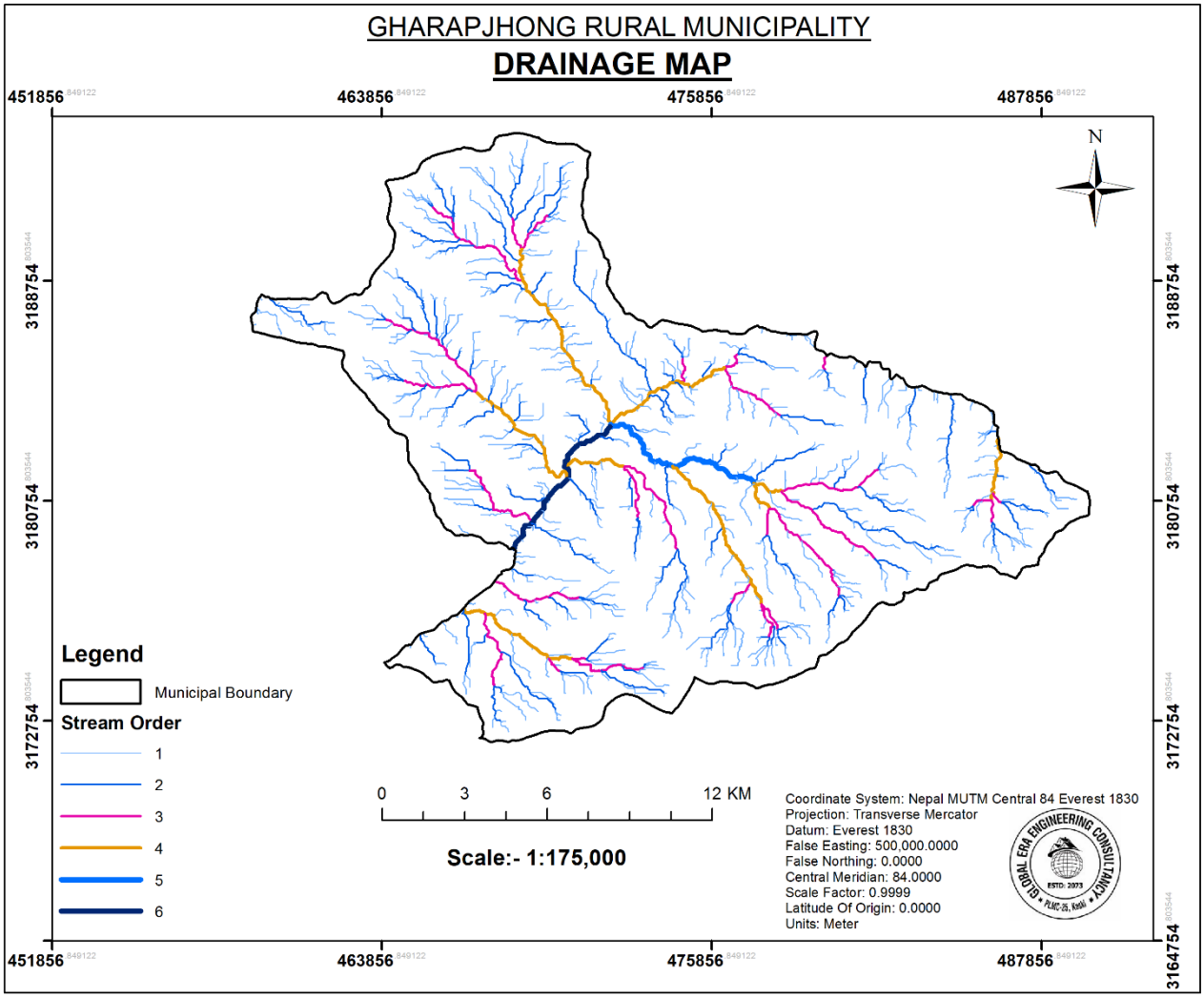


Figure 18: Stream Order Map of Gharapjhong Rural Municipality

1.3.21 Satellite Image

SAS Planet is a program designed for viewing and downloading high-resolution satellite imagery and conventional maps submitted by such services as Google Maps, DigitalGlobe, Kosmosnimki, Yandex. Maps, Yahoo! Maps, VirtualEarth, Gurtam, OpenStreetMap, eAtlas, Genshtab maps, iPhone maps, Navitel maps, Bings Maps (Bird's Eye) etc., but in contrast to all these services all downloaded images will remain on your computer and you will be able to view them, even without connecting to the internet. In addition to the satellite-based maps you can work with the political landscape, combined maps and maps of the Moon and Mars. High spatial resolution was downloaded for land use zoning.

The high-resolution Google satellite image of Gharapjhong Rural Municipality provides a detailed and accurate depiction of the area's geographical features and land cover. Captured from

space, the image offers a bird's-eye view of the municipality, showcasing its terrain, vegetation, infrastructure, and human settlements with exceptional clarity and precision. The high-resolution Google satellite image of Gharapjhong Rural Municipality was downloaded and utilizes the World Geodetic System 1984 (WGS84) projection system, which is a global standard for mapping and geolocation. WGS84 ensures accurate positioning and alignment of geographical features on the Earth's surface, allowing for precise spatial analysis and measurement. This projection system enables compatibility and interoperability with various geographic information systems (GIS) and mapping tools, facilitating seamless integration of the satellite imagery into diverse applications and workflows.

In terms of resolution, the high-resolution satellite image provides detailed visual information with clarity and sharpness. The resolution refers to the level of detail captured in the image, typically expressed in terms of pixels per unit area. In this case, the spatial resolution cell size is 0.2796431 meters by 0.2796431 meters, indicating that each pixel represents an area of approximately 0.078200 square meters on the ground. This level of detail allows for the discernment of fine-scale features such as roads, buildings, vegetation types, and land parcel boundaries. The high resolution enhances the utility of the satellite imagery for various purposes, including land use planning, environmental monitoring, natural resource management, and infrastructure development. With its high resolution and precise georeferencing, the Google satellite image serves as a valuable tool for spatial analysis, land use classification and land use zoning within Gharapjhong Rural Municipality.

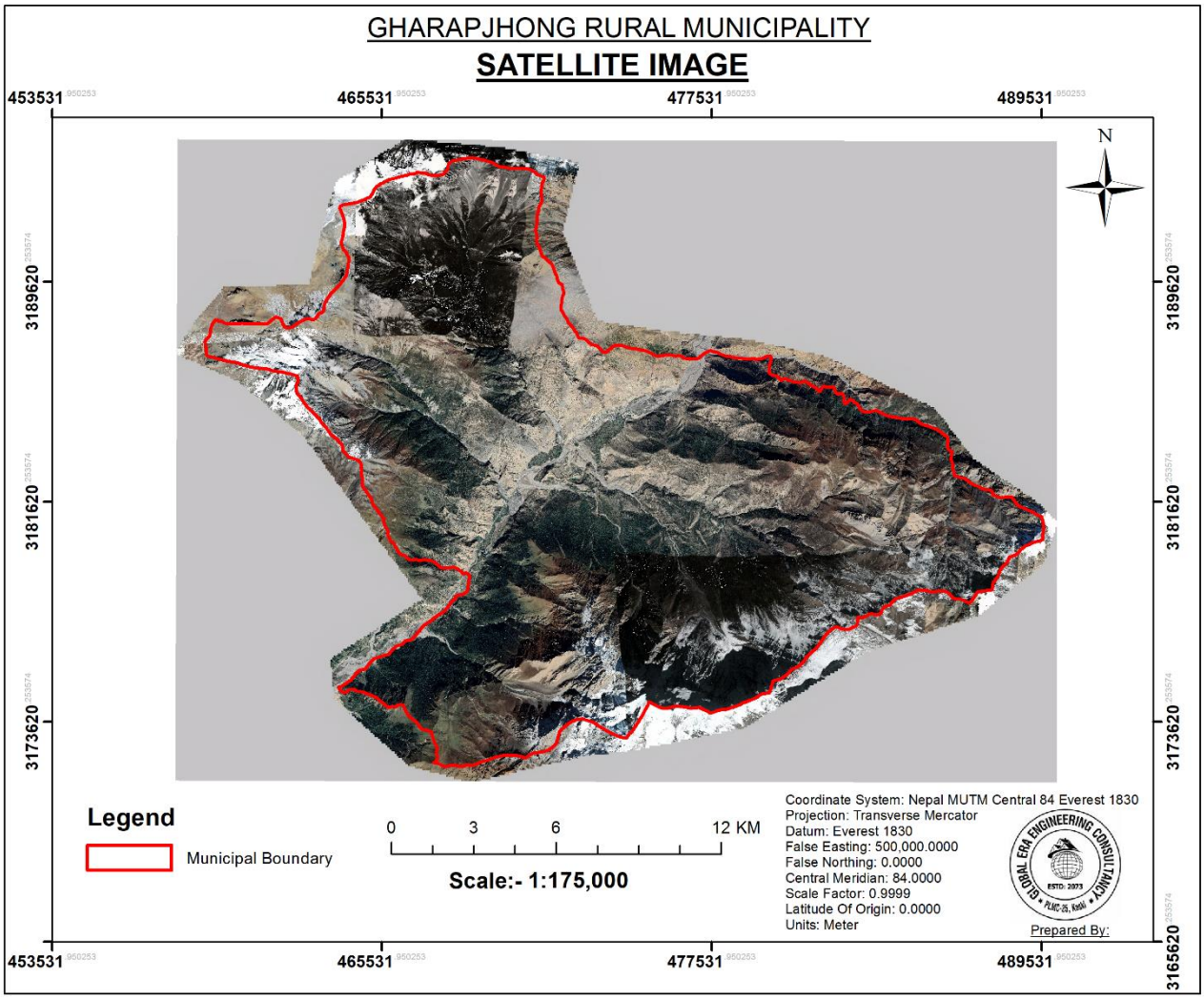


Figure 19: Satellite Image of Gharapjhong Rural Municipality

1.3.22 Cadastral Overlay

The cadastral overlay on a Google satellite image of Gharapjhong Rural Municipality provides a comprehensive view of land parcel boundaries within the area. By combining cadastral data with satellite imagery, the map offers valuable insights into land ownership, land use patterns, and property boundaries. It facilitates land management and planning activities by enabling stakeholders to identify individual parcels, assess land cover types, and analyze spatial relationships between different land parcels and features. This integrated map serves as a useful tool for various purposes, including land use classification and land use zoning.

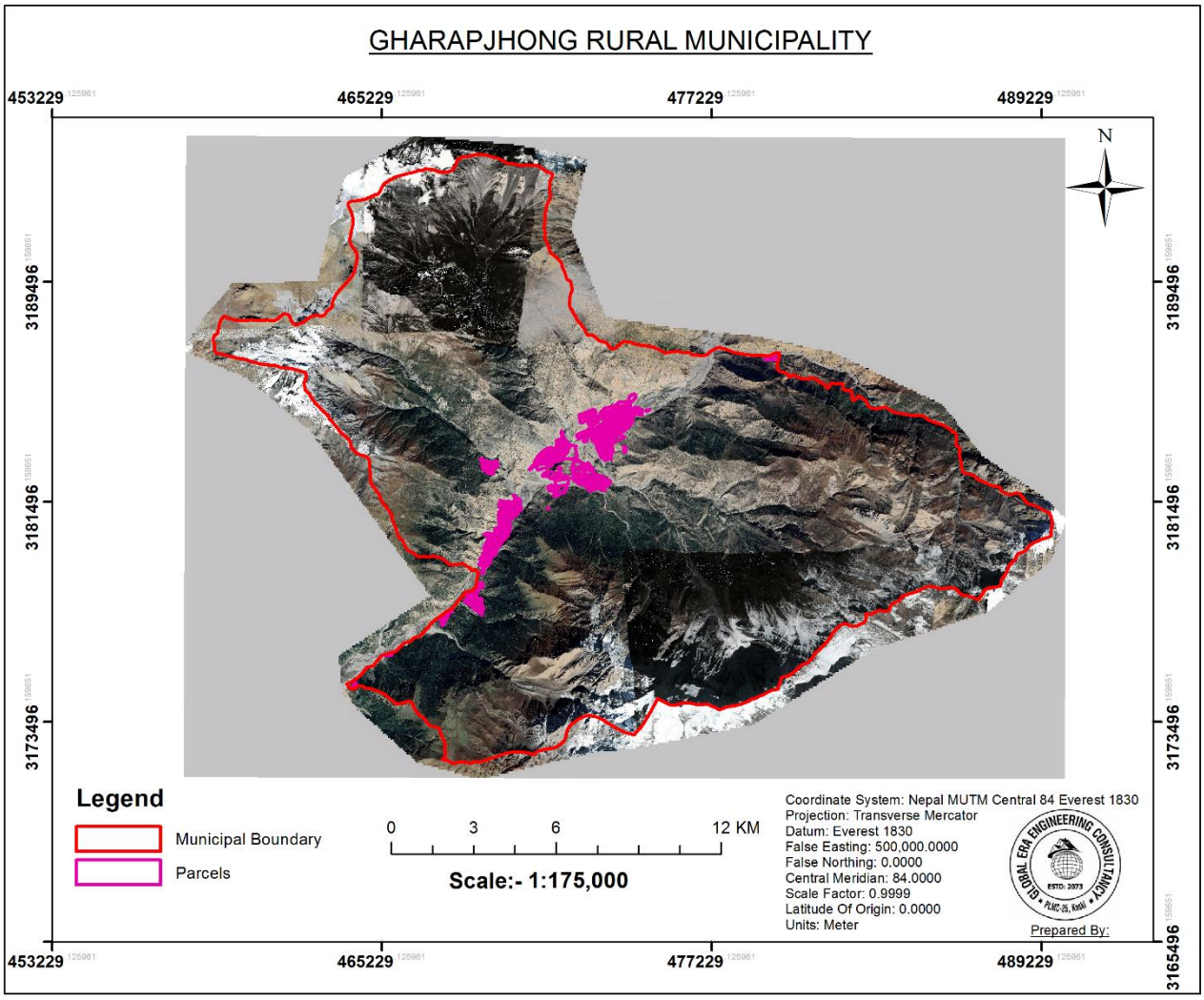


Figure 20: Cadastral Data of Gharapjhong Rural Municipality Overlaid on Satellite Image

CHAPTER TWO: METHODOLOGY

2.1 Preparation of Present Land Use Map

The specific approaches and methods adopted to generate the Municipality level land use map in the project area is explained briefly with the overall work flow diagram. The stepwise procedure adopted to generate the land use map of the area is following:

- **i.** Pan-sharpening (Image Fusion)
- **ii.** Visual Image Interpretation and classification
- **iii.** Land Use Geo-Database Creation and Mapping

i. Pan-Sharpening

Pan-sharpening (resolution merge or image fusion) technique has used to create a high-resolution multispectral data set by the fusion process of high-resolution panchromatic data with lower resolution multispectral data. Now-a days in image processing several methods of pan-sharpening are used such as Brovey transform, Multiplicative technique, Principal Component Analysis (PCA), Intensity Hue Saturation (IHS) transform, Wavelet transform, Euler's technique, Gram-Schmidt transform etc. In this study, pan-sharpening was done with Brovey transform technique. The pan-sharpening using Brovey transform was applied to visually increase contrast in the low and high ends of an image's histogram (i .e. to provide contrast in shadows, water and high reflectance areas such as urban features)

ii. Visual Image Interpretation and classification

A land use and land cover classification system providing a framework for categorization of information has to be developed to obtain the desired classes (Jenson 2005). Knowledge- based visual interpretation was carried out. Ground reference data collected were employed in preparation of classification system. The categories of land use/ land cover were to be extracted as thematic information from ZY_3 image.

Two extremely important issues must be addressed before undertaking task of image interpretation for determining and delineating land use classes. The first step is to define the criteria to distinguish the various categories of features occurring in the images. For this, the interpreter must fix firmly in mind that what specific characteristics may determine and separate the proper land use classes as described in classification hierarchy which is described in section 2.2 guided by Land Use Act,2076W and Land Use Regulation, 2079. The second important issue for determining and delineating of discrete areal units on photographs is the selection of the minimum mapping unit (MMU) to be employed in the process. This refers to the smallest size areal entity to be mapped as a discrete area. The minimum mapping unit

(MMU) for delineating of land use category was one fourth of a hectare. However, important and essential features smaller than the MMU were also mapped especially building features. However, in overall for this particular study, the MMU was taken as 0.25 ha as specified in land use specification for mapping in scale 1:10000.

The detailed approaches and methods to be implemented to generate Present Land Use maps of the project area are concisely described in the following subsections. Figure below illustrates the overall workflow.

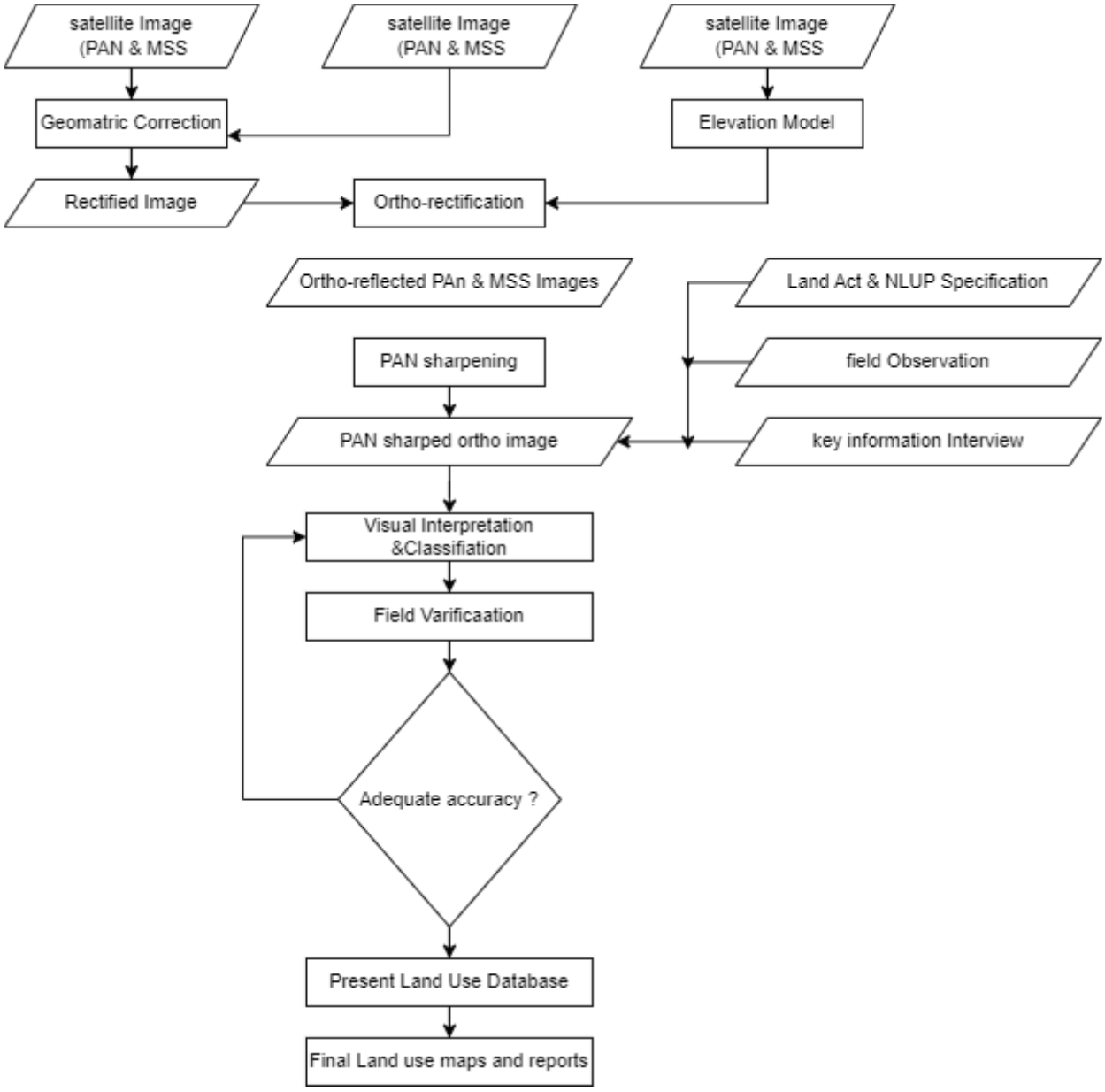


Figure 21: present Land Use Workflow

2.2 Preparation of Land Zoning Map

In this particular project, the land use zoning is carried out by adopting the following concept:

i. Classification of land into Agricultural area, Residential area, Commercial area, Industrial area, Mining and Mineral area, Cultural and Archaeological area, River, Lake and Water bodies area, Excavation area, Forest area, Public Use area and Others.
ii. Identifying areas for potential residential, commercial, industrial and public utility keeping balanced environment.
iii. Classifying agricultural land into comparatively advantageous sub-areas on the basis of quality of land, land capability, and irrigation facilities to increase productivity.
iv. Proper conservation of natural resources including forest, shrub, rivers and rivulets and swampy land etc.
v. Proper determine the Mining and Mineral area and Excavation area considering the environment impact and social impact.
vi. Public service area mainly open area should be identified for any mitigation of hazard.
vii. In hazard prone area, forest and public service area should be proposed.

Based on the above criteria, the following guideline has considered for land use zoning are as following:

I. Agricultural Area

i. Most of the agricultural areas are kept intact but it is almost impossible to retain all areas as some of the newly proposed residential, commercial, industrial and public use areas are proposed on the agricultural land. It is essential to address the needs of housing, marketing, employments, public utility development and other economic activities besides agriculture for the growing population. Therefore, the agricultural areas may be slightly decreased. However, we need to retain the most arable agricultural
ii. land and marginally capable lands should be used for infrastructure development.
iii. Within the agricultural land, the area of comparative advantage can be identified on the basis of land capability, land system, temperature, irrigation and drainage system, and other physical, chemical parameters of soil. Extensive discussions are done with agriculture experts and their opinion is taken to further sub classification of agricultural land.

II. Forest Area

a) Existing forest are kept intact.
b) New forests or plantation are proposed mainly on the basis of the following criteria:

i. Barren lands, Wetlands, Abandoned lands
ii. Slopping land, watershed, high mountains

iii. Flood and erosion prone river banks

iv. Other lands of marginal utilization

v. Sides of roads, canals etc., if possible

vi. Near or around Industrial areas to make natural protection from pollution

vii. On the land under high or medium hazard risk

viii. Other suitable areas for agroforestry or timber product etc.

III. Residential Area

a) The existing residential area is kept intact if they are risk free or at low risk. Generally, the settlements in the local area or villages are established on the basis of inherent indigenous knowledge, they are generally safe and the infrastructures are already available in many of the areas. Therefore, these settlements are kept intact.

b) Keeping the local population growth and flow of internal migration to the area in mind and looking at the rate of built-up development in the area during last 10 years, some new settlements are proposed. Some of the criteria to identify appropriate land for new settlements are:

i. The land should be free from or at low hazard risk as much as possible

ii. The area should be in the neighborhood of the existing settlement, if possible

iii. Availability of Road and infrastructures if possible

iv. Not in the flood plain of any river

v. Geologically stable

vi. Not in the vicinity of dense forests and Industrial areas as much as possible

vii. The land should be of marginal utilization, i.e. the land should be less capable for agricultural crop production

IV. Commercial Area

a) The existing commercial area is kept intact as they are already established according to the necessity of the local people in or near residential areas.

b) For the future planning, the land is allocated for the new commercial and business areas including government institution on the basis of the following criteria:

i. The land should be free from or at low hazard risk as much as possible

ii. The areas should be in the neighborhood of residential area, number of household and population should be considered

iii. Availability of Road and infrastructures if possible

iv. Not in the flood plain of any river

v. Geologically stable

vi. Not in the vicinity of dense forests

vii. The land should be of marginal utilization, i.e., the land should be less capable for agricultural crop production

V. Industrial Area

a) Most of the existing industries in the rural area are small and agriculture based. The impacts of these industries on human activities are not much prominent. Therefore, the existing small industries are kept intact. Most of the heavy industries are already either far from settlement or they are managed in such a way that the impact should be less on the human activities. Such kind of industries, if found affecting human life, will be recommended to relocate.

b) For the proposed industrial areas, the following criteria are chosen:

i. The land should be free from or at low hazard risk as much as possible

ii. It should be in the neighborhood of existing industrial area (if it is already suitable)

iii. It should not be in the vicinity of residential and commercial area but within the approachable distance from market and settlements with infrastructures

iv. Accessibility of roads if possible

v. Not in the vicinity of rivers, ponds or any other water sources and dense forest

vi. The land should be of marginal utilization, i.e. the land should be less capable for agricultural crop production vii. Geologically stable

vii. Not in the international boundary but can be in the bordering area of two or more administrative units (Municipality/Nagarpalika/Districts) so that there would be opportunity to share benefits of the resources of both administrative units.

VI. Public Use zone

a) Existing public utility and open areas are kept intact

b) Some of the new public use areas such as Health, Education, open area etc are proposed on the vicinity of existing and proposed residential/commercial/industrial areas wherever appropriate.

c) Mostly, these types of service areas are located on the basis of the necessity and requirement of the local people. Therefore, this category is suggested to be planned after discussion with local community using participatory approach.

VII. Mine and Minerals Zone

a) Existing Mining and Quarrying areas as defined and described by National Land Use Act,2076 and Land Use Regulation, 2079

b) Identified and prescribed areas as potential Mining and Quarrying area in future

VIII. Cultural and Archaeological Zone

a) Existing religious, cultural, archeological areas as defined and described by National Land Use Act,2076 and Land Use Regulation, 2079

b) Area defined as cultural heritage and their master plans

IX. Riverine and Lake Zone

a) Existing rivers and water bodies as defined and described by National Land use Act 2076

X. Excavation Zone

a) Existing areas as defined by National Land Use Act,2076 and Land Use Regulation, 2079

b) Areas prescribed and allocated by the national/local government for such use Areas found appropriate from expert's study for such use in future.

XI. Other Zones prescribed as required

a) As per the prescription of experts and decision of the Rural Municipality.

2.3 Preparation of Land Use Zones

Land Use Zones and their Descriptions According to the National Land Use Act, 2076 and Land Use Regulation, 2079 BS, there must be following elevation land use zones:

2.3.1 Agricultural Zone

The agricultural zone means the area where there is a presence of agro products (food grains, cash crops, horticulture, etc.), animal husbandry, fisheries, agro and forest products or orchards in a private land. This word also indicates a region prescribed by the government as an agricultural zone.

2.3.2 Forest Zone

Forest zone means an areas being covered with public, community, leasehold forests in part or entirety, national parks, wildlife reserves, conservation areas, bushes, shrubs, plains, all types of jungles and places designated by the government as a forest regardless of whether there are trees or not. This term also infers an area nominated by the government for the expansion of forests or green areas, in a definite geographical region.

2.3.3 Residential Zone

Residential zone means the land used by people for shelter or housing and the word also includes animal shed, food container, garage, stable, well, tap, orchard, backyard, courtyard or land with any other use whether joined with the house or separate. This word also denotes a collective housing or apartment built by a business company or institution, and also to a specific land declared by the government for housing purposes.

2.3.4 Commercial Zone

Commercial zone means the land occupied by or allocated for shops, hotels, exhibition stalls, petrol pumps, warehouses, health and information facilities, commodities trade centre, an organization providing any literary, scientific or technical service or advice, fair venues, discos, clubs, swimming pools, cinema halls opened for business purposes, entertainment joints or any other building meant for commercial use. This word shall also include a commercial building built in a trade zone by a business company or institution and the land occupied by the same. Moreover, this word shall also indicate an area declared by the government to develop a city for market expansion and commercial use in a definite geographical region.

2.3.5 Industrial Zone

Industrial zone means the land occupied by or allocated for any workshop, goods manufacturing industry, the associated buildings and sheds. This word also denotes an industrial corridor, industrial village, cluster, special export zone and special economic zone declared by the government for industrial promotion in a definite geographical region.

2.3.6 Public Use Zone

Public use/service means land occupied by schools, colleges, vocational educational centers, academic institutions including the universities, security agencies, health centers, health posts, private or community hospitals, telecom, drinking water, government agencies involved in providing electricity or other energy, community buildings, libraries, old age homes, child protection homes, other buildings, sheds, platforms erected for public use, term also includes the hills, meadows, cliffs, mountains, snow covered areas, pastures. The word also denotes playgrounds, parks, stadiums, grounds, platforms, picnic spots, open places having no special use, district roads, rural roads, bus parks, airports, cargo areas, dry ports, railways, ropeways, waterways, cable cars, electricity transmission lines, ports and the places designated as public utilities zone by the government or prevailing laws.

2.3.7 Mine and Minerals Zone

Mining and minerals zone means a land being used for mining, production or processing of minerals or area declared by the government as a mining and quarrying zone definite geographical region. This word also includes any area where mineral deposit is discovered or a mine is operational, where industries for mining, production, processing and purification of minerals are being located as well as the associated buildings, sheds as the land being used for the operation of such industries as well.

2.3.8 Cultural and Archaeological Zone

Cultural and archaeological zone means the forts, palaces, buildings, temples, shrines, mosques, monasteries, Manes, with a historical and archaeological significance as well as other pilgrimage sites and places of worship. This word also implies an area declared by the government as a historical, cultural, religious and archaeological place in a definite geographical region.

2.3.9 Riverine and Lake Zone

Riverine and lake zone means an area where rivers, rivulets, streams, canals, lakes, ponds, long-holding swamps or wetlands are existent.

2.3.10 Other Zone prescribed as required

Other zone prescribed as required mean the areas that do not fall under any of the above land use zones but which need to be mentioned as an exclusive land use zone. This term also implies an area with mixed characteristics. Mixed zone means the areas where the residential and business zones have merged so seamlessly that they cannot be bifurcated as is seen now in various cities, towns, highway areas. This zone shall be applied only for regulating settlements and market areas that have been since the past.

Data

Various data sources are used in this land use zoning. Some main data sources are:

- Ortho-rectified High Resolution Satellite Image
- Present Land Use Map, Soil Map, Land System map, Land Capability Map and reports prepared by National Land use Project

- Digital Land Utilization, Land System, Soil maps, Geological and Land Capability maps and reports prepared by Preparation of Municipality/Nagarpalika level Land Resource Maps (Present Land Use Maps, Soil Maps, Land Capability Maps, Land Use Zoning Maps and Cadastral Layer Superimpose and Municipality/Nagarpalika Profile), Database and Reports
- Digital Topographical Datasets
- GIS vector data (shape file) of mainly land capability, land system, present land use, administrative boundary (Municipality/Nagarpalika, Ward).
- Socio economic data and village profile
- Hazard Data such as Seismicity data, Flood Inundation data, Industrial Risk data, etc. General

Approach and Methodology Framework

The primary bases of land use zoning are as follows:

The basis of land composition, capability and appropriateness

The indicator of geographical and geological land composition, capability and appropriateness shall be the primary basis for determining land use zoning.

The basis of current land use

The land use zone for a particular area shall be determined on the basis of current land use of that same area, if it is in accordance with its land composition, capacity and appropriateness.

The basis of necessity

In case the State has to use any particular land for a use other than it is directed for public good and development of physical infrastructure, then the land use zone shall be assigned in a manner so as to facilitate its utilization as per the need. The land use zones in urban areas may be determined through micro zoning heeding to their relative sensitivities. The Zoning map is prepared keeping the objective of the policy in mind.

In this particular project, the land use zoning is carried out by adopting the criteria shown in Appendix as decided by Gharapjhong Rural Rural Municipality

To achieve the aforementioned objectives, the following basis is taken for land use zoning:

- Existing land use
- Capability and suitability of the land
- Socio economic data
- Expert's opinion
- Subjective analysis

Methods

The specific method used for the land use zoning is as following:

2.3.1.1 Preparation

In this stage, literature review, requirement analysis and database preparation of different criteria map for land use zoning will be carried out for the determination of proper land use classes. It has conducted for the idea generation for the land use planning for future use of land.

2.3.1.2 Multi-criteria Analysis

Land use zoning is carried out mainly by using GIS based spatial analysis using multiple criteria analysis on several available data sets. Either GIS vector data (shape file) or raster data of mainly land capability, land system, present land use or socio economic data was used as a factor maps. A general rule has developed by using multiple criteria on the basis of expert knowledge by focus group discussion with stakeholders or Analytical Hierarchy Process (AHP) using pair wise comparison for land use zoning. These criteria were used to identify a suitable land use zone; and to identify a potential area for future land use. These data files comprised the various parameters like soil characteristics, land form, land type, arability, slope,

drainage system, topography, existing land use, crop patterns, population density and other necessary parameters used for land use zoning. A simple rule base was developed by using multiple criteria on the basis of expert knowledge for classification of land use zone. These criteria were used to identify a suitable zone for a particular type of land use zone. This is a scientific process and individual judgments cannot be made while applying the process.

2.3.1.3 Subjective Analysis

Subjective analysis with logical inference was applied for land use zoning consultation with the expert, and focal group discussion stakeholder in each ward to modify the land use zone as extracted from multi-criteria evaluation/analysis. So, it has carried out on the basis of requirement and stakeholder opinion. As an example, although, if a small piece of land is found suitable for agricultural use but it surrounded by residential area, then it is placed in the residential area. Similarly, if the land is found suitable for agricultural area but it is in the flood plain of the river and high risk of flooding, then it can be used for forest and plantation to control the flood. Apart from these kinds of criteria formed on the basis of expert knowledge, some subjective analysis and logical interference was applied for land use zoning.

General approach and methodology used for the land use zoning is shown on the following schematic diagram:

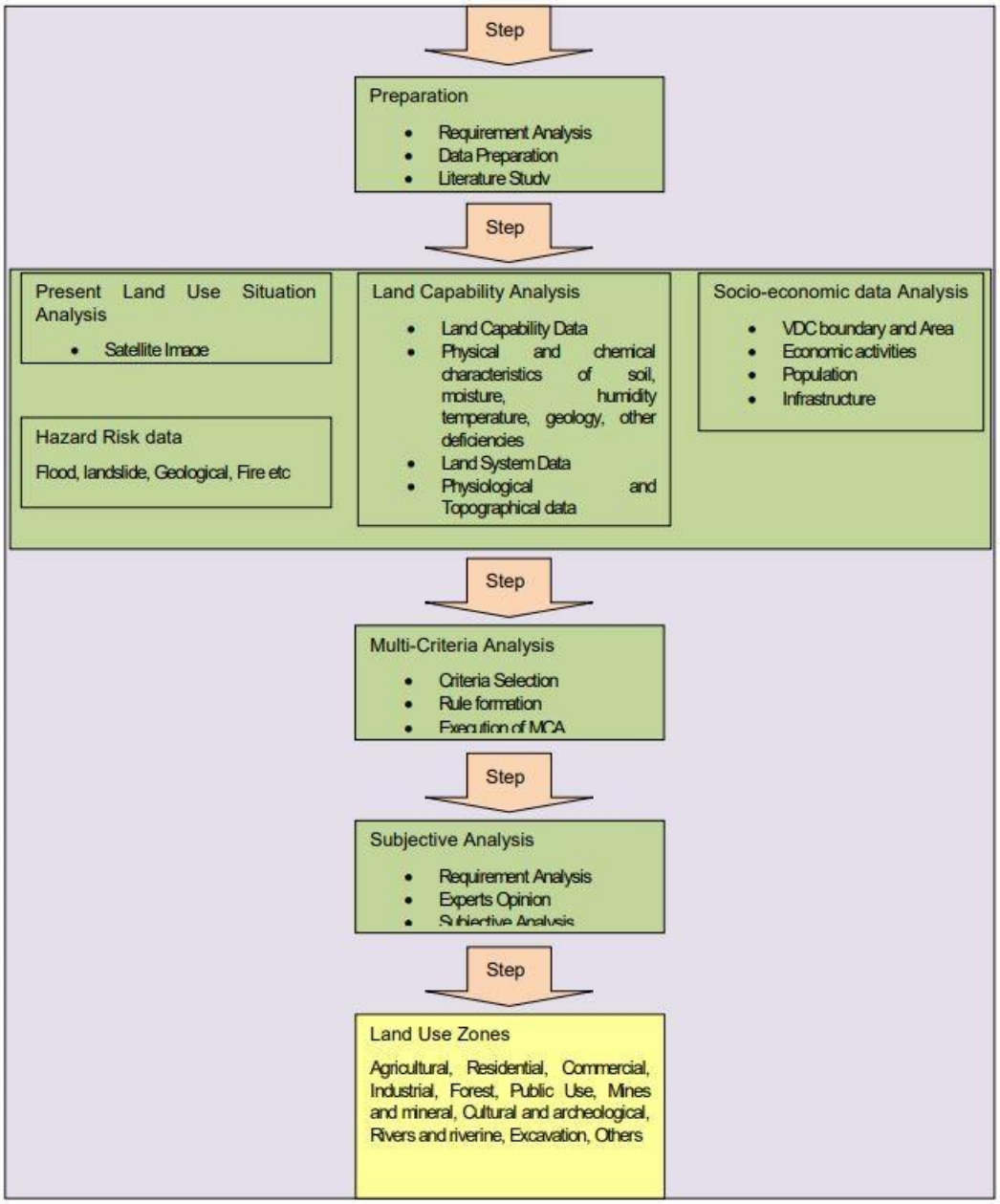


Figure 22: Land Use Zoning Maps Preparation Workflow

2.4 Cadastral Data Superimpose

2.4.1 Concepts

The groundwork of superimposing the land use zoning in cadastral layer is useful for implementation of goals of land use policy. The goals express the government policies on land use, citizen's right, housing, natural resources, and local comprehensive planning. These national policies and law help local level bodies like Municipality of the county to develop a comprehensive plan and implementation of the plan. Local governments can do the planning and administer most of the land use regulations that as per the standards for planning set by

national government.

A local comprehensive plan of cadastral layer guides a community's land use, conservation of natural resources, economic development, and related public services. For this, it needs two components: a cadastral layer as base and a land use zoning layer for implementation of land use policy. The cadastral layer data and related land information show the spatial location of the land parcel and legal rights of land owners including the land fragmentation process within existing land-laws. Land use zoning determines the types of land use activities that occur on that land, such as agriculture, forest, residential, commercial, industrial and public activities. Land use zoning visualizes both the current situation of land and proper planning for future.

2.4.2 Spatial Functions related to Spatial Database

The overlay process of two digital spatial data layers such as cadastral and zoning map having same reference system would lead to the preparation of composite map and data. It leads to the generation of a new set of polygons (and attributes) that explain the relations existing between the two inputs of spatial data (i.e. Land use zone class and parcel id).

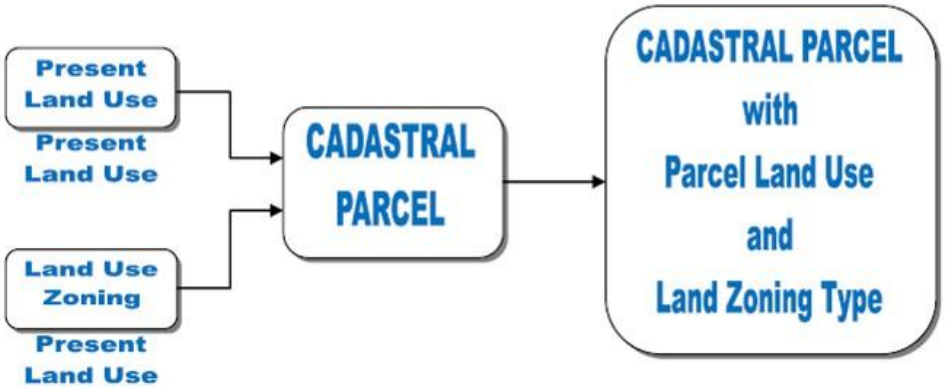


Figure 23: Spatial function related to spatial database

2.4.3 Attribute Data Management

Attribute database management will be accomplished through establishing graphic/ alphanumerical relations between graphical and alphanumerical databases. This connection is based on the use of a GIS internal table as a linkage with other tables in external databases. The set or collection of data that describes the characteristics of real-world entities or conditions is too large to be stored in a single table associated with the graphic elements. This data is usually managed by a relational database management system (RDBMS). The usual procedures are based in the connection of each graphical element to a line of a column of the alphanumerical table containing its attributes (record). This action can be performed

automatically or not depending on the use of GIS software. The schemas of attribute table used for superimposing land use zoning map on cadastral layers are prepared and managed in GIS environment.

Table 3: Schema of cadastral parcel feature class in the database of DOLIA

Field Name	Data Type	Description
ObjectID	Object ID	Unique object ID
Shape	Geometry (Polygon)	Geometric object type e. g. Point, Line, Polygon etc.
PARCELKEY	String (Length = 23)	Unique parcel key
PARCELNO	Integer	Parcel number as in cadastral map
DISTRICT	Integer	District ID
GAPA _ NAPA	Integer	GAPA _ NAPA Code
WARDNO	String (Length = 3)	Ward number
GRIDS1	String (Length = 9)	Grid sheet number in case of Trig sheets, and in case of island map sheet e. g. Ka, Kha etc.
PARCELTY	Integer	Parcel type code as specified by DOLIA (e.g., river, track, ravine, pine etc.)
Shape_Length	Double	Number representing perimeter of the polygon
Shape_Area	Double	Number representing area of the polygon
ParcelNote	String	

2.4.4 Methodology of Cadastral Superimpose

2.4.4.1 Acquisition of cadastral maps

NLUP has provided digital copies of island cadastral maps in digitized vector format with the attribute database having schema as described earlier. The digital cadastral maps are not in national co-ordinate system.

Similarly, the land use zoning maps for the study area was prepared under the separate components of the project. The land use zoning map of the Municipality contained a detailed category of zones.

2.4.4.2 Scanning

Scanning is the process to convert hard-copy paper maps into digital format so that it can be further processed in the computer. Once scanned, the image is converted into digital raster file which can be processed in specialized software like GIS to convert the map features into vector files. For this purpose, the cadastral maps acquired will be scanned in high resolution so as to get maximum details to facilitate heads-up digitizing and ensure maximum accuracy.

2.4.4.3 Geo-referencing of free sheets

The third step is geo-correction of vector layer of island cadastral map using GCPs. Usually; four GCPs of four corners of a rectangle are sufficient to geo-correct island cadastral map. However, to maintain required accuracy in a map of 1:500 scales 16 to 20 GCPs are needed.

After assigning required GCPs a 3rd degree polynomial transformation is used for rectification of the vector layer of cadastral maps. However, due to the larger errors in source some of the cadastral maps still have error of overlapping and gap even after the rectifications. The rectification and adjustment process is helpful to the digital cadastral maps with less than five meters of gaps. Accuracy of each individual cadastral map sheet transformation has been assessed and error report has been generated. The details of the coordinate system used are presented in Table below.

Table 4: parameters used for geo-referencing of cadastral layers

S.N.	Parameters	Description
1	Projection	Modified Universal Transverse Mercator
2	Spheroid	Everest 1830 (Adjustment 1937)
3	Semi-Major axis	a=6377276.345m
4	Semi-Minor axis	b= 6356075.413
5	1/f	300.8017
6	Central Meridian	84°E
7	False Coordinate at origin	500,000 m E, 0 m N
8	Scale Factor at Central Meridian	0.9999

2.4.4.4 Digitization and Preparation of Digital Data

It is used for checking and cleaning up the vector layer cadastral data so that the cleanup data should always be valid. Examination of it can be used to give a measure of the overall data quality in vector layer of the cadastral data. Thresholds for data quality may be set for acceptance criteria and it may state the type for particular object in cadastral dataset. Examination of it can be applied to various aspects of the data held in GIS; be that topology, connectivity, position or attribute information. If the data validation is acceptable then these data are used for preparing seamless dataset of Municipality level, otherwise there is need for repeating the process.

2.4.4.5 Superimpose of Municipality Level Seamless Cadastral Dataset on Land Use Zoning Map

Municipality level land use zoning map of the study area and Municipality level seamless cadastral datasets are overlaid using the overlay spatial analysis function in GIS environment. At the time of overlay process, caution is taken to maintain three different topology functions. These are:

- Must not overlap
- Must not intersect
- Must not contain

2.4.4.6 Production of data, map and report

The whole process described in this section has resulted in a composite data base and maps and the elaboration is documented in the form of report.

2.4.4.7 Linking Attribute of Land Use Zoning and Present Land Use with Cadastral Parcel

The attribute of land use zoning and present land use were linked with the cadastral parcels so as to understand which parcel belong to which land use and land use zone classes as shown in the following diagram.

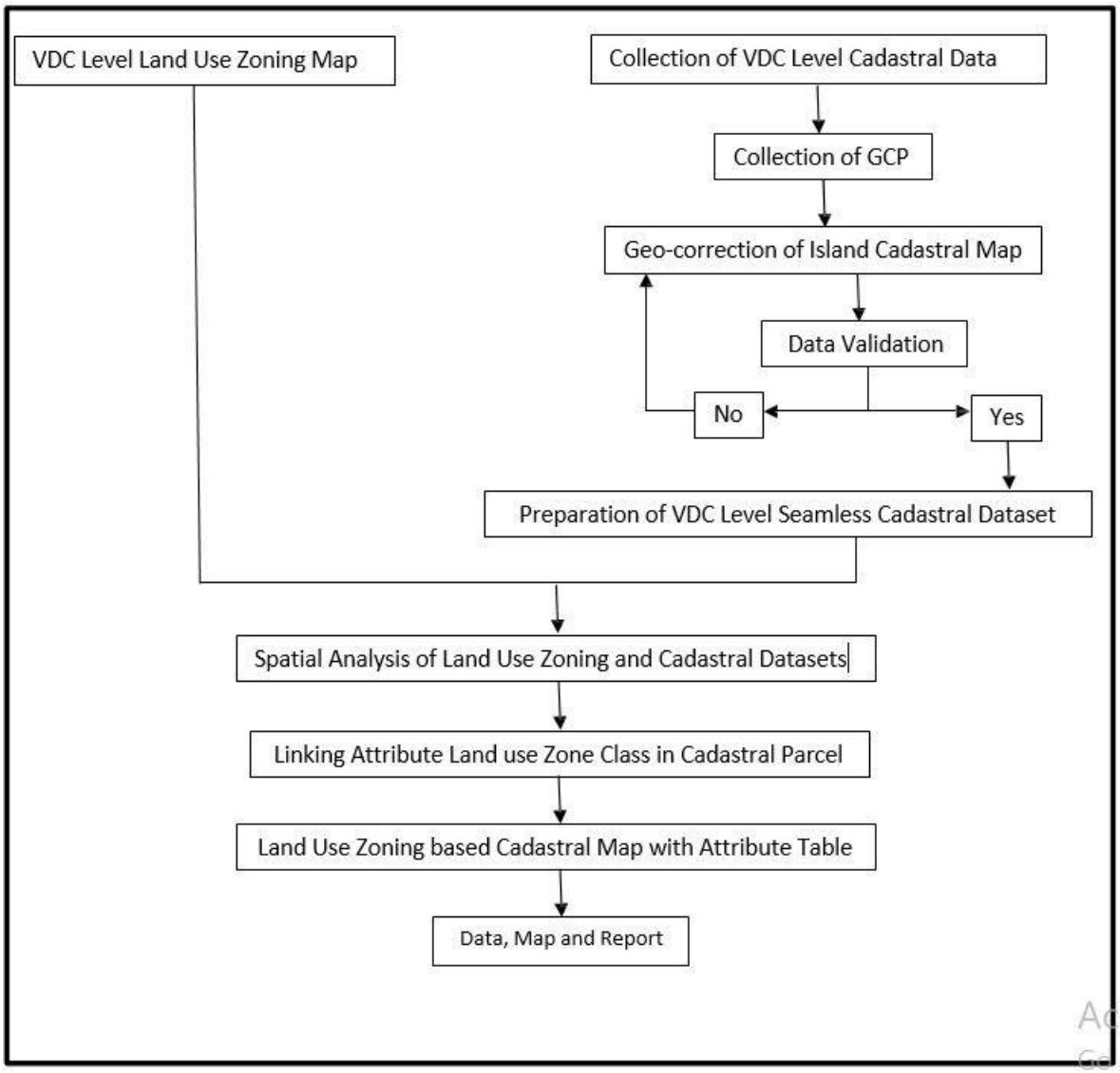


Figure 24: Schematic Diagram of Method Adopted For Cadastral Superimpose

2.5 Preparation of Municipal Profile

2.5.1 Key Input

The following key inputs were used to accomplish the given objective:

- Physiological and topographical data
- Environment, Climate and hydrological data
- Demographic data
- Land use and cadastral data

2.5.2 Objective

The primary goal of this study was to create a comprehensive profile of the municipalities, including information on physical, social, historical, and environmental aspects, as well as land

resources, agriculture, forests, livestock, and infrastructure and services. This information were used to develop a land use zoning plan for the municipalities. The profile included a database with relevant data and will be used to inform land use planning and decision-making.

2.5.3 Scope

To achieve the stated objective, the following activities were carried out

- Collected necessary and available data and information from secondary sources such as the Central Bureau of Statistics, Department of Hydrology and Meteorology, District Development Committee, and Municipal offices, etc.
- Conducted extensive fieldwork to collect data on physical aspects, soils, and other land characteristics, agriculture and food production, infrastructure, social and economic conditions, heritage, culture, and tourism, etc.
- Studied existing relevant maps, documents, and databases of the project area.
- • Evaluate the accuracy, reliability, and sources of data.
- Prepared relevant maps on different themes for the selected municipalities at A4 size to be included in the report as specified by the client.
- Created municipal profiles describing physical, economic, social, historical, and environmental aspects, as well as characteristics of land resources, agriculture, forests, livestock, and infrastructure and services for land use zoning.

2.5.4 Materials and Methods

i. Data/Information in MUNICIPAL Profile

The data that were included in the MUNICIPAL profile were used to inform land use zoning of the municipalities. The data were collected from secondary sources such as Municipal and District Development Committee offices, unpublished and published documents from district offices such as the district agriculture office, forest office, irrigation office, etc. Similarly, census data and other reports published by the Central Bureau of Statistics, and climatic data from the Department of Hydrology and Meteorology used in the MUNICIPAL profile. The data that covered in the MUNICIPAL profile is listed in Table.

Table 5: Information Covered in Municipal Profile

S. No.	Information
1	Naming and origin of the Rural municipality
2	Location
3	Settlements and administrative units
4	Physiography
5	Geology / geomorphology
6	Drainage / hydrology
7	Terrain
8	Climate
9	Forest and Biodiversity
10	Natural hazard and overall environment
11	Land system, soil, land capability and other land characters
12	Present land use and land use zoning
13	Cadastral data
14	Agriculture and food production
15	Vegetable farming / fruit production
16	Poultry farming / fishing etc.
17	Livestock
18	Access to infrastructure and services
19	Industry
20	Population characteristics
21	Heritage and Culture
22	Tourism
23	Hazard and Risk

ii. Preparation of MUNICIPAL profile including Maps, Charts and Graphs

Finally, a report prepared which consists of components shown as above with interpretation of their properties and characteristics. The report will further provide details with the help of tables, maps and charts wherever applicable.

2.5.5 Output

The final outputs of the project include:

- Field Completion Report: a document summarizing the fieldwork activities that were carried out as part of the project.
- MUNICIPAL Profile: a comprehensive report on the physical, social, historical, and environmental aspects of the municipalities, as well as information on land resources, agriculture, forests, livestock, and infrastructure and services.
- Various thematic maps for the selected municipalities: These maps will provide detailed information on physical aspect, agriculture and food production, infrastructure and development, social and economic condition, heritage, culture, tourism etc.
- A report that summarizes the methodology used, the data sources, and the results of the study, including the MUNICIPAL profile and the thematic maps.

2.5.6 Flow Chart

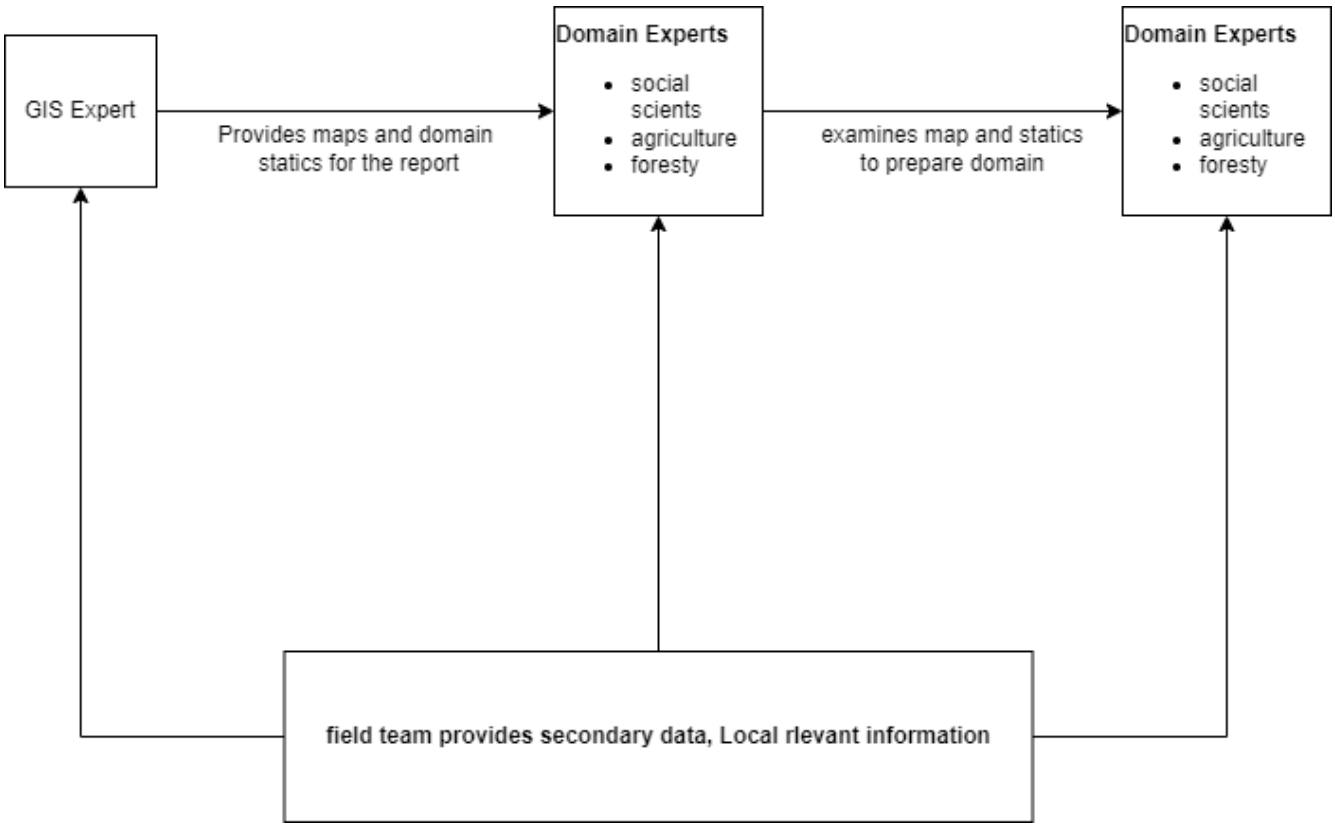


Figure 25: Flow Chart for Municipal Profile

2.6 Accuracy Assessment

Validation of classification results is an important process in the classification procedure. It allows users to evaluate the utility of a thematic map for their intended applications using accuracy assessment. Accuracy assessment is a feedback system for checking and evaluating the objectives and the results. It determines the correctness of the classified image. It is a measurement of the argument between a standard that is assumed to be correct and a classified image of unknown quality. If the image classification corresponds closely with the standard, it is said to be accurate (Bhatt, 2008). Classification is not complete until its accuracy is assessed (Lillesand et al., 2008). There are several methods of evaluating the accuracy assessment. In general, one method is compared the classified image to a reference image and a random set of points are generated for the comparison of the classification result with the true information classes in the reference image. A second method is used to perform accuracy assessment involves using a GPS and again a random set of points are generated over the classified image with ground truth has performed by going into the field at the location of each randomly generated point (Bhatt, 2008). These methods are used for sample schema and evaluation process is done with generating confusion matrix and its test statistics with kappa coefficients for the test statistics and kappa index of agreement (KIA)for each category of class.

In this study, validation of classification results were done for the quantification and evaluation of error using confusion matrix (error matrix) which compares the class-by- class based on the training samples with visual interpretation of original images and classification result classes at Level-1. The size of interpretation unit and number of polygons that belong to the unit do not influence the number of points. The total area covered by one legend unit is not taken into account for other legend unit. A total of 315 samples points in study area were taken for confusion matrix generation. The confusion matrix was generated based on the comparison between the classified image and the existing ground using GCPs collected from visual interpretation i.e. the matrix depicts the land cover classification categories versus the field observed land cover type. This matrix was an N x N matrix of “classified” and “observed” cells corresponding to N land cover class. Classification result is given as rows and reference (ground truth) is given as columns for each sample. The diagonal elements in this matrix indicate numbers of sample in which classification results has agreed with the reference data. Off-diagonal elements in each row present the sample that has been misclassified by the classifier at classification process (Bhatt, 2008). These error matrices were evaluated by computing the user

accuracy, producer accuracy and overall accuracy which was tested statistically with the KIA (Kappa statistics). The KIA was calculated with the following formula (Congalton 1991).

(3.3) $$K = \frac{N\sum_{i=1}^{r} X_{ii} - \sum_{i=1}^{r}(X_{i+} * X_{+i})}{N^2 - \sum_{i=1}^{r}(X_{i+} * X_{+i})}$$

Where:

r = is the number of rows in the matrix

X_{ii} = is the number of observations in rows i and column I (along the major diagonal)

X_{i+} = the marginal total of row i (right of the matrix)

X_{+I} = the marginal totals of column i (bottom of the matrix)N = the total number of observations.

The error matrix/ confusion matrix was generated from 315 sample point as the ground truth point for thematic accuracy assessment. The summary of error matrices of classified images is shown in Appendix-3.The overall accuracy represents the percentage of correctly classified pixels; it is achieved by dividing the number of correct observations by the number of actual observations. The overall accuracies with KIA (kappa statistics)were found 92.70% and 0.91 for the classified objects of the study area.

CHAPTER THREE: RESULTS AND DISCUSSION

3.1 Land Use report of National Land Use Project (NLUP)

In the past, Gharapjhong Rural Municipality exhibited a diverse range of land use classes, as outlined in Table 6. The data provided by the National Land Use Project (NLUP) in the year 2076 outlined the land use distribution in Gharapjhong Rural Municipality. Agricultural land covered an area of 598.99 hectares, accounting for 1.890% of the total land. Forests were extensive, occupying 8,224.87 hectares, which represented 25.957% of the municipality's land.

The 'Other' category dominated the land use, encompassing 18,787.82 hectares, or 59.292% of the total area. Residential areas were relatively small, covering 46.68 hectares, which was 0.147% of the total land. Riverine, lake, and marsh areas spanned 979.56 hectares, constituting 3.091% of the land.

Public use areas covered 3,039.34 hectares, making up 9.592% of the total land. Commercial land was quite limited, with only 8.06 hectares, or 0.025% of the total area. Cultural and archeological sites were minimal, covering just 1.03 hectares, or 0.003% of the land. Industrial land was the smallest category, with only 0.40 hectares, representing 0.001% of the total area.

In summary, the total area assessed by NLUP in 2076 was 31,686.76 hectares, with diverse land use allocations reflecting the municipality's land management priorities at that time.

Table 6: General Land Use Information (NLUP)

S.N	Description	Area (ha)	Percentage
1	Agricultural	598.99	1.890
2	Forest	8224.87	25.957
3	Other	18787.82	59.292
4	Residential	46.68	0.147
5	Riverine, Lake and Marsh Area	979.56	3.091
6	Public Use	3039.34	9.592
7	Commercial	8.06	0.025
8	Cultural and Archeological	1.03	0.003
9	Industrial	0.40	0.001
	Total	**31686.76**	100.00

Source: (National Land Use Project)

3.2 Present Land Use (PLU)

The present land use refers to the current allocation and utilization of land for various purposes. It describes how land is being used at a given point in time and encompasses a wide

range of activities, including residential, commercial, industrial, agricultural, recreational, institutional, and open space uses. Here are some common categories of present land use:

Residential: Land used for housing purposes, including single-family homes, multi-family buildings, apartments, and condominiums.

Commercial: Land utilized for commercial activities, such as offices, retail stores, shopping centers, hotels, and restaurants.

Industrial: Land dedicated to industrial activities, such as factories, warehouses, manufacturing plants, and distribution centers.

Agricultural: Land used for farming, crop cultivation, livestock grazing, and other agricultural practices.

Recreational: Land designated for recreational purposes, such as parks, playgrounds, sports fields, golf courses, and other leisure facilities.

Institutional: Land utilized for public and private institutions, including schools, hospitals, government buildings, religious facilities, and universities.

Open Space: Land preserved for conservation, environmental protection, and public access, including forests, wetlands, nature reserves, and greenbelts.

Transportation: Land occupied by transportation infrastructure, such as roads, highways, railways, airports, and seaports.

Mixed-Use: Land that combines multiple land uses within a single development or area, typically incorporating a mix of residential, commercial, and recreational activities.

It's important to note that the specific types and distribution of land use can vary significantly depending on the region, urban or rural setting, and local zoning regulations. Additionally, land use can change over time due to urbanization, economic development, shifts in population, and evolving societal needs. In Gharapjhong Rural Municipality we categorized the land use by following zones.

a. **Agricultural Zone**
b. **Residential Zone**
c. **Commercial Zone**
d. **Industrial Zone**
e. **Mines & Minerals Zone**
f. **Forest Zone**
g. **River, Stream Lakes Zone**
h. **Public Use Zone**
i. **Cultural & Archaeological Zone**

j. Other areas designated by the Government of Nepal as required.

The present land use pattern demonstrates that agriculture land has dominated the land use class in this area. The distribution of land use pattern is presented in Table 7.

Table 7: Preset Land Use (PLU)

PRESENT LAND USE 2081 (AREA IN HECTARE)						
LAND USE TYPES	**WARD NO**					**Total**
	1	**2**	**3**	**4**	**5**	
AGRICULTURAL	107.17	160.46	101.69	119.77	419.89	**908.98**
COMMERCIAL	0.15	9.77	0.21	31.11	17.60	**58.85**
CULTURAL AND ARCHEOLOGICAL	0.62	0.92	0.71	3.88	18.38	**24.50**
FOREST	1720.90	738.91	2041.91	1916.00	2550.55	**8968.26**
RIVERINE, LAKE AND MARSH AREA	111.63	58.07	189.66	271.58	291.20	**922.15**
INDUSTRIAL	0.05	0.94	0.24	3.12	10.18	**14.53**
MINE AND MINERALS	9.19	0.00	0.00	0.38	2.36	**11.93**
OTHER USE	2757.67	679.02	4348.86	4036.49	5899.01	**17721.06**
PUBLIC USE	228.03	17.16	514.47	50.37	2212.03	**3022.06**
RESIDENTIAL	4.26	7.12	6.04	7.94	9.08	**34.44**
TOTAL	**4939.68**	**1672.36**	**7203.79**	**6440.65**	**11430.28**	**31686.76**

The present land use in Gharapjhong Rural Municipality for 2081 spans a total area of 31,686.76 hectares, distributed across various categories. Forest land constitutes the largest portion, covering 8,968.26 hectares or 28.30% of the total area, emphasizing the municipality's significant forest resources. The 'Other Use' category follows, occupying 17,721.06 hectares, which is 55.93% of the total area, indicating a diverse range of unspecified uses.

Agricultural land covers 908.98 hectares, making up 2.87% of the total area, reflecting the role of agriculture in the local economy. Riverine, lake, and marsh areas span 922.15 hectares, accounting for 2.91%, highlighting the importance of water bodies and wetland ecosystems in the region.

Public use areas cover 3,022.06 hectares or 9.54% of the total, indicating substantial land dedicated to community amenities and infrastructure. Commercial areas are relatively small, comprising 58.85 hectares or 0.19% of the total, while residential zones are even smaller, covering 34.44 hectares or 0.11%, reflecting limited urban development.

Cultural and archeological sites span 24.50 hectares, making up 0.08% of the total area, underscoring efforts to preserve cultural heritage. Industrial land is minimal, covering 14.53

hectares or 0.05%, and mine and minerals areas are the smallest category, with just 11.93 hectares or 0.04%, indicating limited industrial and mining activities in the municipality. Overall, this percentage of present land use area covered by 10 land use types are presented in Pie chart below in the Figure 26.

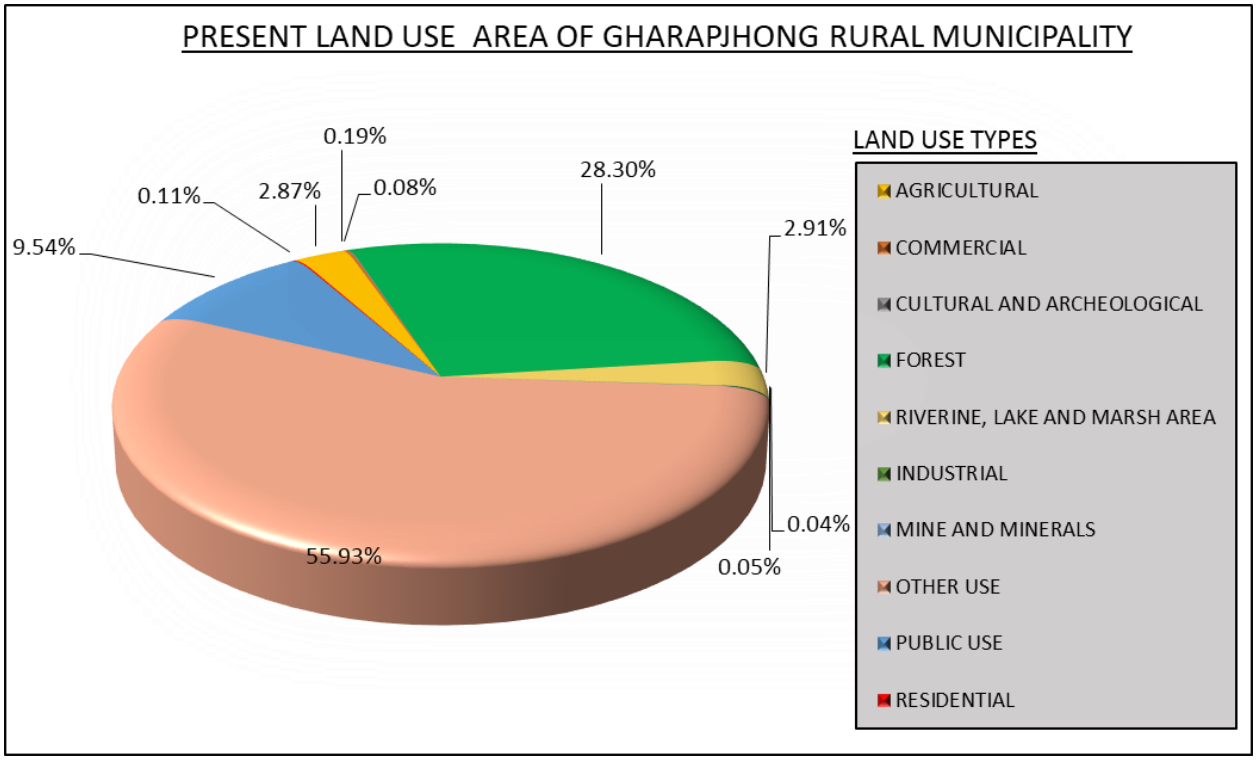


Figure 26: Present Land Use Area 2081 of Gharapjhong Rural Municipality

The land is divided into 10 classes based on usage, and the area covered in hectares are provided for each ward.

Ward 1: In Ward 1, forest land covers a substantial area of 1,720.90 hectares, with agricultural land also significant at 107.17 hectares. Riverine, lake, and marsh areas span 111.63 hectares, while other use areas are extensive at 2,757.67 hectares. Residential areas cover a small area of 4.26 hectares, and there are minimal area in commercial, cultural and archeological, industrial, and mine and minerals.

Ward 2: Ward 2 exhibits a diverse land use pattern, with notable areas in forest (738.91 hectares), agricultural (160.46 hectares), and other use categories (679.02 hectares). Riverine, lake, and marsh areas occupy 58.07 hectares, while public use areas are substantial at 17.16 hectares. Commercial, residential, industrial, cultural and archeological, and mine and minerals area are relatively limited.

Ward 3: In Ward 3, forest land is significant at 2,041.91 hectares, along with notable allocations

in agricultural (101.69 hectares) and other use categories (4,348.86 hectares). Riverine, lake, and marsh areas cover 189.66 hectares, while public use areas are substantial at 514.47 hectares. Commercial, residential, industrial, cultural and archeological, and mine and minerals lands are relatively minor.

Ward 4: Ward 4 displays a similar land use distribution to Ward 3, with significant forested areas (1,916.00 hectares) and allocations in agricultural (119.77 hectares) and other use categories (4,036.49 hectares). Riverine, lake, and marsh areas are present but comparatively smaller at 271.58 hectares, while public use areas are notable at 50.37 hectares.

Ward 5: Ward 5 emerges as significant across various land use categories, boasting the largest areas in forest (2,550.55 hectares), agricultural (419.89 hectares), riverine, lake, and marsh areas (291.20 hectares), and public use (2,212.03 hectares). This ward exhibits a mix of residential (9.08 hectares), commercial (17.60 hectares), industrial (10.18 hectares), cultural and archeological (18.38 hectares), and mine and minerals (2.36 hectares) zones.

This comprehensive overview highlights the varied utilization of the total land area in the Municipality. Percentage of Land area covered by each land use class in each ward is presented in the pie-charts below in the Figure 27,28,29,30 &31.

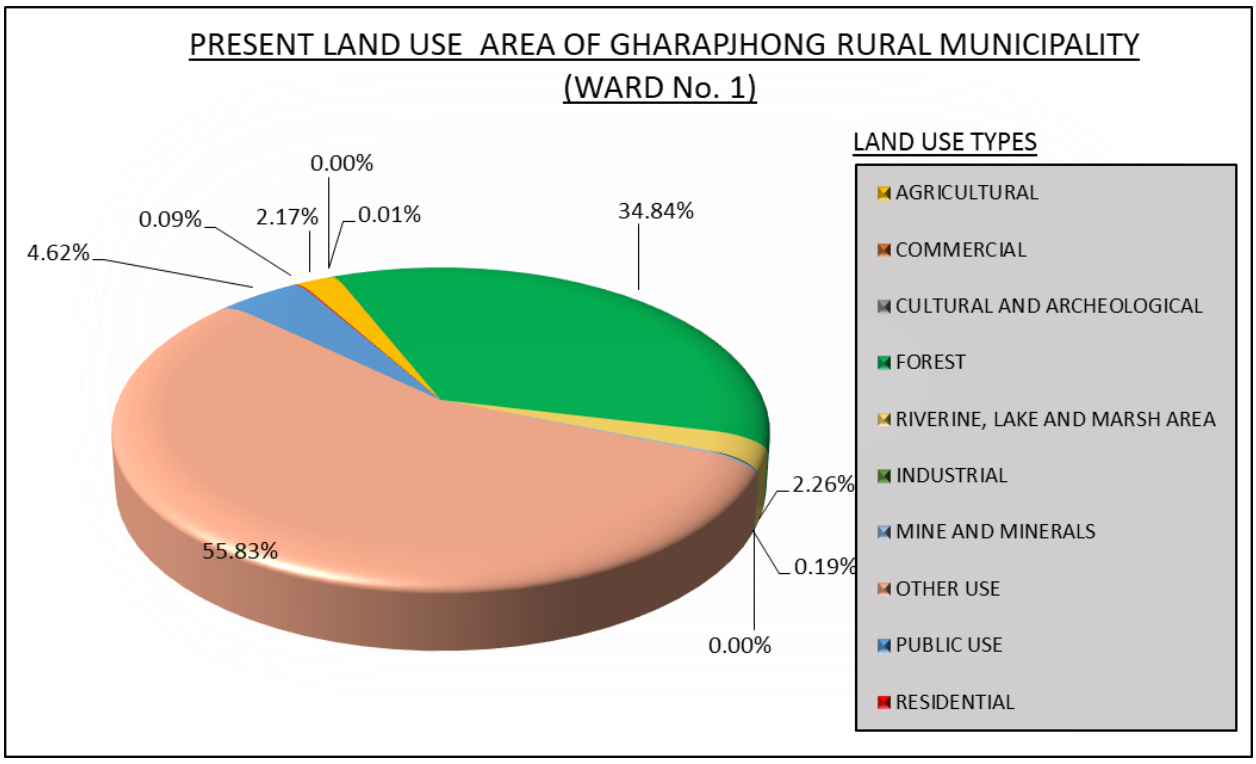


Figure 27: Present Land Use Area 2081 of Gharapjhong Rural Municipality (Ward No.1)

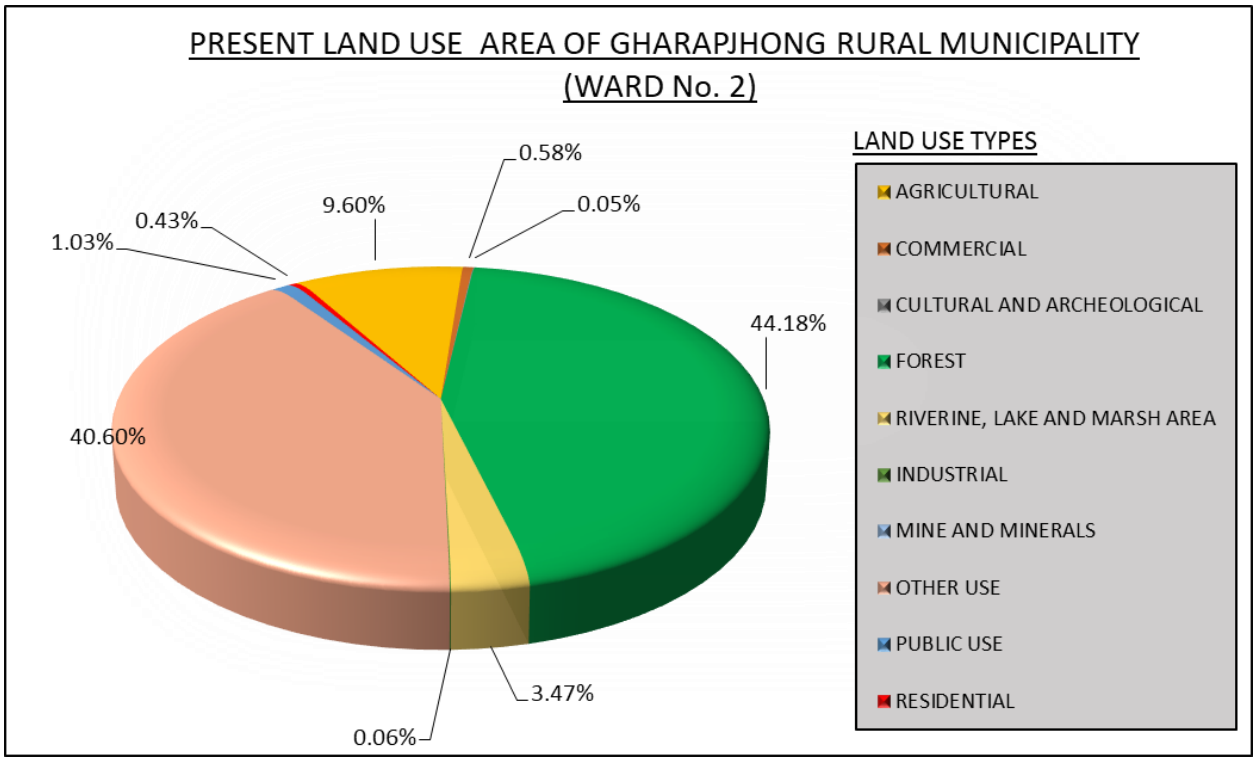


Figure 28: Present Land Use Area 2081 of Gharapjhong Rural Municipality (Ward No.2)

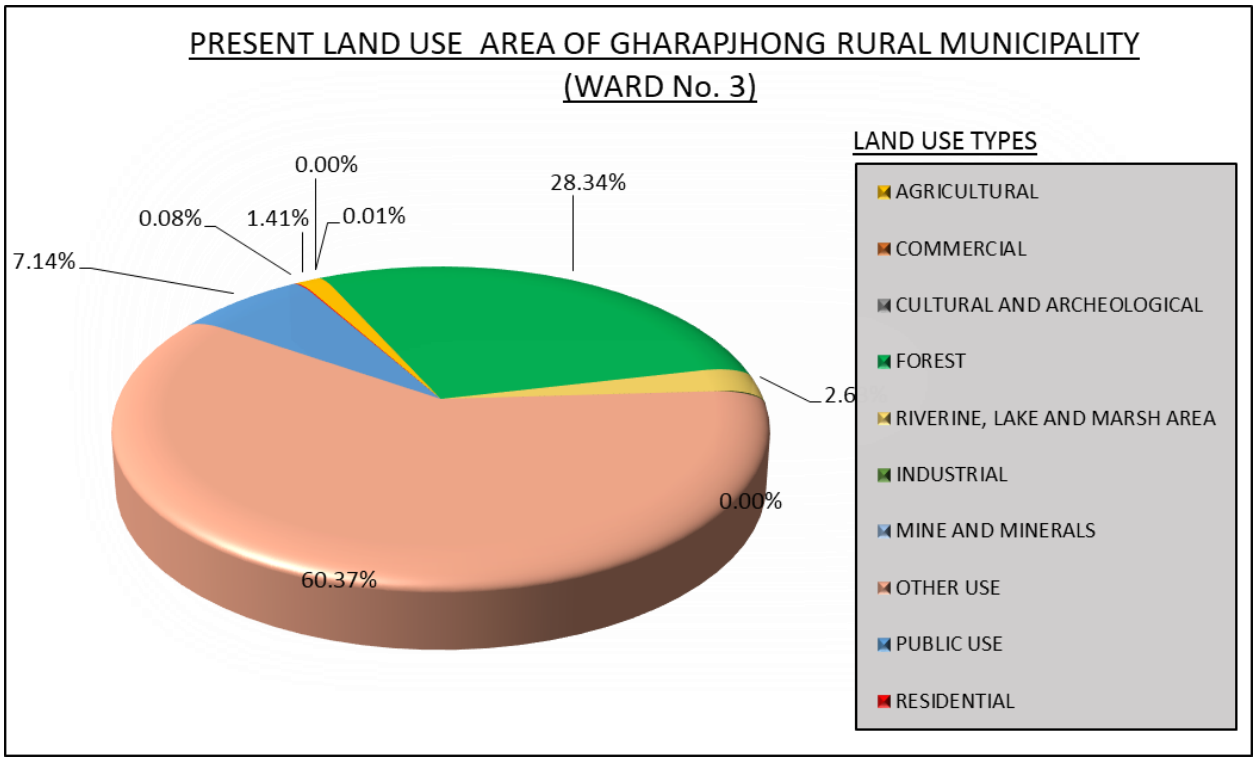


Figure 29: Present Land Use Area 2081 of Gharapjhong Rural Municipality (Ward No.3)

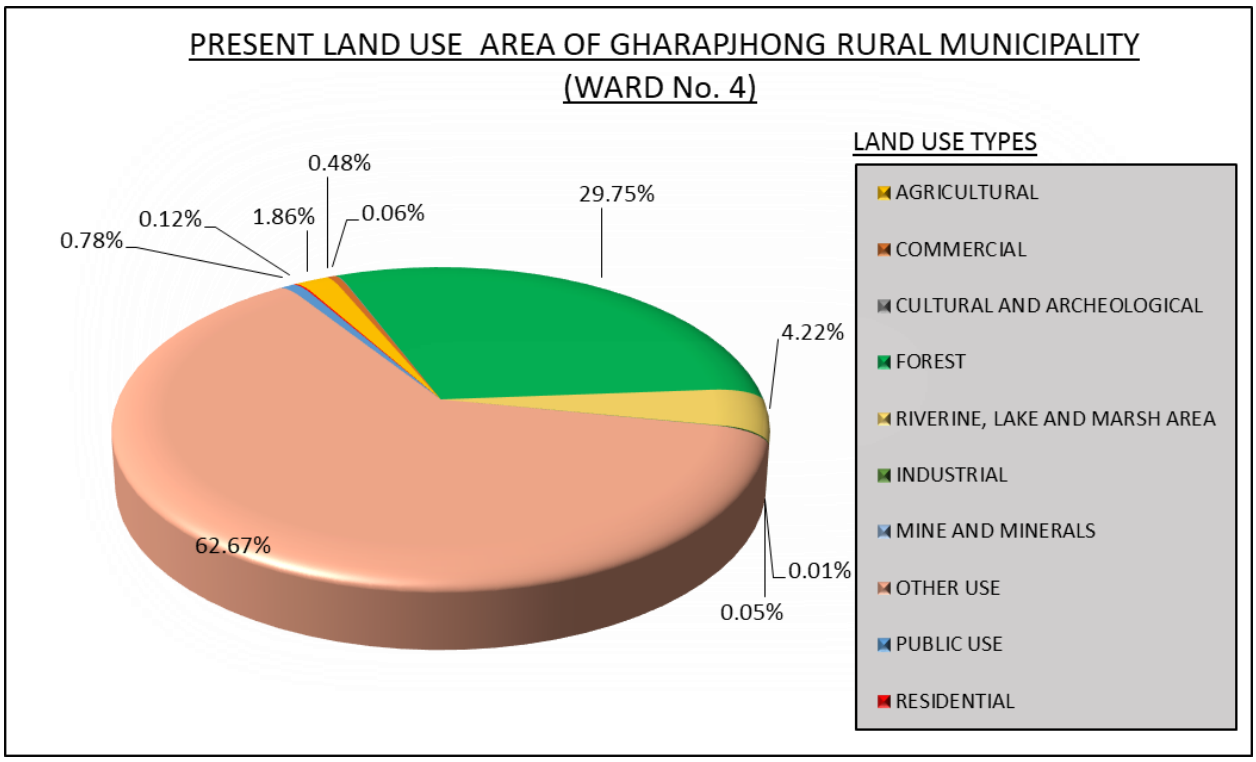


Figure 30: Present Land Use Area 2081 of Gharapjhong Rural Municipality (Ward No.4)

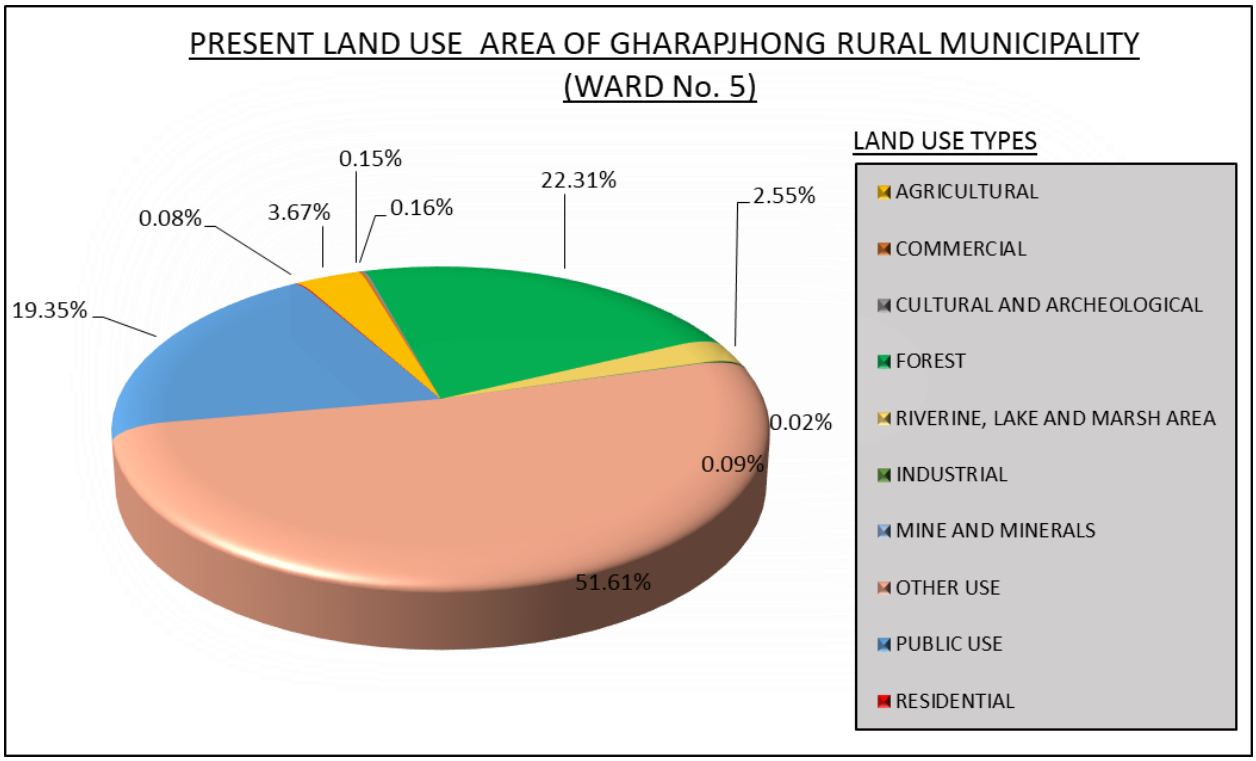
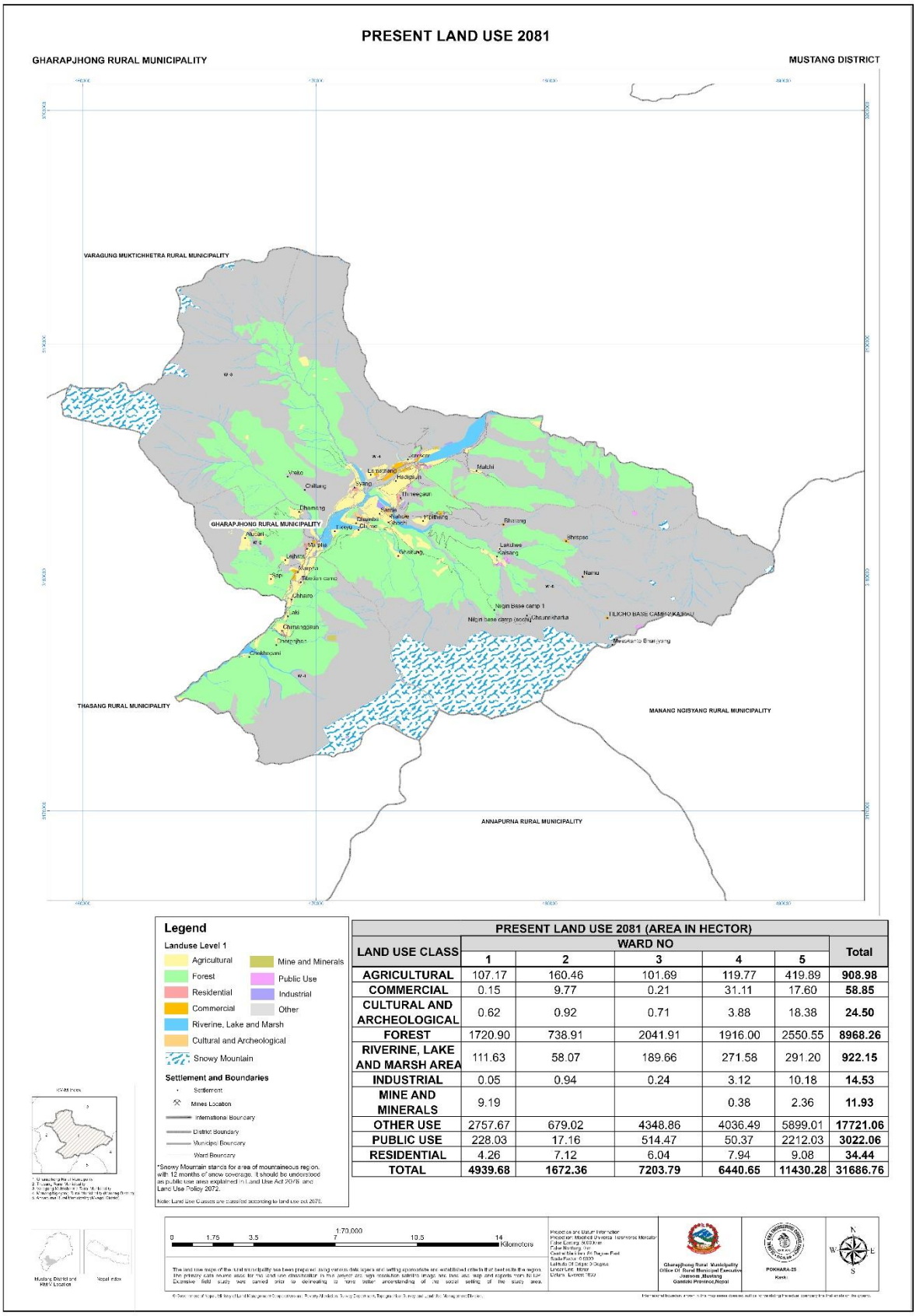


Figure 31: Present Land Use Area 2081 of Gharapjhong Rural Municipality (Ward No.5)



PRESENT LAND USE 2081 (AREA IN HECTOR)						
LAND USE CLASS	WARD NO					Total
	1	2	3	4	5	
AGRICULTURAL	107.17	160.46	101.69	119.77	419.89	**908.98**
COMMERCIAL	0.15	9.77	0.21	31.11	17.60	**58.85**
CULTURAL AND ARCHEOLOGICAL	0.62	0.92	0.71	3.88	18.38	**24.50**
FOREST	1720.90	738.91	2041.91	1916.00	2550.55	**8968.26**
RIVERINE, LAKE AND MARSH AREA	111.63	58.07	189.66	271.58	291.20	**922.15**
INDUSTRIAL	0.05	0.94	0.24	3.12	10.18	**14.53**
MINE AND MINERALS	9.19			0.38	2.36	**11.93**
OTHER USE	2757.67	679.02	4348.86	4036.49	5899.01	**17721.06**
PUBLIC USE	228.03	17.16	514.47	50.37	2212.03	**3022.06**
RESIDENTIAL	4.26	7.12	6.04	7.94	9.08	**34.44**
TOTAL	**4939.68**	**1672.36**	**7203.79**	**6440.65**	**11430.28**	**31686.76**

Figure 32: Present Land Use Map 2081

3.3 Land Use Zones

After public auditing and demarcation of land use zoning by municipal officials, experts and specialists land use zoning guidelines was prepared in each ward which is approved by municipal land use council "घरपझोङ भु-उपयोग परिषद".The land is divided into 10 Zones based on usage, and the area covered in hectares are provided for each ward. The land use pattern distribution of land use zoning 2081 is presented on the following Table 8:

Table 8: Land Use Zones 2081

LAND USE ZONE 2081 (AREA IN HECTARE)						
LAND USE ZONE	**WARD 1**	**WARD 2**	**WARD 3**	**WARD 4**	**WARD 5**	**Grand Total**
AGRICULTURAL ZONE	79.82	137.69	68.14	104.26	356.65	**746.57**
COMMERCIAL ZONE	5.28	36.81	15.04	69.31	67.36	**193.79**
CULTURAL AND ARCHEOLOGICAL ZONE	0.70	1.28	0.72	5.71	18.32	**26.73**
FOREST ZONE	1716.00	736.25	2410.82	1923.48	2544.27	**9330.83**
RIVERINE, LAKE AND MARSH AREA	110.86	57.89	188.82	272.39	290.92	**920.87**
INDUSTRIAL ZONE	1.16	0.92	0.38	3.11	10.18	**15.74**
MINE AND MINERALS ZONE	9.19	0.00	0.00	0.38	2.36	**11.93**
OTHER ZONE	2757.67	677.86	483.38	3989.53	5894.10	**13802.54**
PUBLIC USE ZONE	232.23	20.18	4019.23	66.88	2224.15	**6562.66**
RESIDENTIAL ZONE	26.78	3.48	17.25	5.61	21.98	**75.09**
TOTAL AREA	**4939.68**	**1672.36**	**7203.79**	**6440.65**	**11430.28**	**31686.76**

Agricultural Zone: The Agricultural Zone in Gharapjhong Rural Municipality covers 746.57 hectares, which constitutes 2.36% of the total land area. This zone is designated for agricultural activities, supporting the local economy through farming and related agricultural practices. It ensures that sufficient land is set aside for food production and the sustenance of the rural community's agrarian lifestyle.

Commercial Zone: The Commercial Zone spans 193.79 hectares, making up 0.61% of the total area. This zone is allocated for commercial activities, providing space for businesses, shops, offices, and other commercial enterprises. It aims to foster economic growth by facilitating trade, commerce, and services that meet the needs of the municipality's residents and visitors.

Cultural and Archeological Zone: Covering 26.73 hectares or 0.08% of the total area, the

Cultural and Archeological Zone is dedicated to the protection and preservation of sites with cultural and historical significance. This zone ensures that valuable cultural heritage and archeological artifacts are safeguarded for future generations, promoting cultural awareness and tourism.

Forest Zone: The Forest Zone is the largest land use zone, encompassing 9,330.83 hectares, which is 29.45% of the total area. This extensive allocation highlights the municipality's commitment to forest conservation, sustainable forestry practices, and the protection of biodiversity. It plays a critical role in maintaining ecological balance and supporting environmental sustainability.

Riverine, Lake and Marsh Area Zone: This zone occupies 920.87 hectares, accounting for 2.91% of the total area. It is designated for the preservation and management of aquatic and wetland ecosystems, including rivers, lakes, and marshes. This zone is crucial for conserving water resources, protecting wildlife habitats, and preventing flooding.

Industrial Zone: The Industrial Zone covers 15.74 hectares, which is 0.05% of the total area. This zone is intended for industrial activities, including manufacturing and production. The limited area allocated for industrial use reflects a controlled approach to industrial development, ensuring minimal environmental impact while supporting local economic activities.

Mine and Minerals Zone: Allocated 11.93 hectares or 0.04% of the total area, the Mine and Minerals Zone supports mining activities in a regulated manner. This zone ensures that mineral resources are extracted sustainably, with consideration for environmental protection and community well-being.

Other Use Zone: The Other Use Zone is the most extensive, covering 13,802.54 hectares or 43.56% of the total area. This zone includes a variety of unspecified land uses, likely encompassing mixed uses, natural areas, and other functional spaces that do not fall into the specific categories outlined. It provides flexibility for diverse land use needs and future development.

Public Use Zone: The Public Use Zone spans 6.562.66 hectares, making up 20.71% of the total area. This zone is designated for public amenities and infrastructure, such as schools, hospitals, parks, and government buildings. It ensures that the municipality has adequate facilities to meet the needs of its residents and enhance the quality of life.

Residential Zone: Covering 75.09 hectares or 0.24% of the total area, the Residential Zone is allocated for housing and residential communities. This zone supports the population's living

needs by providing designated areas for homes, contributing to the municipality's overall development and housing strategy.

The largest area is allocated to the 'Other Use Zone' with 13,802.54 hectares (43.56%), while the smallest allocation is for the 'Mine and Minerals Zone' with just 11.93 hectares (0.04%), indicating a focus on flexibility in land use and minimal emphasis on mining activities. Presented in the Figure 33.

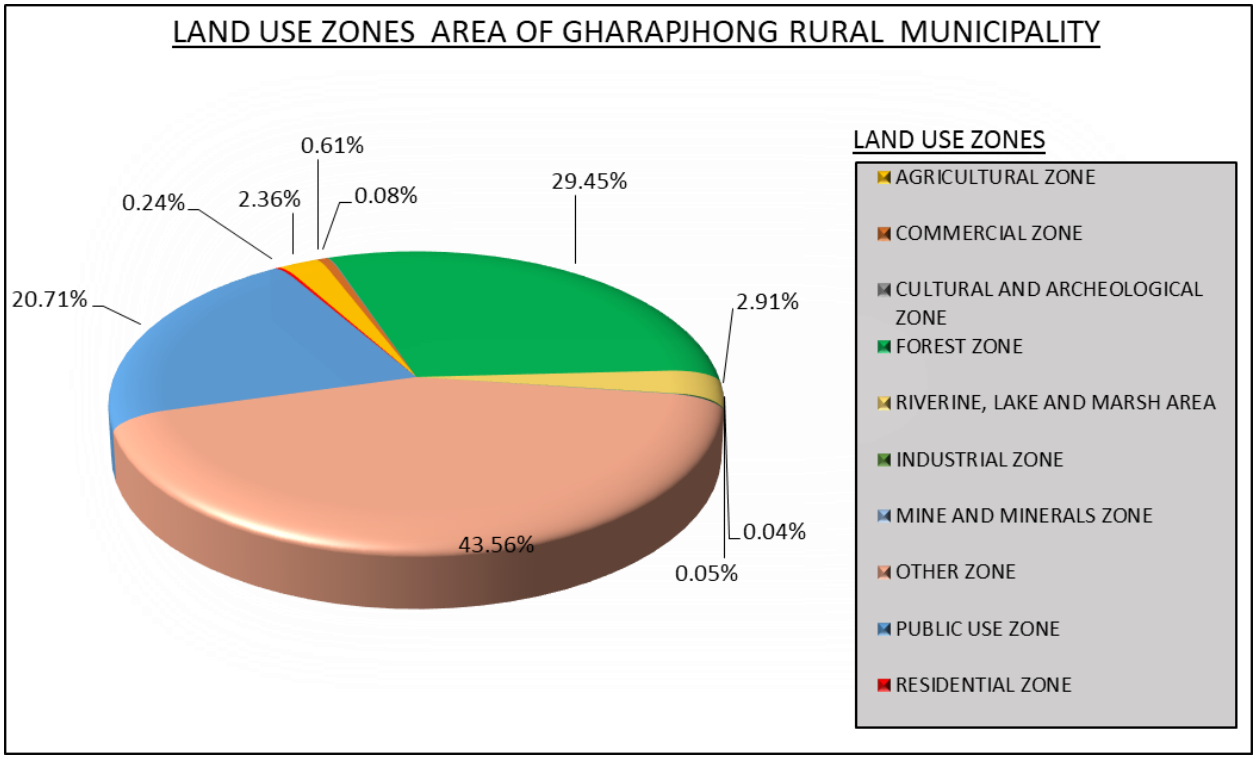


Figure 33: Land Use Zones Area of Gharapjhong Rural Municipality

Ward 1 predominantly features forested areas, with 1716.00 hectares designated as the Forest Zone, highlighting its extensive natural coverage. Agricultural activities are also notable, covering 79.82 hectares. Commercial zones are limited to 5.28 hectares, while cultural and archaeological significance is confined to 0.70 hectares. The ward includes 110.86 hectares of riverine, lake, and marsh areas, indicating a substantial presence of water bodies. Industrial activities are minimal, with only 1.16 hectares, and mining activities occupy 9.19 hectares. A large portion of land, 2757.67 hectares, falls under the 'Other Zone,' likely encompassing barren or unclassified land. Public amenities and infrastructure cover 232.23 hectares, and residential zones are relatively small, at 26.78 hectares.

Ward 2 shows a mix of land use, with 137.69 hectares dedicated to agriculture, supporting local farming. The commercial zone, at 36.81 hectares, indicates moderate business activities. Cultural and archaeological areas are minor, covering 1.28 hectares. Forest zones occupy 736.25 hectares,

suggesting significant natural landscapes. Riverine, lake, and marsh areas span 57.89 hectares, and industrial activities are very limited, with just 0.92 hectares. There are no mining zones in this ward. The 'Other Zone' accounts for 677.86 hectares, and public use areas are small, at 20.18 hectares. Residential zones cover only 3.48 hectares.

Ward 3 is characterized by extensive public use zones, covering 4019.23 hectares, likely indicating government or community facilities. Forest areas are substantial, with 2410.82 hectares. Agricultural zones span 68.14 hectares, while commercial activities occupy 15.04 hectares. Cultural and archaeological significance is limited to 0.72 hectares. Riverine, lake, and marsh areas cover 188.82 hectares. Industrial zones are minimal at 0.38 hectares, with no mining activities recorded. The 'Other Zone' includes 483.38 hectares, and residential zones cover 17.25 hectares.

Ward 4 has a diverse land use pattern with 3989.53 hectares in the 'Other Zone,' indicating large areas possibly used for multiple purposes or undeveloped land. Forest zones cover 1923.48 hectares, while agricultural activities are spread over 104.26 hectares. Commercial zones are relatively large, at 69.31 hectares. Cultural and archaeological zones cover 5.71 hectares. Riverine, lake, and marsh areas are significant, spanning 272.39 hectares. Industrial zones occupy 3.11 hectares, with minimal mining activities at 0.38 hectares. Public use zones cover 66.88 hectares, and residential areas are small, at 5.61 hectares.

Ward 5 is the largest in terms of total area, with substantial land use in various categories. The 'Other Zone' dominates with 5894.10 hectares. Forest areas are extensive, covering 2544.27 hectares. Agricultural zones are prominent, with 356.65 hectares. Commercial activities span 67.36 hectares, and cultural and archaeological zones cover 18.32 hectares. Riverine, lake, and marsh areas are significant, at 290.92 hectares. Industrial activities cover 10.18 hectares, and mining zones occupy 2.36 hectares. Public use zones are extensive, with 2224.15 hectares, while residential areas cover 21.98 hectares.

The highest allocation overall is in the Other Use Zone in Ward 5 with 5,894.10 hectares, while the smallest is the Industrial Zone in Ward 1 with 0.06 hectares. Percentage of Land area covered by each land use zones in each ward is presented in the pie-charts below in the Figure 34,35,36,37,38 &39.

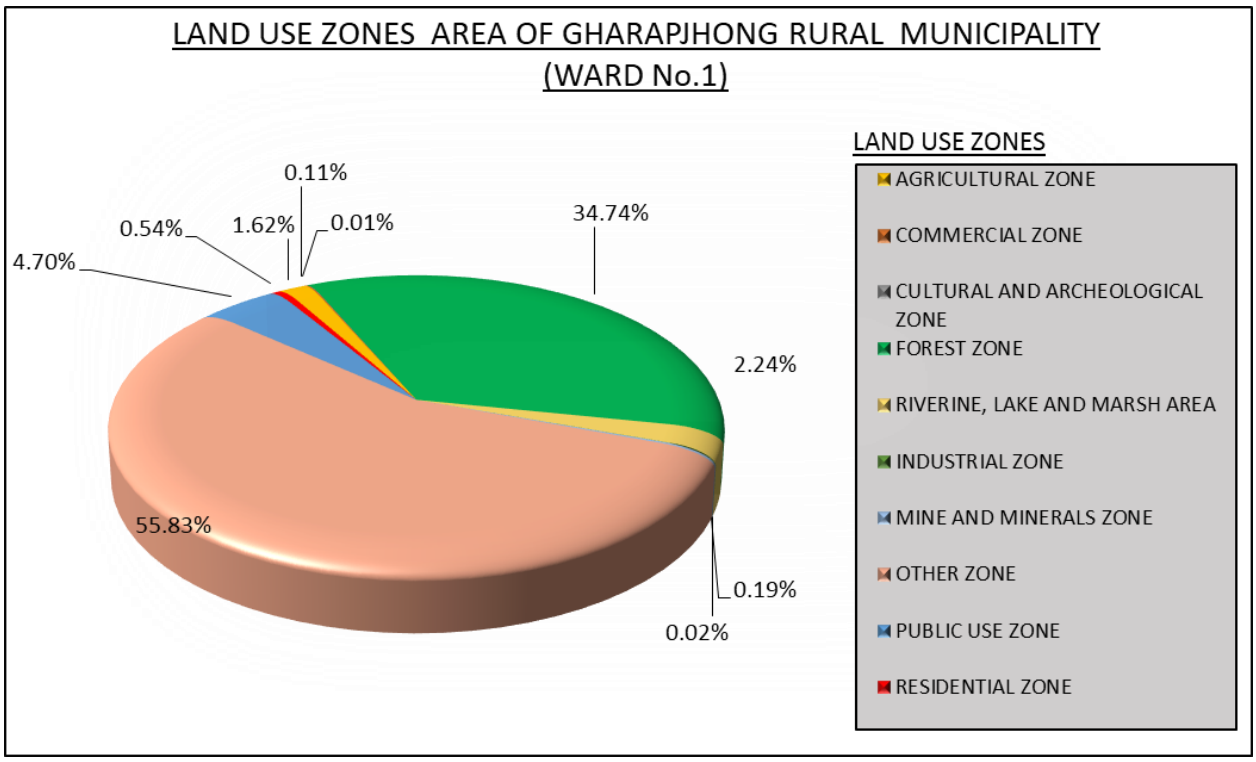


Figure 34: Land Use Zones Area of Gharapjhong Rural Municipality (Ward No. 1)

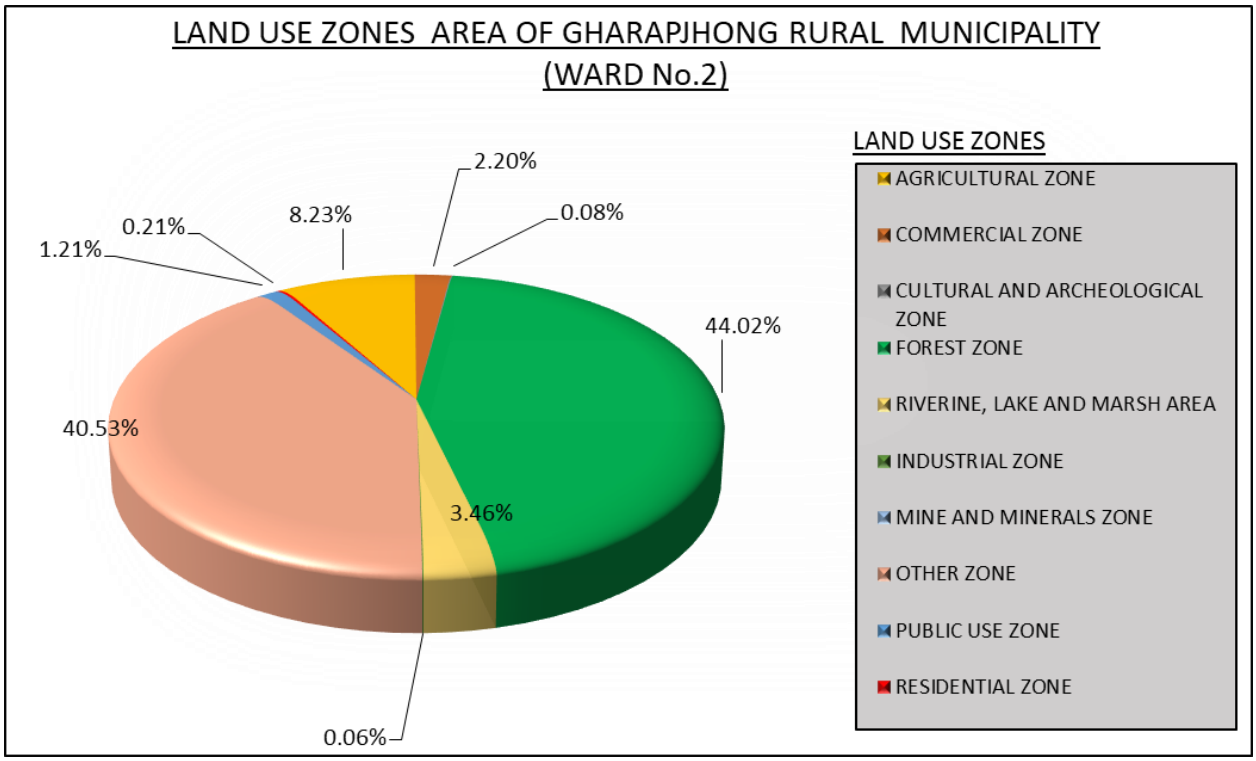


Figure 35: Land Use Zones Area of Gharapjhong Rural Municipality (Ward No. 2)

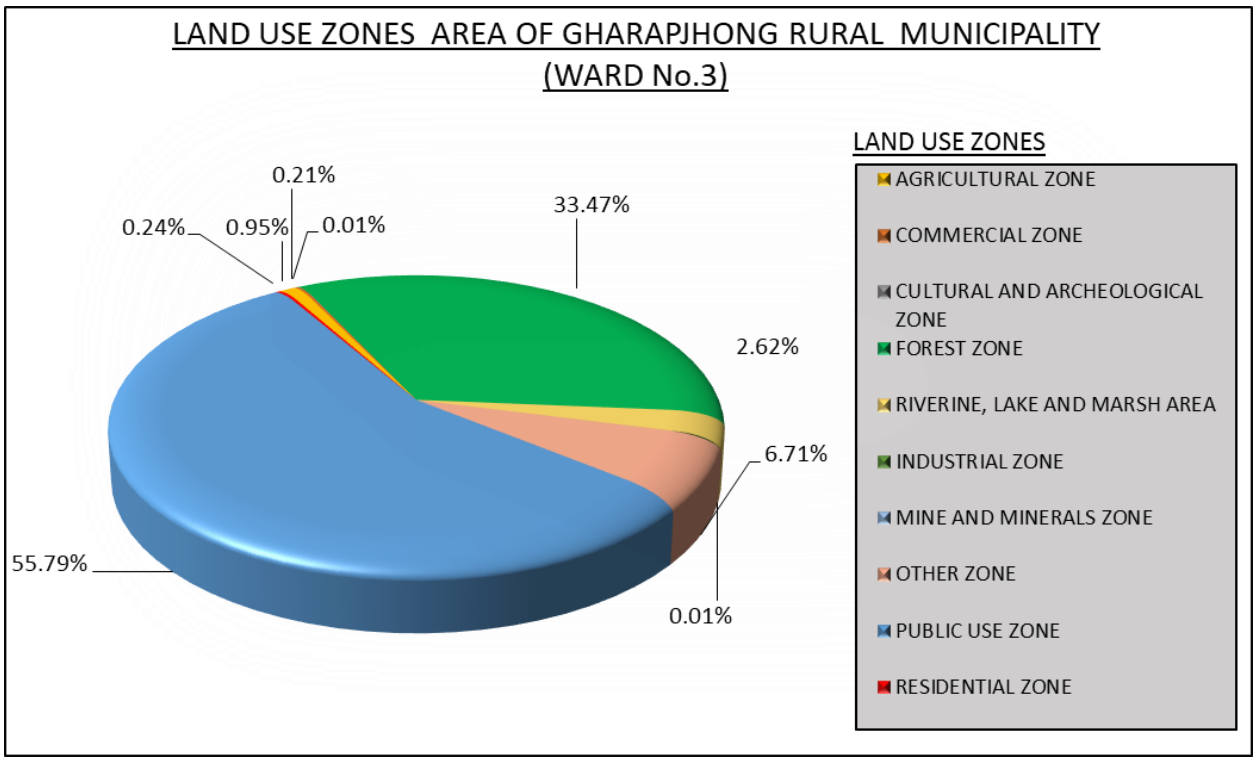


Figure 36: Land Use Zones Area of Gharapjhong Rural Municipality (Ward No. 3)

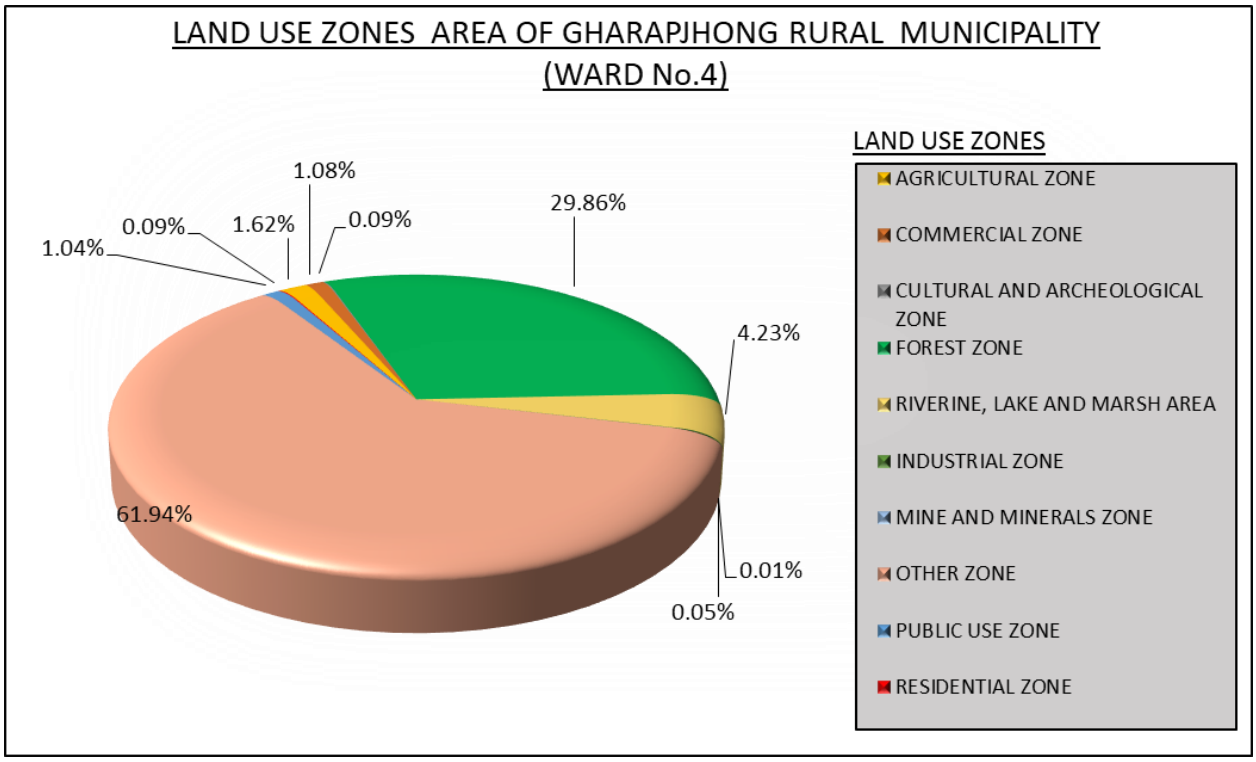


Figure 37: Land Use Zones Area of Gharapjhong Rural Municipality (Ward No. 4)

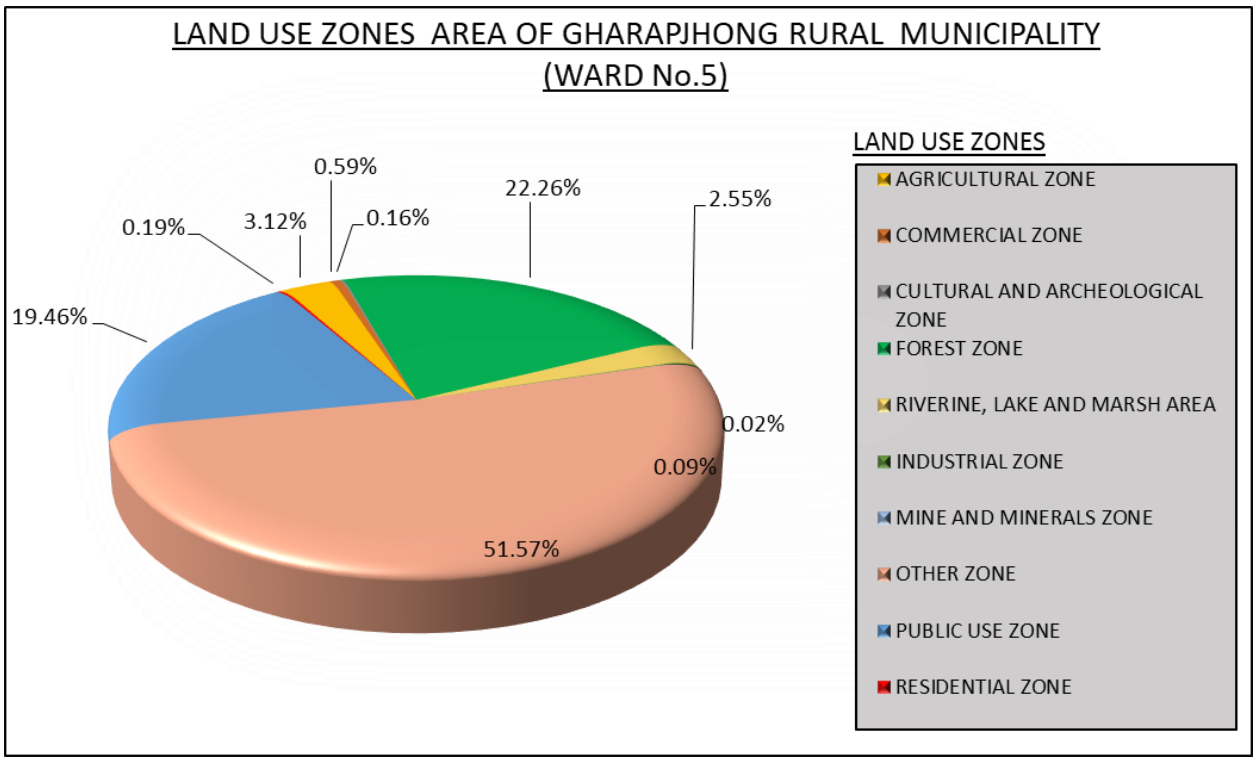
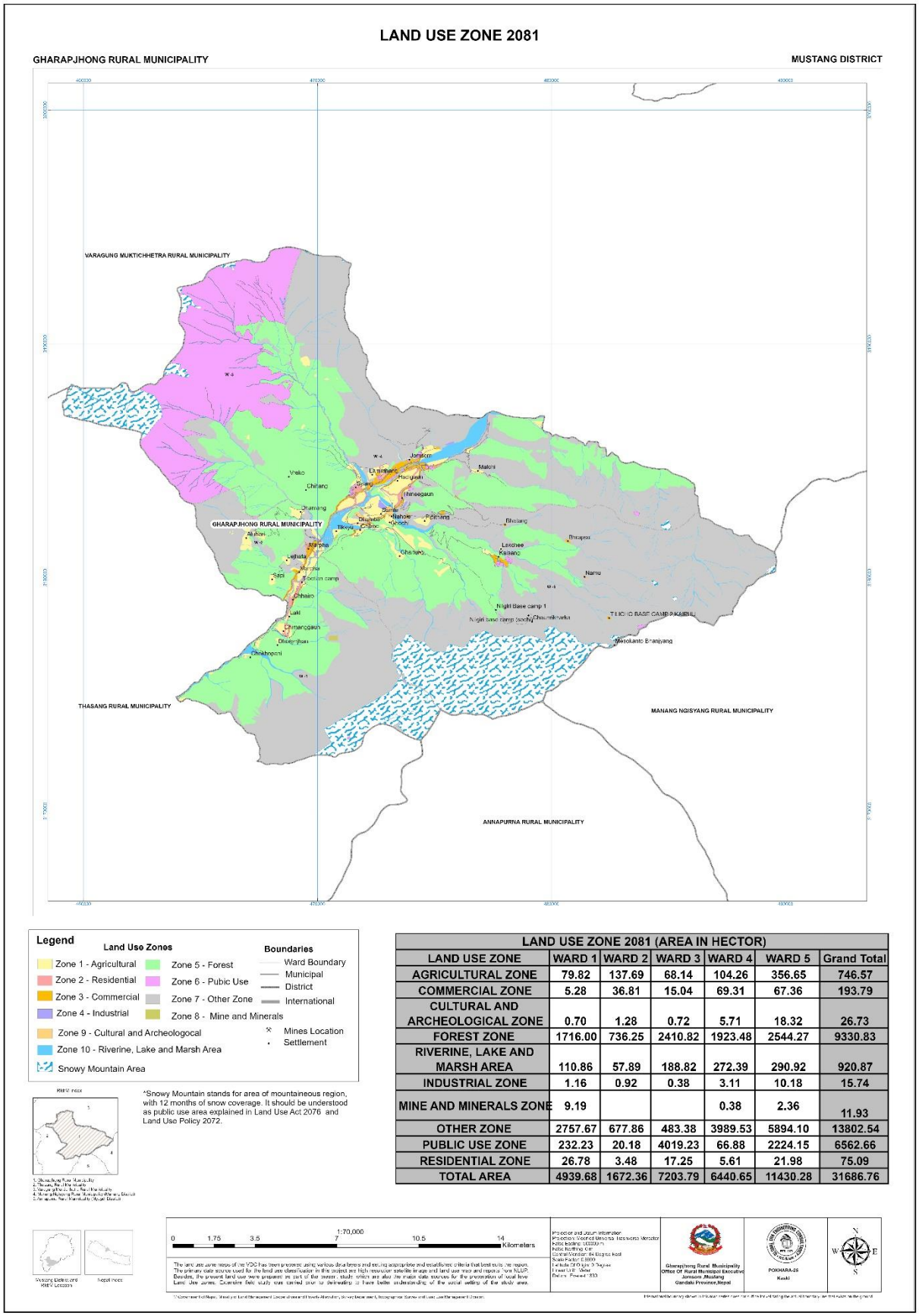


Figure 38: Land Use Zones Area of Gharapjhong Rural Municipality (Ward No. 5)



LAND USE ZONE 2081 (AREA IN HECTOR)						
LAND USE ZONE	WARD 1	WARD 2	WARD 3	WARD 4	WARD 5	Grand Total
AGRICULTURAL ZONE	79.82	137.69	68.14	104.26	356.65	746.57
COMMERCIAL ZONE	5.28	36.81	15.04	69.31	67.36	193.79
CULTURAL AND ARCHEOLOGICAL ZONE	0.70	1.28	0.72	5.71	18.32	26.73
FOREST ZONE	1716.00	736.25	2410.82	1923.48	2544.27	9330.83
RIVERINE, LAKE AND MARSH AREA	110.86	57.89	188.82	272.39	290.92	920.87
INDUSTRIAL ZONE	1.16	0.92	0.38	3.11	10.18	15.74
MINE AND MINERALS ZONE	9.19			0.38	2.36	11.93
OTHER ZONE	2757.67	677.86	483.38	3989.53	5894.10	13802.54
PUBLIC USE ZONE	232.23	20.18	4019.23	66.88	2224.15	6562.66
RESIDENTIAL ZONE	26.78	3.48	17.25	5.61	21.98	75.09
TOTAL AREA	4939.68	1672.36	7203.79	6440.65	11430.28	31686.76

Figure 39: Land Use Zone Map 2081

3.4 Comparison between Land Use by NLUP and Present Land Use 2081

Land use change in a rural municipality refers to the alteration or transformation of the purpose or function of land within that city. It typically involves the conversion of land from one use to another, such as agricultural land being converted into residential, commercial, or industrial areas. Land use change can have significant implications for urban planning, infrastructure development, environmental sustainability, and the overall quality of life in a sub-metropolitan city. Comparison between land use from NLUP and present land use 2081 and is presented in Table 9.

Between 2076 as outlined by the NLUP and 2081 in the present land use data in the Gharapjhong Rural Municipality, significant shifts in land allocation are evident. Agricultural land expanded from 598.99 to 908.98 hectares, while commercial areas surged from 8.06 to 58.85 hectares. Cultural and archeological sites saw a remarkable increase from 1.03 to 24.50 hectares. Forest cover grew from 8224.87 to 8968.26 hectares, although riverine, lake, and marsh areas experienced a slight reduction from 979.56 to 922.15 hectares. Industrial zones emerged, encompassing 14.53 hectares by 2081, alongside the sudden appearance of mine and mineral areas at 11.93 hectares. Other land uses decreased notably from 18787.82 to 17721.06 hectares. Public use areas experienced a marginal decline from 3039.34 to 3022.06 hectares, while residential areas shrank from 46.68 to 34.44 hectares. These shifts indicate dynamic changes in land utilization over the specified period as shown in the Figure40.

Table 9: Comparison Between Land Use by NLUP and Present Land Use 2080

Land Use Types	Land Use From NLUP		Present Land Use 2081		Change in Area(hectare)	Change in Area(Percent)
	Area (hectare)	Percent	Area (hectare)	Percent		
Agricultural	598.99	1.890%	908.98	2.87%	309.99	0.98%
Commercial	8.06	0.025%	58.85	0.19%	50.79	0.16%
Cultural and Archeological	1.03	0.003%	24.50	0.08%	23.47	0.07%
Forest	8224.87	25.957%	8968.26	28.30%	743.39	2.35%
Riverine, Lake and Marsh Area	979.56	3.091%	922.15	2.91%	-57.41	-0.18%
Industrial	0.4	0.001%	14.53	0.05%	14.13	0.04%
Mine and Minerals	0	0.000%	11.93	0.04%	11.93	0.04%
Other Use	18787.82	59.292%	17721.06	55.93%	-1066.76	-3.37%
Public Use	3039.34	9.592%	3022.06	9.54%	-17.28	-0.05%

Residential	46.68	0.147%	34.44	0.11%	-12.24	-0.04%
Total	31686.76	100.00%	31686.76	100.00%		

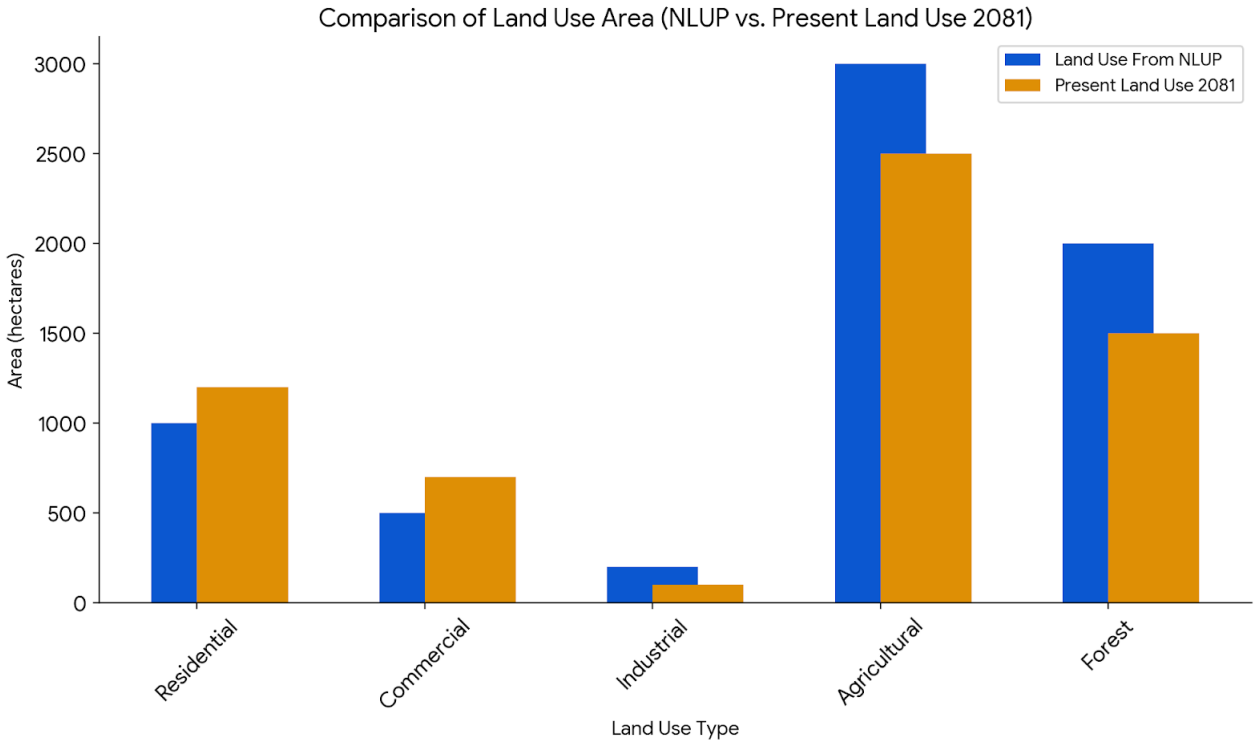


Figure 40: Comparison Chart of NLUP 2076 and PLU 2081

3.5 Comparison between Present Land Use 2081 and Land Use Zone 2081

Agricultural Land

In the Gharapjhong Rural Municipality, the present agricultural land use covers 908.98 hectares, constituting 2.87% of the total area. The land use zoning for 2081 designates 746.57 hectares for agriculture, which is 2.36% of the total area. This zoning indicates a planned reduction of 0.51% in agricultural land use, suggesting a strategic shift towards other land use types in the future.

Commercial Land

Commercial land currently occupies 58.85 hectares, making up 0.19% of the total land area. The 2081 land use zoning designates 193.79 hectares for commercial purposes, or 0.61% of the total area. This significant increase of 0.43% highlights an anticipated expansion in commercial activities and infrastructure to boost economic development.

Cultural and Archeological Land

Cultural and archeological sites presently account for 24.50 hectares, or 0.08% of the total land.

The 2081 zoning maintains this classification at 26.73 hectares, still 0.08% of the total area. This slight increase of 0.01% reflects a continued emphasis on preserving and potentially expanding cultural and archeological heritage sites.

Forest Land

Forests currently cover a substantial area of 8968.26 hectares, representing 28.30% of the total land. The 2081 land use zoning designates 9330.83 hectares, or 29.45% of the total area, for forest use. This 1.14% increase underscores a future focus on forest conservation and expansion for environmental sustainability and biodiversity.

Riverine, Lake, and Marsh Area

Riverine, lake, and marsh areas now span 922.15 hectares, constituting 2.91% of the total land. The 2081 zoning keeps this classification nearly unchanged at 920.87 hectares, maintaining 2.91% of the total area. This stability indicates a balanced approach to managing and preserving water bodies and wetlands.

Industrial Land

Industrial land use is minimal, with current and future areas both approximately 14.53 hectares and 15.74 hectares respectively, making up 0.05% of the total land. This consistency shows no significant changes or expansions in industrial activities are planned, maintaining a low industrial footprint.

Mine and Minerals Land

The land designated for mining and minerals remains constant, covering 11.93 hectares, or 0.04% of the total area. The 2081 zoning does not change this classification, indicating stable management of mining activities without planned expansion.

Other Use

Land classified as 'Other Use' currently encompasses the largest area, at 17721.06 hectares, or 55.93% of the total land. The 2081 zoning reduces this to 13802.54 hectares, or 43.56%. This 12.37% decrease indicates a planned redistribution of land towards more specific uses, such as commercial or residential development.

Public Use

Public use areas presently account for 3022.06 hectares, or 9.54% of the municipality's land. The

2081 zoning projects a slight increase to 6562.66 hectares, or 20.71% of the total area. This 11.17% rise indicates an enhancement in public amenities and infrastructure.

Residential Land

Residential areas currently cover 34.44 hectares, making up 0.11% of the total land. The 2081 zoning designates 75.09 hectares for residential use, or 0.24% of the total area. This 0.13% increase reflects a plan to expand residential zones to accommodate population growth and housing needs.

The land use zoning for 2081 in the Gharapjhong Rural Municipality reflects a strategic plan to enhance commercial, public, and residential areas while maintaining stability in industrial, mining, and water-related land uses. There is also a focus on increasing forest cover and preserving cultural sites, indicating a balanced approach to sustainable development and environmental conservation for the future.

The land use data for Gharapjhong Rural Municipality in the year 2081 provides a comprehensive snapshot of the region's evolving landscape as shown in the Table 10 and Figure 41.

Table 10: Comparison between Present Land Use 2081 and Land Use Zone 2081

Land Use Classes	Present Land Use 2081		Land Use Zone 2081		Change
	Area (Hectare)	Percentage	Percentage	Area (Hectare)	Percentage
Agricultural	908.98	2.87 %	2.36 %	746.57	-0.51%
Commercial	58.85	0.19 %	0.61 %	193.79	0.43%
Cultural and Archeological	24.50	0.08 %	0.08 %	26.73	0.01%
Forest	8968.26	28.30 %	29.45 %	9330.83	1.14%
Riverine, Lake and Marsh Area	922.15	2.91 %	2.91 %	920.87	0.00%
Industrial	14.53	0.05 %	0.05 %	15.74	0.00%
Mine and Minerals	11.93	0.04 %	0.04 %	11.93	0.00%
Other Use	17721.06	55.93 %	43.56 %	13802.54	-12.37%
Public Use	3022.06	9.54 %	20.71 %	6562.66	11.17%
Residential	34.44	0.11 %	0.24 %	75.09	0.13%
TOTAL	31686.76	100.00 %	100.00%	31686.76	

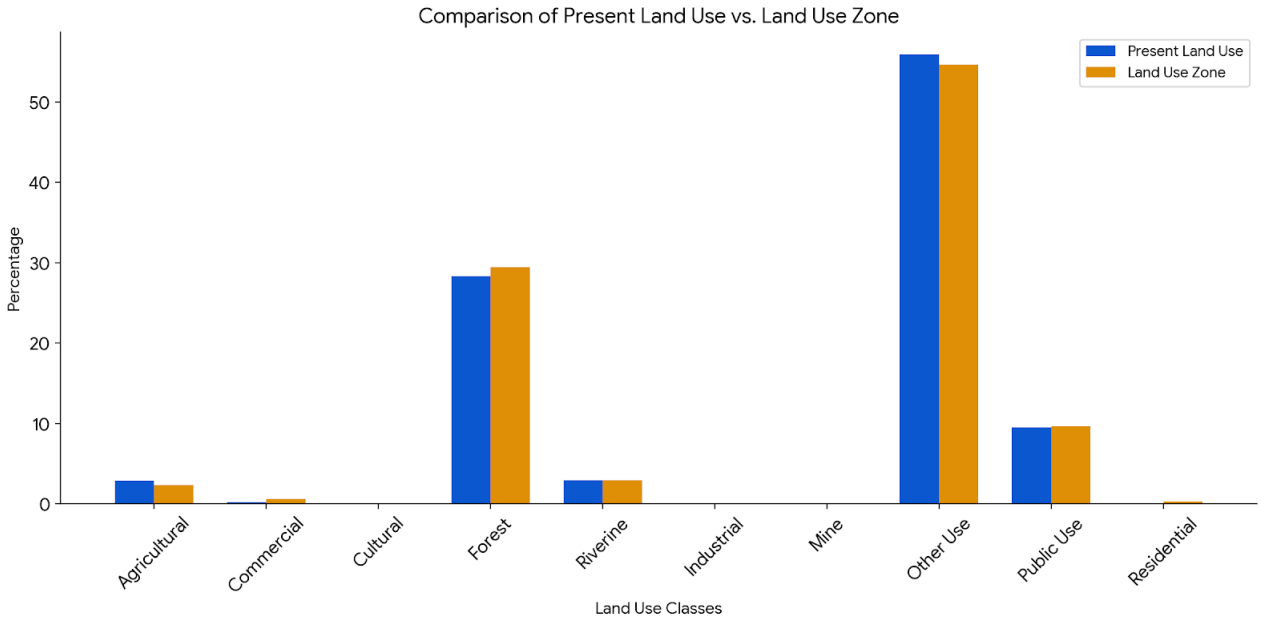
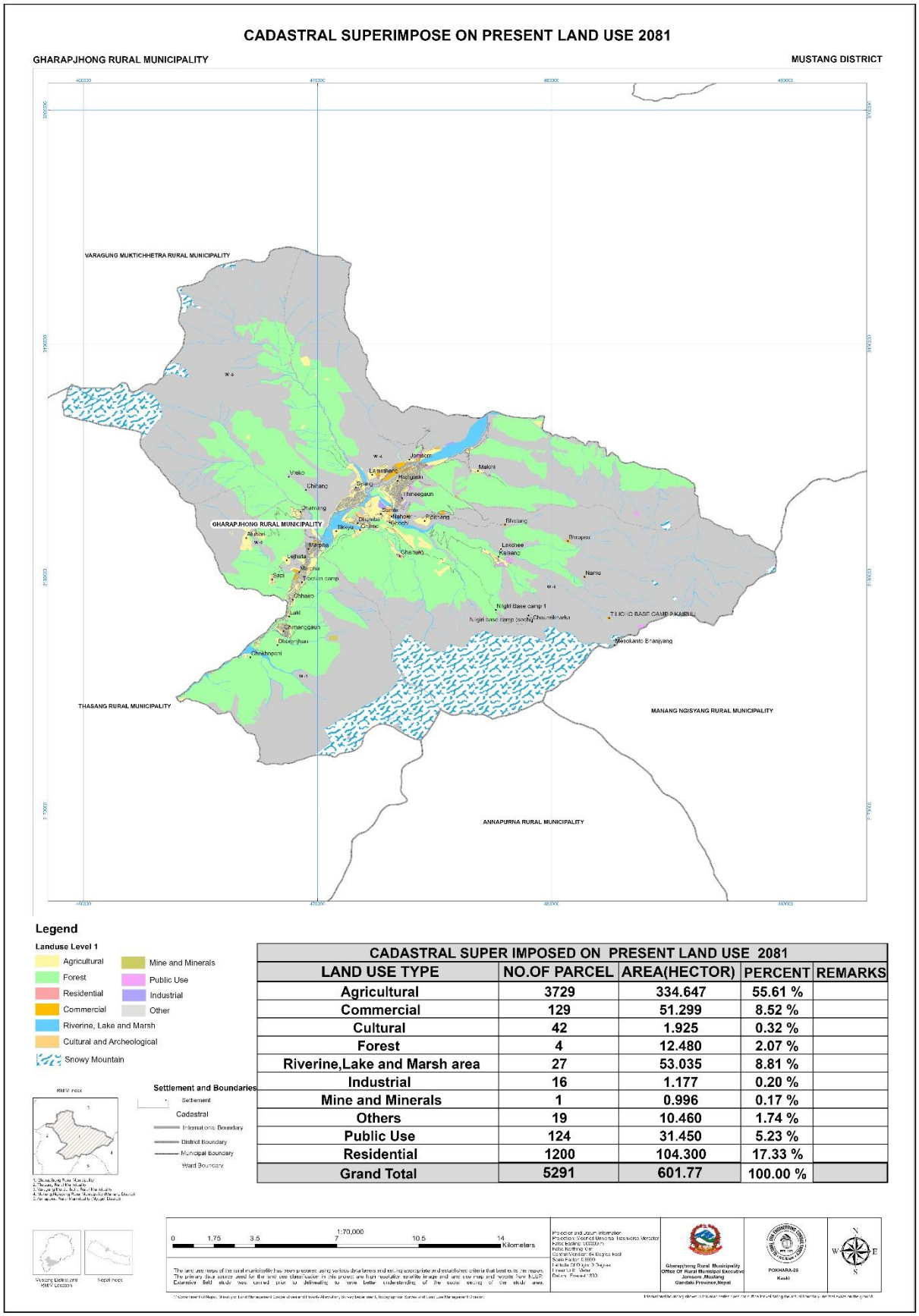


Figure 41: Comparison Chart of PLU 2081 and LUZ 2081

3.6 Cadastral Parcel Superimpose on Present Land Use

This chapter illustrates some analysis of the superimposition of cadastral maps over the present land use. In the context of Gharapjhong Rural Municipality in the year 2081, the cadastral superimposition on present land use reveals a detailed breakdown of the land distribution across various categories as shown in the Table 11 and Figure 42.



CADASTRAL SUPER IMPOSED ON PRESENT LAND USE 2081				
LAND USE TYPE	NO.OF PARCEL	AREA(HECTOR)	PERCENT	REMARKS
Agricultural	3729	334.647	55.61 %	
Commercial	129	51.299	8.52 %	
Cultural	42	1.925	0.32 %	
Forest	4	12.480	2.07 %	
Riverine,Lake and Marsh area	27	53.035	8.81 %	
Industrial	16	1.177	0.20 %	
Mine and Minerals	1	0.996	0.17 %	
Others	19	10.460	1.74 %	
Public Use	124	31.450	5.23 %	
Residential	1200	104.300	17.33 %	
Grand Total	5291	601.77	100.00 %	

Figure 42: Cadastral Superimpose on Present Land Use 2081

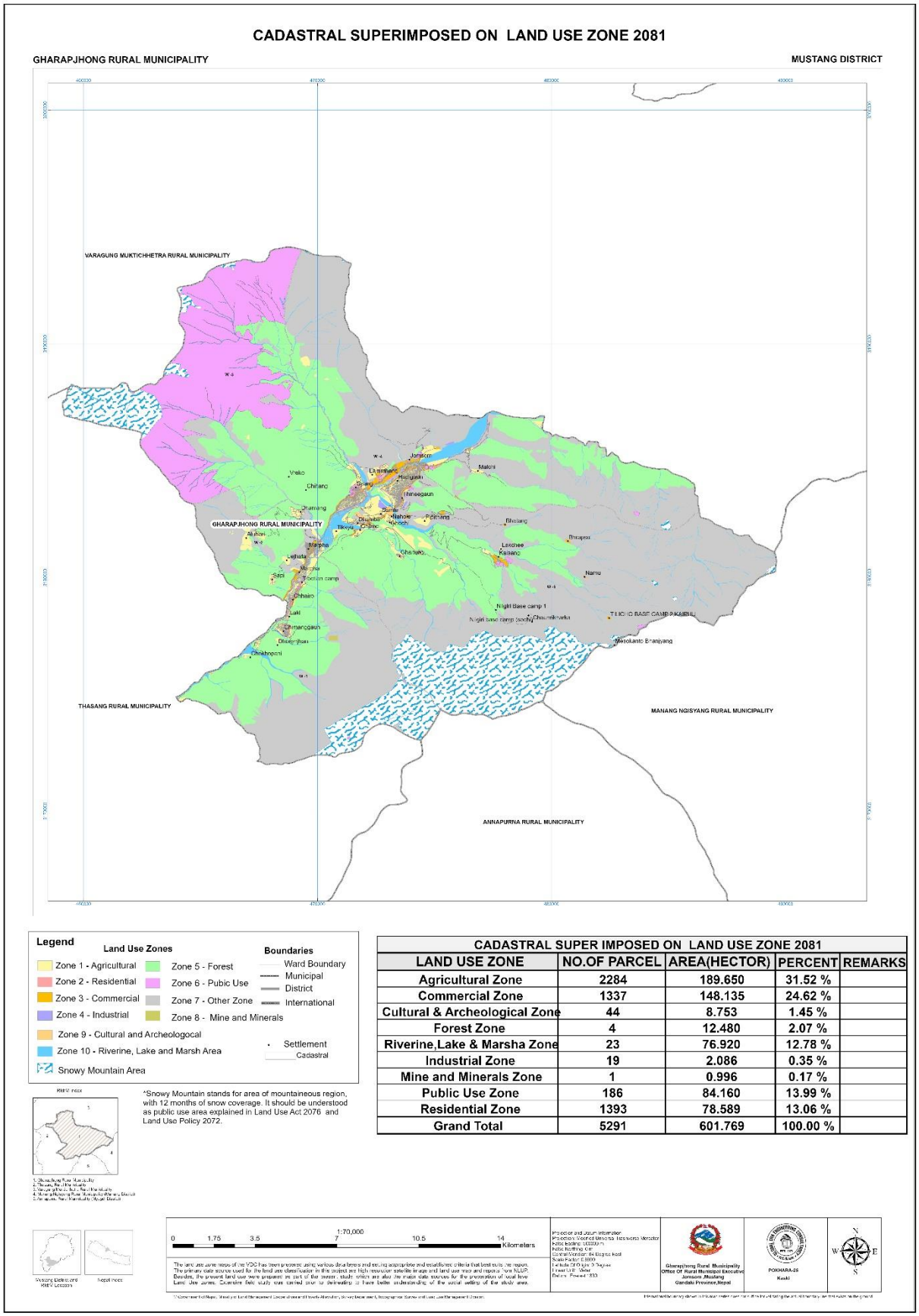
The present land use for 2081 in Gharapjhong Rural Municipality, agricultural land comprises the largest number of parcels, totaling 3,729 and covering an area of 334.647 hectares, or 55.61% of the total land. Commercial land consists of 129 parcels covering 51.299 hectares (8.52%). Cultural land includes 42 parcels covering 1.925 hectares (0.32%), while forest land has 4 parcels covering 12.480 hectares (2.07%). Riverine, lake, and marsh areas include 27 parcels covering 53.035 hectares (8.81%). Industrial land comprises 16 parcels covering 1.177 hectares (0.20%), and mine and minerals land has 1 parcel covering 0.996 hectares (0.17%). Other uses include 19 parcels covering 10.460 hectares (1.74%). Public use areas have 124 parcels covering 31.450 hectares (5.23%). Residential land is significant, with 1,200 parcels covering 104.300 hectares (17.33%). This data highlights the existing land use patterns and priorities, emphasizing the predominance of agricultural land, followed by residential and commercial areas, along with substantial allocations for water bodies, public use, and forest conservation.

Table 11: Cadastral Parcel Superimpose on Present Land Use

CADASTRAL SUPER IMPOSED ON PRESENT LAND USE 2081				
LAND USE TYPE	**NO.OF PARCEL**	**AREA(HECTOR)**	**PERCENT**	**REMARKS**
Agricultural	**3729**	334.647	55.61 %	
Commercial	**129**	51.299	8.52 %	
Cultural	**42**	1.925	0.32 %	
Forest	**4**	12.480	2.07 %	
Riverine, Lake and Marsh area	**27**	53.035	8.81 %	
Industrial	**16**	1.177	0.20 %	
Mine and Minerals	**1**	0.996	0.17 %	
Others	**19**	10.460	1.74 %	
Public Use	**124**	31.450	5.23 %	
Residential	**1200**	104.300	17.33 %	
Grand Total	**5291**	**601.77**	100.00 %	

3.7 Cadastral Parcel Superimpose On Land Use Zone

In the context of Gharapjhong Rural Municipality's land use zoning in the year 2080, a thorough analysis through cadastral superimposition unveils distinctive characteristics across various land use zones as shown in the Table 12.



CADASTRAL SUPER IMPOSED ON LAND USE ZONE 2081				
LAND USE ZONE	NO.OF PARCEL	AREA(HECTOR)	PERCENT	REMARKS
Agricultural Zone	2284	189.650	31.52 %	
Commercial Zone	1337	148.135	24.62 %	
Cultural & Archeological Zone	44	8.753	1.45 %	
Forest Zone	4	12.480	2.07 %	
Riverine,Lake & Marsha Zone	23	76.920	12.78 %	
Industrial Zone	19	2.086	0.35 %	
Mine and Minerals Zone	1	0.996	0.17 %	
Public Use Zone	186	84.160	13.99 %	
Residential Zone	1393	78.589	13.06 %	
Grand Total	5291	601.769	100.00 %	

Figure 43: Cadastral Superimpose on Present Land Use Zone 2081

The cadastral data superimposed on the land use zone for 2081 in Gharapjhong Rural Municipality provides a detailed overview of the number of parcels and the area designated for each land use zone. The agricultural zone comprises 2,284 parcels covering an area of 189.650 hectares, making up 31.52% of the total land. The commercial zone includes 1,337 covering 148.135 hectares, representing 24.62% of the total area. The cultural and archeological zone has 44 parcels covering 8.753 hectares, which is 1.45% of the total land. The forest zone remains small with 4 parcels covering 12.480 hectares (2.07%). The riverine, lake, and marsh zone includes 23 parcels covering 76.920 hectares, accounting for 12.78% of the total area. The industrial zone consists of 19 parcels covering 2.086 hectares, or 0.35% of the total land. The mine and minerals zone has 1 parcel covering 0.996 hectares (0.17%). Public use zones encompass 186 parcels covering 84.160 hectares, making up 13.99% of the total land. Residential zones are significant, with 1,393 parcels covering 78.589 hectares, which is 13.06% of the total area. Overall, the cadastral data superimposed on the land use zones for 2081 highlights a balanced approach to land use planning, with substantial areas allocated for agriculture, commerce, public use, and residential purposes, along with dedicated zones for cultural preservation, forestry, and water bodies as shown in the Figure43.

Table 12: Cadastral Parcel Superimpose On Land Use Zone2081

CADASTRAL SUPER IMPOSED ON LAND USE ZONE 2081				
LAND USE ZONE	**NO.OF PARCEL**	**AREA(HECTOR)**	**PERCENT**	**REMARKS**
Agricultural Zone	**2284**	189.650	31.52%	
Commercial Zone	**1337**	148.135	24.62 %	
Cultural & Archeological Zone	**44**	8.753	1.45 %	
Forest Zone	**4**	12.480	2.07 %	
Riverine, Lake & Marsha Zone	**23**	76.920	12.78 %	
Industrial Zone	**19**	2.086	0.35 %	
Mine and Minerals Zone	**1**	0.996	0.17 %	
Public Use Zone	**186**	84.160	13.99 %	
Residential Zone	**1393**	78.589	13.06 %	
Grand Total	**5291**	601.769	100.00 %	

3.8 Comparison of Cadastral Parcel Superimpose On Present Land Use and Land Use Zone

The cadastral data superimposed on the present land use for 2081 and the land use zones for 2081 in Gharapjhong Rural Municipality reveals significant changes in the distribution of parcels across different land use types. The agricultural parcels decrease notably from 3,729 to 2,284, a reduction of 1,445 parcels, indicating a shift away from agricultural land use. Conversely, commercial parcels increase dramatically from 129 to 1,337, adding 1,208 parcels, highlighting a

substantial expansion in commercial activities.

Cultural parcels remain constant at 42, showing no change, indicating a stable preservation of cultural and archeological sites. Similarly, forest parcels also remain unchanged at 2, reflecting consistent forest land use. The riverine, lake, and marsh area parcels slightly decrease from 27 to 23, a reduction of 4 parcels.

Industrial parcels show a minor increase from 16 to 19, adding just 3 parcel, suggesting a modest growth in industrial land use. The mine and minerals parcels remain unchanged at 1, indicating stable use in this category.

The 'Other Uses' category sees a complete reduction from 19 parcels to 0, showing a reallocation of these parcels into other specified land use zones. Public use parcels increase from 124 to 186, an addition of 62 parcels, reflecting an enhancement in public amenities and infrastructure. Residential parcels increase from 1,200 to 1,393, adding 193 parcels, to accommodate residential development and population growth.

The municipality's land use planning for 2081 focuses on expanding commercial, public, and residential areas. This reallocation indicates a strategic shift towards urbanization and infrastructure development, balanced with maintaining cultural and forest areas as shown in Table 13 and Figure 44.

Table 13: Comparison of Cadastral Parcel Superimpose On Present Land Use2081 and Land Use Zone 2081

LAND USE TYPE	CADASTRAL SUPER IMPOSED ON PRESENT LAND USE 2081	CADASTRAL SUPER IMPOSED ON LAND USE ZONE 20801	CHANGE
	NO.OF PARCEL	NO.OF PARCEL	NO.OF PARCEL
Agricultural	3729	2284	-1445
Commercial	129	1337	1208
Cultural	42	44	2
Forest	4	4	0
Riverine, Lake and Marsh area	27	23	-4
Industrial	16	19	3
Mine and Minerals	1	1	0
Others	19	0	-19
Public Use	124	186	62
Residential	1200	1393	193
Grand Total	5291	5291	0

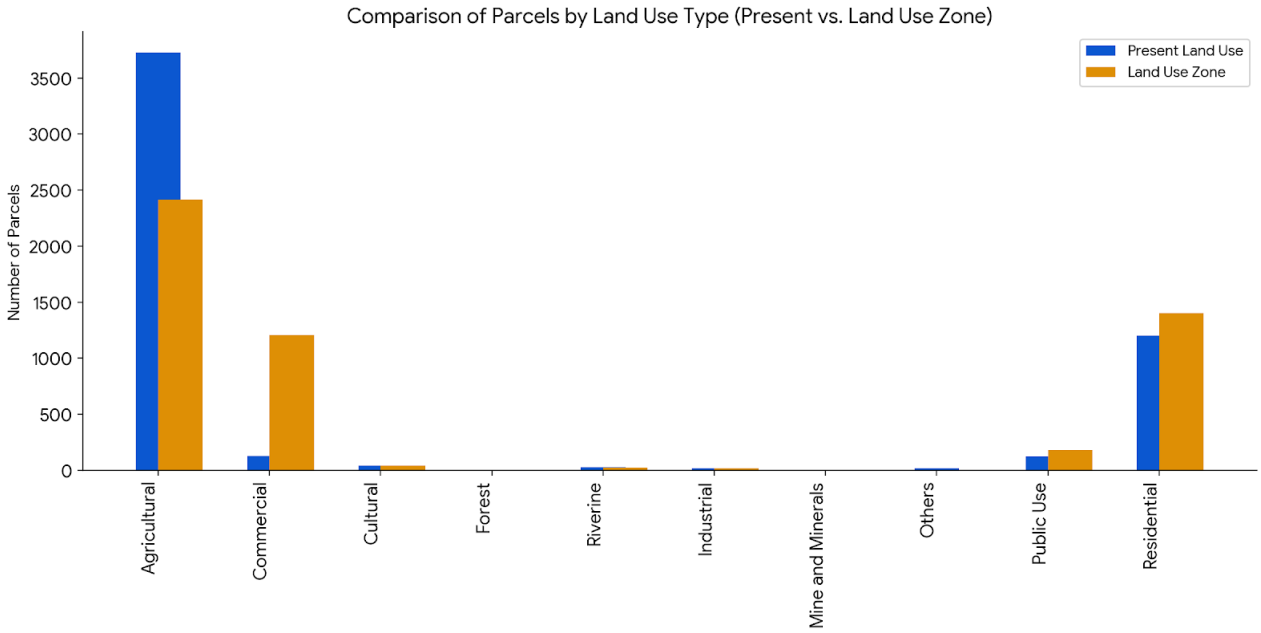


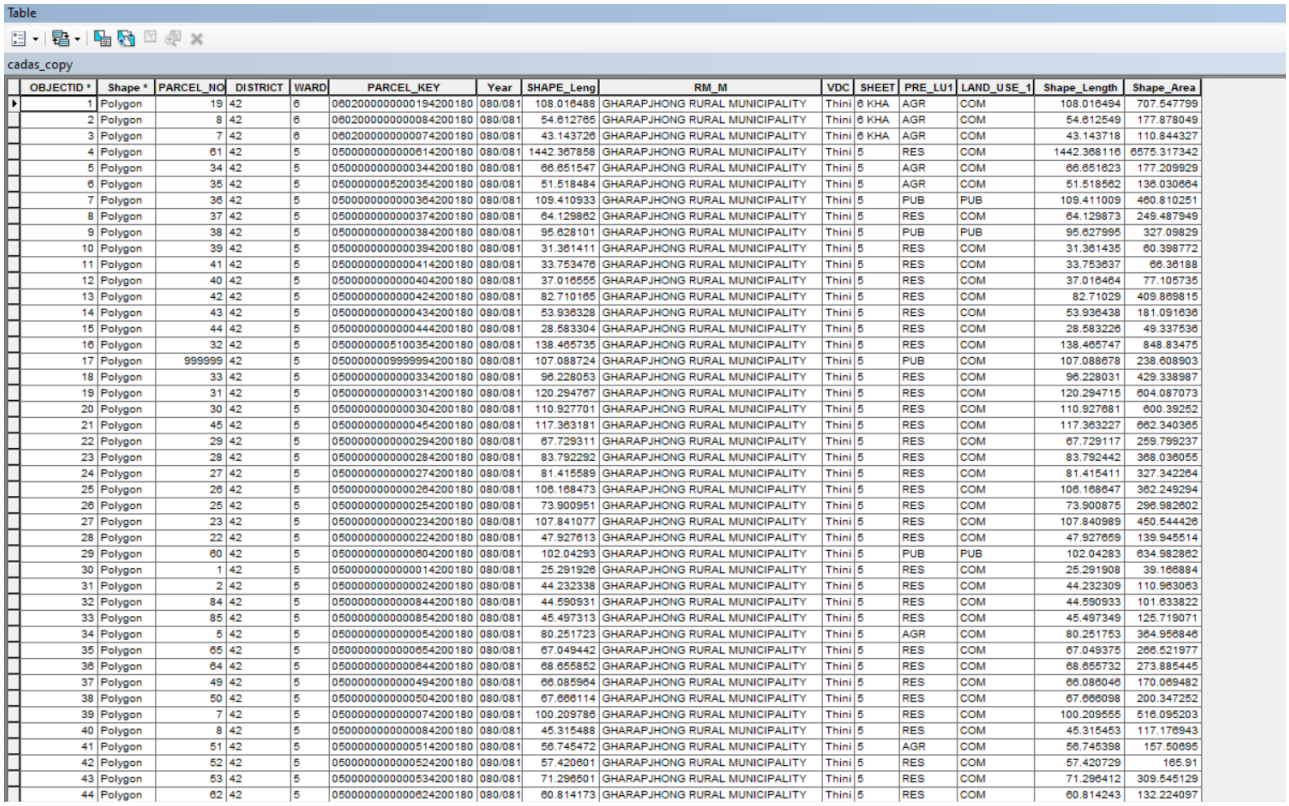
Figure 44: Comparison of Parcels by Present Land Use and Land Use Zone

3.9 GIS Database

In the attribute table provided within the GIS database, each row represents a distinct geographic feature or parcel within the study area. The table comprises various fields, each specifying specific attributes associated with these parcels. The "ObjectID" field serves as a unique identifier for each object, ensuring data integrity. The "Shape" field indicates the geometric object type, such as Point, Line, or Polygon, representing the spatial characteristics of the parcel. Other fields provide additional information about each parcel, including its parcel number ("PARCELNO"), district ID ("DISTRICT"), ward number ("WARDNO"), and a unique parcel key ("PARCELKEY"). The "YEAR" field denotes the fiscal year associated with the data. Furthermore, details about the rural municipality ("RM_M"), former VDC names ("VDC"), and grid sheet number ("SHEET") are also included. Notably, the "PRE_LU1" and "LAND_USE_1" fields specify the present land use and land use zoning, respectively, providing valuable insights into the current land use patterns within the study area. Additionally, the "Shape_Length" and "Shape_Area" fields represent the perimeter and area of each polygon, facilitating spatial analysis and measurement. Overall, this attribute table serves as a crucial component of the GIS database, offering comprehensive information for land use planning and analysis within the specified region as shown in the Table14 and .

Table 14: Schema of cadastral parcel feature class in the GIS daatbase.

Field Name	Data Type	Description
ObjectID	Object ID	Unique object ID
Shape	Geometry (Polygon)	Geometric object type e. g. Point, Line, Polygon etc.
PARCELNO	Long	Parcel number as in cadastral map
DISTRICT	String (Length = 50)	District ID
WARDNO	String (Length = 10)	Ward number
PARCELKEY	String (Length = 40)	Unique parcel key
YEAR	String (Length = 10)	Fiscal Year
Shape_Length	Double	Number representing perimeter of the polygon
RM_M	String (Length = 100)	Rural Municipality, Municipality's name
VDC	String (Length = 254)	Former VDC Names.
SHEET	String (Length = 254)	Grid sheet number in case of Trig sheets, and in case of island map sheet e. g. Ka, Kha etc.
PRE_LU1	String (Length = 254)	Present land Use i.e. AGR, for Agriculture, COM for commercial
LAND_USE_1	String (Length = 254)	Land Use Zoning i.e. AGR, for Agriculture, COM for commercial
Shape_Length	Double	Number representing perimeter of the polygon
Shape_Area	Double	Number representing area of the polygon



Table

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OBJECTID *	Shape *	PARCEL_NO	DISTRICT	WARD	PARCEL_KEY	Year	SHAPE_Leng	RM_M	VDC	SHEET	PRE_LU1	LAND_USE_1	Shape_Length	Shape_Area
1	Polygon	19	42	6	06020000000000194200180	080/081	108.016488	GHARAPJHONG RURAL MUNICIPALITY	Thini	6 KHA	AGR	COM	108.016494	707.547799
2	Polygon	8	42	6	06020000000000084200180	080/081	54.612765	GHARAPJHONG RURAL MUNICIPALITY	Thini	6 KHA	AGR	COM	54.612549	177.878049
3	Polygon	7	42	6	06020000000000074200180	080/081	43.143726	GHARAPJHONG RURAL MUNICIPALITY	Thini	6 KHA	AGR	COM	43.143718	110.844327
4	Polygon	61	42	5	05000000000000614200180	080/081	1442.367858	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	1442.368116	6575.317342
5	Polygon	34	42	5	05000000000000344200180	080/081	66.651547	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	AGR	COM	66.651623	177.209929
6	Polygon	35	42	5	05000000005200354200180	080/081	51.518484	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	AGR	COM	51.518562	136.030664
7	Polygon	36	42	5	05000000000000364200180	080/081	109.410933	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	PUB	PUB	109.411009	460.810251
8	Polygon	37	42	5	05000000000000374200180	080/081	64.129862	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	64.129873	249.487949
9	Polygon	38	42	5	05000000000000384200180	080/081	95.628101	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	PUB	PUB	95.627995	327.09829
10	Polygon	39	42	5	05000000000000394200180	080/081	31.361411	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	31.361435	60.398772
11	Polygon	41	42	5	05000000000000414200180	080/081	33.753476	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	33.753637	66.36188
12	Polygon	40	42	5	05000000000000404200180	080/081	37.016555	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	37.016464	77.105735
13	Polygon	42	42	5	05000000000000424200180	080/081	82.710165	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	82.71029	409.869815
14	Polygon	43	42	5	05000000000000434200180	080/081	53.936328	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	53.936438	181.091636
15	Polygon	44	42	5	05000000000000444200180	080/081	28.583304	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	28.583226	49.337536
16	Polygon	32	42	5	05000000005100354200180	080/081	138.465735	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	138.465747	848.83475
17	Polygon	999999	42	5	05000000099999994200180	080/081	107.088724	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	PUB	COM	107.088678	238.608903
18	Polygon	33	42	5	05000000000000334200180	080/081	96.228053	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	96.228031	429.338987
19	Polygon	31	42	5	05000000000000314200180	080/081	120.294767	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	120.294715	604.087073
20	Polygon	30	42	5	05000000000000304200180	080/081	110.927701	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	110.927681	600.39252
21	Polygon	45	42	5	05000000000000454200180	080/081	117.363181	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	117.363227	662.340365
22	Polygon	29	42	5	05000000000000294200180	080/081	67.729311	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	67.729117	259.799237
23	Polygon	28	42	5	05000000000000284200180	080/081	83.792292	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	83.792442	368.036055
24	Polygon	27	42	5	05000000000000274200180	080/081	81.415589	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	81.415411	327.342264
25	Polygon	26	42	5	05000000000000264200180	080/081	106.168473	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	106.168647	362.249294
26	Polygon	25	42	5	05000000000000254200180	080/081	73.900951	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	73.900875	296.982602
27	Polygon	23	42	5	05000000000000234200180	080/081	107.841077	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	107.840989	450.544426
28	Polygon	22	42	5	05000000000000224200180	080/081	47.927613	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	47.927659	139.945514
29	Polygon	60	42	5	05000000000000604200180	080/081	102.04293	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	PUB	PUB	102.04283	634.982862
30	Polygon	1	42	5	05000000000000014200180	080/081	25.291926	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	25.291908	39.166884
31	Polygon	2	42	5	05000000000000024200180	080/081	44.232338	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	44.232309	110.963063
32	Polygon	84	42	5	05000000000000844200180	080/081	44.590931	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	44.590933	101.633822
33	Polygon	85	42	5	05000000000000854200180	080/081	45.497313	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	45.497349	125.719071
34	Polygon	5	42	5	05000000000000054200180	080/081	80.251723	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	AGR	COM	80.251753	364.956846
35	Polygon	65	42	5	05000000000000654200180	080/081	67.049442	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	67.049375	266.521977
36	Polygon	64	42	5	05000000000000644200180	080/081	68.655852	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	68.655732	273.885445
37	Polygon	49	42	5	05000000000000494200180	080/081	66.085964	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	66.086046	170.069482
38	Polygon	50	42	5	05000000000000504200180	080/081	67.666114	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	67.666098	200.347252
39	Polygon	7	42	5	05000000000000074200180	080/081	100.209786	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	100.209555	516.095203
40	Polygon	8	42	5	05000000000000084200180	080/081	45.315488	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	45.315453	117.176943
41	Polygon	51	42	5	05000000000000514200180	080/081	56.745472	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	AGR	COM	56.745398	157.50695
42	Polygon	52	42	5	05000000000000524200180	080/081	57.420601	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	57.420729	165.91
43	Polygon	53	42	5	05000000000000534200180	080/081	71.296501	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	71.296412	309.545129
44	Polygon	62	42	5	05000000000000624200180	080/081	60.814173	GHARAPJHONG RURAL MUNICIPALITY	Thini	5	RES	COM	60.814243	132.224097

Figure 45: Attribute Table in GIS Database

CHAPTER FOUR: CONCLUSION AND RECCOMMENDATION

4.1 Conclusion

In conclusion, the comprehensive land use planning and classification of Gharapjhong Rural Municipality reveal a strategic allocation of land resources aimed at sustainable development and resource management. The Forest Zone dominates with 9,330.83 hectares, emphasizing the need for conservation, while the Agricultural Zone, covering 746.57 hectares, is crucial for food security. The diverse allocation includes significant areas for Commercial (193.79 hectares), Cultural and Archeological (26.73 hectares), Industrial (15.74 hectares), and Residential (75.09 hectares) uses, supporting balanced regional development and economic growth. The 'Other Zone' category, encompassing 13,802.54 hectares, plays a pivotal role in the overall land use strategy. Cadastral data overlay highlights the distribution of land parcels over 601.769 hectares, with the Agricultural Zone having the highest parcel count 2284 indicating a fragmented agricultural landscape. Special zones for Riverine, Lake, Marsh Areas (76.90 hectares), and Cultural & Archeological Sites(8.753 hectares) underscore the commitment to environmental conservation and cultural preservation. This land use plan provides a robust framework for future growth, requiring coordinated efforts for effective implementation and sustainable development.

4.2 Reccommendation

To ensure sustainable development and effective resource management in Gharapjhong Rural Municipality, several key recommendations are proposed: Regularly update zoning regulations to reflect evolving needs and involve stakeholders; enhance forest conservation and promote reforestation to maintain biodiversity; boost agricultural productivity through modern techniques and infrastructure development; support commercial and industrial growth with targeted investments and incentives; plan for sustainable residential development by improving amenities and enforcing zoning regulations; preserve cultural and natural heritage through conservation and sustainable tourism; establish an integrated land use management committee for oversight and compliance; and engage the community through awareness campaigns and participatory planning to foster ownership and successful implementation. Request the concerned authorities to expedite the cadastral survey for the remaining area of the Gharapjhong Rural Municipality, which spans 31,086.76 hectares that have not yet been surveyed. Incorporating this additional area into the existing land use plan is crucial for comprehensive and effective resource management, ensuring all land is accurately mapped and utilized optimally for sustainable development.

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CBS (2078). National Population and Housing Report, 2078. Kathmandu: Central Bureau of Statistics.

Gharapjhong Rural Municipality Profile. Mustang: Gharapjhong Rural Municipality Office, Gandaki Province.

National Land use Project 2076 Report

Appendix

Appendix A: Accuracy Assessment of Present Land Use Classification

Appendix B: Ward Minutes

Appendix C: Photographs

Appendix D: Approved Guidelines and Criteria For Land Use Zoning

Appendix E: Maps

Appendix A: Accuracy Assessment of Present Land Use Classification

Confusion Matric and Accuracy Table

Land Use Categories	Agriculture	Forest	Residential	Commercial	Industrial	Public Services	Cultural and Archeological	River, Lake and Marsha Area	Other	Total
Agriculture	95	0	1	0	0	1	1	0	1	99
Forest	1	46	0	0	0	1	1	0	0	49
Residential	0	0	33	2	0	0	1	0	0	36
Commercial	0	0	0	13	1	0	0	0	0	14
Industrial	1	0	0	0	9	0	0	0	0	10
Public Use	0	0	1	0	0	36	2	0	0	39
Cultural and Archeological	0	0	1	0	0	0	15	0	1	17
River, Lake and Marsha Area	1	1	1	0	0	0	0	28	0	31
Other	1	0	0	0	0	0	0	0	17	18
Total	99	48	37	15	10	38	20	28	20	315

Accuracy Table

	User Accuracy	Producer Accuracy	Commission Error	Omission Error	KIA
Agriculture	95.96	95.96	4.04	4.04	0.94
Forest	93.88	95.83	6.12	4.17	0.93
Residential	91.67	89.19	8.33	10.81	0.91
Commercial	92.86	86.67	7.14	13.33	0.93
Industrial	90.00	90.00	10.00	10.00	0.90
Public Services	92.31	94.74	7.69	5.26	0.91
Cultural and Archeological	88.24	75.00	11.76	25.00	0.83
River, Lake and Marsha Area	90.32	100.00	9.68	0.00	0.89
Other	94.44	85	5.56	15.00	0.94

Overall Accuracy = 92.70%

Overall KIA = 0.91

Appendix B: Ward Minutes

आज मिति २०८१ बैशाख १४ गतेका दिन यस घरपझोङ गाउँपालिका वडा नं. १ छैरोको वडाध्यक्ष श्री आस वहादुर थकालीको अध्यक्षतामा भू-उपयोग वर्गीकरण सम्बन्धी बैठक बसी तपसिल बमोजिमको उपस्थितीमा तपसिल निर्णय समेत गरियो ।

उपस्थितीः-

क.सं.	नाम थर	पद	हस्ताक्षर
१.	श्री आस वहादुर थकाली	वडा अध्यक्ष	वडा अध्यक्ष (Ward Chairman)
२.	श्री चक्रसिंह थकाली	वडा सदस्य	
३.	श्री दुर्गा देवी रसाईली	वडा सदस्य	
४.	श्री नविन्द्र थकाली	नि.वडा सचिव	
५.	श्री सुनिल परियार	कार्यालय सहयोगी	
विशेष उपस्थितीः-			
६.	श्री धन वहादुर थकाली	चिमाङ गाउँ मूखिया	
७.	श्री आइत प्रसाद थकाली	भु.पु. वडाध्यक्ष	
८.	श्री विनोद थकाली	भु.पु. वडा सदस्य	
९.	श्री भिम वहादुर रसाईली	ने.ए.स.पाटी जिल्ला अध्यक्ष	
अन्य उपस्थितीः-			
१०.	श्री विवेक वि.क.	सदस्य	
११.	श्री सुनिल थकाली	सदस्य	
१२.	श्री प्रेम प्रसाद गौचन	सदस्य	
१३.	श्री कुन्दन तामाङ	सदस्य	
१४.	श्री जित वहादुर रसाईली	सदस्य	

१५. श्री गणि वि.क. का सदस्य

घरपझोङ गाउँपालिका १ नं. वडा कार्यालय छैरो, सुन्दरबजार गण्डकी प्रदेश, नेपाल

प्रस्ताव नं. १: जग्गाको वर्गीकरण सम्बन्धमा

प्रस्ताव नं.१ मा वडा नं. १ का वडाध्यक्ष, वडा सदस्यहरु, गाउँ मुखिया, विभिन्न राजनीतिक दल का प्रतिनिधिहरु, समाजसेवी तथा अन्य सरोकारवालाहरु संग को वृहत छलफल तथा अन्तरक्रिया गर्दा यस घरपझोङ गाउँपालिका वडा नं. १ भित्र का तपशिल बमोजिमका जग्गाहरुलाई तपशिल बमोजिम ले वर्गीकरण को लागि भू-उपयोग परिषद घरपझोङ गाउँपालिका मा पेश गर्ने निर्णय गरियो।

तपशिल

१) औद्योगिक क्षेत्र :
चिमाङ बेगरेज

२) खानि तथा खनिज क्षेत्र:
छुगडुरा ढुंगा खानी, सागर माटो खानी, चिमाङ माटो खानी

३) वन क्षेत्र:
धैरो वन, चिमाङ वन, धैरो कालिगण्डकी वृक्षारोपण

४) नदी, खोला, ताल तथा सिमसार क्षेत्र:
कालिगण्डकी नदी, धैरो दहरा, धैरो लहकी दहरा, चिमाङ खोला, धैरो डो दह, तलीग्याङ सिमसार, ठुलो र सानो लहको सिमसार

५) सांस्कृतिक तथा पुरातात्विक महत्वको क्षेत्र:
चर्चको भवन, ध्याक्किकपल फोर्पे गुठी, गर्ती फोर्पे गुठी, धैरो दहरा गुम्बा, सेविधान मन्दिर, गुरु पद्मसम्भव ढाक्चन गुफा र पाउको छाप, ठुलो म्हाने, सानो म्हाने (स्तुपा चैत्य), घेसिङ थोङ पूजा गर्ने ठुलो रुख, छुग दहरा पूजा गर्ने थान, धैरो दहरा गुफा

६) सार्वजनिक उपयोग को क्षेत्र:
चिमाङ सामुदायिक भवन, आमा समुहको भवन, दलित समाज घर, धैरो गुम्बा भवन, धैरो आधारभुत विद्यालय, निलगिरी आधारभुत विद्यालय, तिब्बेतियन प्रा.प्र., धैरो कालिगण्डकी प्रा.प्र.,

अध्यक्ष
Chairman

CamScanner

छुइखोला ग्रो.८ (चिमाङ), चिमाङ खेल मैदान, कोटेर संकलन केन्द्र, ढैंरो आमा समूह भवन, ढैंरो दलित समाज घर, स्वास्थ्य इकाई, महताङसे चिहान घाट क्षेत्र, ढैंरो पानी घट्ट, तल ढैंरो पानी घट्ट, ढैंरो गणतान्त्रिक सामुदायिक भवन, ढैंरो कोटेर संकलन केन्द्र

6) आवासीय क्षेत्र:

- गाउँ देखि पुच्छर (हिमाली) जोड्ने बाटो को खेत तर्फ ४० मी.
- ढैंरो गाउँ मूलबाटो को दायाँ-बायाँ - ४० मी.
- ढैंरो गाउँ मूलबाटो हुँदै गुम्बा जाने बाटो को दायाँ-बायाँ ४० मी.
- मार्फा पुल सडकबाट ढैंरो इहरा गुम्बा सम्म जोड्ने सडकको खेत तर्फ ३० मी.
- ढैंरो इहरा, किरकुना हुँदै कुलो नहरको कुना जाने बाटो को (सुमन तामाङ को घर सम्म) ४० मी. दायाँ-बायाँ
- ढैंरो तलीग्याङ हुँदै घरको पुल जाने बाटो को ४० मी. दायाँ-बायाँ
- ढैंरो मूलबाटो देखि कुलो नहरको जोड्ने सडकको ३० मी. दायाँ-बायाँ
- ढैंरो मूलबाटो को (कुलो नहरको चोक जाने बाटो देखि सानो नहरको जोड्ने बाटो को) ३० मी. दायाँ-बायाँ ।

- चिमाङ गाउँ बस्ती क्षेत्र पर्ने सम्पूर्ण जग्गाहरु ।
- क्षेनेघाङ देखि माथि चिमाङ गाउँ सम्मको सहायक बाटो को ३० मी. दायाँ-बायाँ ।
- चिमाङ गाउँदेखि विद्यालय हुँदै कुलो नहरको जोड्ने सडकको ३० मी. दायाँ-बायाँ ।

7) व्यावसायिक क्षेत्र:

वडा नं ०९ को कार्यालय, एनसेल टावर

वडा अध्यक्ष
Ward Chairman

घरपझोङ गाउँपालिका
९ नं. वडा कार्यालय
ढैंरो, मुस्ताङ
गण्डकी प्रदेश, नेपाल

CamScanner

९) कृषि क्षेत्र:

उल्लेखित क्षेत्रहरु बाहेक बाँकी रहेका जग्गाहरु ।

वडा अध्यक्ष
Ward Chairman

DATE:

आज मिति २०८१/०१/१५ गतेका दिन धरापझोड गाउँपालिका वडा नं. ४ को वडा अध्यक्ष श्री मन बहादुर हिराचनको अध्यक्षतामा भू-उपयोग वर्गीकरण सम्बन्धी बैठक बसी तपशिल बमोजिमका उपस्थितीमा तपशिलका निर्णय गरियो।

उपस्थिती :

1. श्री मन बहादुर हिराचन वडा अध्यक्ष
2. श्री राजु प्रसाद लालचन कार्यपालिका सदस्य
3.
4.
5.

अन्य उपस्थिती:

श्री अमृता हिराचन गाउँ सदस्या
श्री कमल हिराचन गाउँ सदस्या
श्री लाल प्रसाद हिराचन नि.वर्तमान वडासदस्य
श्री कविन ज्वाल्चन गाउँ सदस्या
श्री पुर्यमान लालचन गाउँ सदस्या
श्री भक्ति हिराचन
श्री याक्षत ज्वारचन
श्री काल बहादुर लालचन
श्री धन बहादुर पदनाचन
श्री पुरेन्द्र कुमार हिराचन
श्री भक्तिराम ज्वारचन
श्री इन्द्र प्रसाद ज्वाल्चन
श्री हुमा कान्छा लालचन
श्री पुर्वा लालचन
श्री पदम प्रसाद ज्वाल्चन
श्री बुद्धिमान लालचन
श्री कानु पदनाचन
श्री कृष्ण कुमार ज्वाल्चन
श्री गुरुज हिराचन

DATE:

श्री शक्ति हिराचन
श्री वीरेन्द्र ज्वारचन
श्री विनोद ज्वारचन
श्री दिपक लालचन
श्री बखत बहादुर लालचन
श्री सन्तोष लालचन
श्री भेग हिराचन
श्री बिमल लालचन
श्री पुनित ज्वारचन
श्री गिरीश लालचन
श्री सिपा
Govinda श्री गोविन्द हिराचन
श्री चन्द्रमान लालचन
श्री अमृत ज्वारचन
श्री कृष्ण ब. हिराचन
श्री रमेश हिराचन
श्री विनोद लालचन
श्री कुल ब. बगदास
श्री देवीलाल लालचन
श्री मिलन ज्वारचन
श्री दिपेश लालचन
श्री प्रकाश लालचन
श्री मुकुन्द गुरुङ
श्री अनिल ज्वारचन
श्री चन्द्र मगर
श्री रुपेन ज्वारचन
श्री निरुपन लालचन
श्री बिजेन लालचन
श्री सोम बहादुर बालाबोती

DATE:

प्रस्ताव नं.१ : जग्गाको वर्गीकरण सम्बन्धमा

प्रस्ताव नं १ मा यस वडा का वडाध्यक्ष, वडा सदस्यहरु, गाउँ मुखिया, विभिन्न राजनीतिक दल का प्रतिनिधिहरु, समाजसेवी व्यक्तित्व तथा अन्य सरोकारवालाहरु संग को व्यापक छलफल गर्दा यस घरपझोङ गाउँपालिका वडा नं २ भित्र का तपशिल बमोजिम का जग्गाहरुलाई तपसिल बमोजिम ले वर्गीकरण गर्न का लागी भू-उपयोग परिषद घरपझोङ गाउँपालिका मा पेश गर्ने निर्णय गरियो।

तपशिल :

१) औद्योगिक क्षेत्र

ओल्ड मार्फाली डिस्टिलरी, निलगिरी डिस्टिलरी उद्योग, धौलागिरी अल्कोहलिक बेभरेज, ~~न्यु मार्फा अल्कोहलिक बेभरेज~~, मार्फा डिस्टिलरी उद्योग, गोङगोर फलफूल प्रशोधन केन्द्र, मार्फा ब्लक उद्योग, ~~मुक्तिनाथ डिस्टिलरी~~

२) खानी तथा खनिज क्षेत्र

कुनै पनि खानी तथा खनिज क्षेत्र नभएको।

३) वन क्षेत्र

ताकुनथाले वन, सफिवसाङ वन, डेरासाङ आरुबारी वन, ढुलोङछ्या वन, लोरकुलय वन, स्योरवर्क वन (फोलेङ), सेम्पी वन, मार्फा वृक्षारोपण, मार्फा आमा समूह वृक्षारोपण, थलाचे वन, गोङ वन,

४) नदी, खोला, ताल तथा सिमसार क्षेत्र

पोखब्यु (राज खोला), थुङलानाङब्यु (मार्फा खोला), ढुमुरच्युङ (भाले) खोला, कालीगण्डकी नदी, चिन ताल, धुम्बाढे ताल

DATE:

५) सांस्कृतिक तथा पुरातात्विक महत्वका क्षेत्र:
चिहस्थान गुफा, सालेहुमोलिङ गुफा, ~~लेप्रा गुफा~~, प्रागुफा, मार्फा फाले (कुलदेवता), मारुती गुफा, सहरगुफा, गुरुङ ~~पहिला श्मशान, श्मशान केन्द्र~~, कोठेखोला, पूजास्थल, लोपेन मार्फा धर्मशाला (बाँध्ने [?]), कुङग्युर गुफा (इलाई काला गुम्बी [?]), ७ डोलाटी [?] कुलबार [?], कोलाङ फोङ [?], मार्फा म्युजियम घर, कोल्हे खोला पूजा गर्ने स्थान, तेर पूजा गर्ने स्थान (अन्न र जल पूजा गर्ने स्थल)

६) सार्वजनिक उपयोगको क्षेत्र:
जनवाल मा.वि., मार्फा खेल मैदान, तिब्बतियन स्कूल [?] प्रा.वि., डेरी कालिगण्डकी प्रा.वि., सभागृह हल, मार्फा स्वास्थ्य चौकी, आमा समूह भवन, सेनात्सहोङ [?] धर्मशाला, मार्फा ध्यान केन्द्र, कोटघर, मिलिजुली युवा क्लब भवन, ~~मार्फा~~ स्याउँको घर, ङ·इन्तसा [?] घर, दलित समाज भवन, दलित कुवा घर, ~~[illegible]~~, चिहानघर, जनवाल मा.वि.को जग्गा, तारखेल [illegible] घर, जनवाल मा.वि. छात्रावास, मिलिजुली पार्क

७) आवासीय क्षेत्र
मार्फा गाउँ को व्यवसायिक क्षेत्र बाहेक ~~[illegible]~~ रहेका बस्ती क्षेत्रमा पर्ने सम्पूर्ण जग्गा हुन् ।

८) व्यवसायिक क्षेत्र

- बेनी जोमसोम सडकको ४० मी. दायाँ-बायाँ।
- कोसेली चोक हुँदै मार्फा मिलैरी पार्क जोड्ने गाउँ भित्री बाटो ले छुने दायाँ-बायाँ तर्फ का पहिलो कित्ताहरु
- एप्पल पार्क, मिलैरी पार्क, वार्ड कार्यालय २, डेस्टेक भिउ प्वाइन्ट, इरबारसाग भिउ प्वाइन्ट

९) कृषि क्षेत्र:

परबधु कृषि क्षेत्र, मार्फा कृषि क्षेत्र परबधु खोला, सफी कृषि क्षेत्र, तेक्सात कृषि क्षेत्र, मार्फा आलुबारी कृषि क्षेत्र, धवाड कृषि क्षेत्र

प्रस्ताव नं १: जग्गाको वर्गीकरण सम्बन्धमा

प्रस्ताव नं. १ मा वडा नं. ३ का वडाध्यक्ष, वडा सदस्य, गाउँ मुखियाहरु, विभिन्न राजनीतिक दलका प्रतिनिधिहरु, समाजसेवी व्यक्तित्वहरु तथा अन्य सरोकारवालाहरु संग को व्यापक छलफल तथा अन्तरक्रिया गर्दा यस घरपझोङ गाउपालिका वडा नं. ३ भित्र का तपशिल बमोजिमका जग्गाहरुलाई तपशिल बमोजिमले वर्गीकरण को लागी भू-उपयोग परिषद घरपझोङ गाउपालिकामा पेश गर्ने निर्णय गरियो ।

तपशिल:

१) औद्योगिक क्षेत्र:
हिमाली फर्निचर उद्योग, ड्याम्जुङ फर्निचर उद्योग, उत्तरगंगा फर्निचर उद्योग, रामलक्ष्मी फर्निचर उद्योग, रामलक्ष्मी डिस्टिलरी उद्योग, गुरुङ ब्लक उद्योग, टसी फोर्जिङ ग्रील उद्योग, टसि ब्लक उद्योग।

२) खानि तथा खनिज क्षेत्र:
घ्यारकर्ट तामाखानी

३) वन क्षेत्र:
आमा समुह वृक्षारोपण (स्कुल पहाडी), स्याङ आमा समुह वृक्षारोपण

४) नदी, खोला, ताल तथा सिमसार क्षेत्र:
स्याङ खोला, कालिगण्डकी नदी, स्यपुलि खाने पानी मुल, लेर्छो खाने पानी मुहान, सताङ फु खाने पानी मुहान (पुधाङको), झ्याङला ३ एयरपोर्ट खाने पानी मुल

५) सांस्कृतिक तथा पुरातात्विक महत्वको क्षेत्र:
ढ्याको म्युजियम, टासि लहाङ गुम्बा, थाकस्याङ ढोला, देउल, टासि लहारवाङ गुम्बा, ध्वेङलिङ आनी गुम्बा, शिव मन्दिर, डर्कैन ड्योकालिङ गुम्बा, चाङफु ~~गुम्बा~~ गुफा, स्याङ पुरानो गुम्बा, धर्मशाला, सगन कोर्पे गोला, सत कोर्पे फोला, स्याङते कोर्पे फोला, पालीन कोर्पे गोला

घरपझोङ गाउँपालिका
३ नं. वडा कार्यालय
स्याङ, मुस्ताङ
गण्डकी प्रदेश नेपाल

फलेन्द्र प्रसाद थकाली
वडा अध्यक्ष

CamScanner

) सार्वजनिक उपयोग को क्षेत्र:

जनकल्याण आधारभूत विद्यालय, सामुदायिक भवन, धर्मशाला प्रा.लि., कालीगण्डकी प्रा.लि., स्याङ खेल मैदान, स्याङ स्वास्थ्य चौकी, स्याङ शवदाह, धौलङ ध्यानकेन्द्र, नागरिक आरोग्य सेवा केन्द्र, इनडोर खेल मैदान, वृद्ध सामुदायिक भवन, दलित सामुदायिक भवन, स्याङ आमा समूह भवन, नमुना आधारभूत विद्यालय, किचिथाङबाट खड्के सम्म जोड्ने प्रा.लि., जनकल्याण क्लब भवन, पुरानो तारा स्टेशन हुने ठाउँ (धन्ची), फोहोर संकलन केन्द्र, परम्परागत पानी घट्ट, एयरपोर्ट खानेपानी लिमिटेड, मसानघाट

ख) आवासीय क्षेत्र:

- बेनी जोमसोम सडक देखि रिसोर्ट जोड्ने सडकको 30 मी. दायाँ-बायाँ
- ठुकचे देखि जोमसोम जाने शाखा मोटरबाटो को 40 मी. खेतबारी तर्फ।
- थौतीने देखि व्लान्चोक बस्ती हुदै स्याङ खोला को पक्की पुल सम्म जोड्ने बाटो को 40 मी. बस्ती तर्फ।
- स्याङ को माथिल्लो बस्ती भित्र पर्ने सम्पूर्ण जग्गाहरु।

ग) व्यवसायिक क्षेत्र:

वडा कार्यालय ३, नापी कार्यालय, मालपोत कार्यालय, फोङतबाङ फन शान्ति पार्क, निलगिरी पार्क, स्याङतीका भिउ पोइन्ट, कारागार, नेपाल खाद्य संस्थान, निलगिरी सहकारी संस्था (विद्युत कार्यालय), कृषि उपज बिक्री केन्द्र, विमानस्थल प्रवेशद्वार पार्क, पालिका भवन, जिल्ला समन्वय कार्यालय

- जोमसोम बजार क्षेत्र भित्र पर्ने सम्पूर्ण जग्गाहरु।
- बेनी जोमसोम सडकको 40 मी. दायाँ-बायाँ।
- एम्ले माद्दि देखि विनायक ढुंगा सम्म शाखा बाटो को 30 मी. खोला तर्फ।

घरपझोङ गाउँपालिका
३ नं. वडा कार्यालय
स्याङ, मुस्ताङ
गण्डकी प्रदेश नेपाल

फलेन्द्र प्रसाद थकाली
वडा अध्यक्ष

) कृषि क्षेत्र:

स्याङखोला सामुदायिक कृषि सहकारी क्षेत्र, लाङमुभाङ कृषि क्षेत्र, लिच्छिभाङ कृषि क्षेत्र, ओँची कृषि क्षेत्र, कुमभाङ कृषि क्षेत्र, पन्चो बनखेत क्षेत्र, ताङ्चो कृषि क्षेत्र (बनखेत), थाङ्को कृषिबन क्षेत्र सितलपाङ बन खेत क्षेत्र, चिल्लाङ गोठ क्षेत्र, गेर्को गोठ बारी क्षेत्र स्यपुली खेत क्षेत्र

घरपझोङ गाउँपालिका
३ नं. वडा कार्यालय
स्याङ, मुस्ताङ
गण्डकी प्रदेश नेपाल

फलेन्द्र प्रसाद थकाली
वडा अध्यक्ष

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आज मिति २०८१ बैसाख १६ गतेका दिन यस घरपझोङ गाउपालिका वडा नं १४ को सोमलोमका वडा अध्यक्ष श्री याम प्रसाद थकालीको अध्यक्षता मा भु-उपयोग वर्गीकरण सम्बन्धी बैठक बसी तपसिल बमोजिमको उपस्थितीमा तपसिल निर्णय समेत गरियो।

उपस्थिती

क.स	नाम थर	पद
१	श्री याम प्र. थकाली	वडा अध्यक्ष
२	श्री विजय शेरचन	" सदस्य
३.	श्री आनन्द गुरुङ	" सदस्य
४	श्री सुजिता शेरचन	" सदस्य
५	श्री सरिता नेपाली	" सदस्य
६	श्री विष्णु धौंसेल	को.ए.

विशेष उपस्थिती

७	श्री दिलिप भट्टचन	गाउ भुरिन्या
८	श्री जितेन्द्र शेरचन	गाउ सचिव
९	श्री देवसिंह गुरुङ	पुर्व गाउ भुरिन्या
१०	श्री तेज ब थकाली	पुर्व गाउ भरिन्या
११	श्री चन्द्र ब गुरुङ	पु सविधान सभा सदस्य
१२	श्री रमेश भट्टचन	व्यवसायी
१३	श्री मिना शेरचन	महिला एकुह अध्यक्ष
१४	श्री मिम कुमारी शेरचन	पुर्व महिला एकुह अध्यक्ष
१५	श्री हृदय प्रसाद भेजु	नागरिक समाज
१६	श्री चन्द्र ब थकाली	अध्यक्ष नागरिक समाज
१७	श्री भुवन शेरचन	पुर्व वडा सदस्य
१८	श्री विरेश शेरचन	सदस्य
१९	श्री प्रमिला थकाली	व्यवसायी
२०	श्री पुर्ण ब नेपाली	व्यवसायी
२१	श्री रोशन ब नेपाली	कृषक
२२	श्री रमेश गुरुङ	कृषक
२३	श्री पुष्कल नेपाली	कृषक
२४	श्री तेज ब गुरुङ	व्यवसायी

क्र.सं.	नामथर	पद
२४	रिम्बाङ गुरुङ	सचिव प्र.प ओमसोम
२५	गणेश शेरचन	पूर्व वडा सदस्य
२६	इन्द्र चतुर्वेदी	इन्जिनियर (परामर्शदाता)
२७	मनोज जि.सी.	इन्जिनियर (परामर्शदाता)
२८	भुवन भट्ट	प्राविधिक (परामर्शदाता)
~~२९~~	~~विष्णु~~	

प्रस्ताव नं. १ : जग्गा को वर्गीकरण सम्बन्धमा ।

प्रस्ताव नं. १ मा वडा नं. ४ का वडाध्यक्ष, वडा सदस्यहरु, राजनीतिक दलका प्रतिनिधिहरु, समाजसेवी तथा अन्य सरोकारवाला हरु को व्यापक छलफल तथा अन्तरक्रिया गर्दा यस घरपखोड गाउँपालिका वडा ४ भित्र का तपशिल बमोजिमका जग्गाहरुलाई तपशिल बमोजिमले वर्गीकरण को लागी भू-उपयोग परिषद, घरपखोड गाउँपालिका मा पेश गर्ने निर्णय गरियो ।

तपशिल

१) औद्योगिक क्षेत्र :
ज्योती काष्ठ फर्निचर उद्योग, निलगिरी फर्निचर उद्योग, अन्नपूर्णा फर्निचर उद्योग, मुस्ताङ ब्लक उद्योग, जोमसोम मोडर्न बेकरी, जस्ता औद्योगिक क्षेत्र

२) खानी तथा खनिज क्षेत्र :
फललेखहित यस वडा मा खानि तथा खनिज क्षेत्र नभएको ।

३) वन क्षेत्र :
खालाधुङसोम सामुदायिक वन, इच्छलेन, तपुछलेन वन क्षेत्र

४) नदी, खोला, ताल तथा सिमसार क्षेत्र :
कालिगण्डकी नदी, पुङ खोला

५) सांस्कृतिक तथा पुरातात्विक महत्वको क्षेत्र :
लोपन कुनै, येङ्गेन कुन्गा छोरखोर लिङ, म्होतोछाङ, थोफु गणेश मन्दिर, जीवन चक्र (व्हिल अफ लाइफ), कल्याणी भगवती, रिमछेम्पो, पुङ-प्रुङ, कन्याक लिङ गुम्बा, मुस्ताङ सांस्कृतिक तथा शिक्षा केन्द्र

यामप्रसाद थकाली
वडा अध्यक्ष

६) सार्वजनिक उपयोग को क्षेत्र:

जनहित नमुना मा.वि., तेज नरला जनहित बहुमुखी क्याम्पस, बालमन्दिर विद्यालय, जोमसोम कभर्डहल, जोमसोम बहुउद्देश्यीय सामुदायिक भवन, जोमसोम बाल उद्यान पार्क, ठाडो समाजघर, काइगाउ समाजघर, जोमसोम महिला समूह भवन, इथाङ दलित सामुदायिक भवन, स्हयाङ समाज घर, जनहित युवा क्लब भवन, गाउँ पुजा घर तथा ताराटेक भवन, जासाङ-सिनोङ थकाली समाज घर, धौलागिरी बोर्डिङ विद्यालय, जनहित बालस्याहित उत्थान केन्द्र जोमसोम, जोमसोम बसपार्क, तिनधारा कुवा, इथाङ वाणिज्य संघ भवन, जिल्ला सहरी कार्यालय, जोमसोम म.ग्रा.मे., धोयाङ स्नान स्थल, दलित डिपिङ ट्याङ्की, जनहित पुस्तकालय, निर्माण व्यवसायिक संघ, संरक्षण व्यवस्थापन समिति भवन, सार्वजनिक शौचालय

घरपझोङ गाउँपालिका
४ नं. वडा कार्यालय
जोमसोम, मुस्ताङ
गण्डकी प्रदेश, नेपाल

७) आवासीय क्षेत्र

- लिटि रप देखि थाङलेचुङ सम्म जोड्ने सडकको ३० मी. दायाँ-बायाँ
- राजेन्द्र शेरचन को घर देखि टेलिकम कार्यालय जोड्ने सडकको ३० मी. दायाँ-बायाँ।

८) व्यवसायिक क्षेत्र:

ए.पि.एफ. क्याम्प, आर्मी क्याम्प, पर्यटन सूचना केन्द्र, सरकारी वकिल कार्यालय, जिल्ला शिक्षा कार्यालय, मुस्ताङ जिल्ला अदालत, मुस्ताङ सांस्कृतिक तथा शिक्षा केन्द्र, पूर्वाधार विकास कार्यालय, डिभिजन वन कार्यालय, जिल्ला प्रशासन कार्यालय, जिल्ला प्रहरी कार्यालय, खानेपानी कार्यालय, जोमसोम जेट टावर, हाईवेयर स्टोर्स

शशिप्रसाद थकाली

सल्लाहकार्य, जिल्ला निर्वाचन कार्यालय, जिल्ला समन्वय समिति कार्यालय, मुस्ताङ एम्. एम्. वडा नं ०४ को कार्यालय, घरपझोङ गाउँपालिकाको कार्यालय, आयुर्वेद औषधालय

- आर्मी क्याम्प देखि जोमसोम आर.सी.सी. पक्कि पुल अन्तर्गत का जोमसोम बजार भित्र का सम्पूर्ण जग्गाहरु ।
- बेनी जोमसोम सडकको (आर.सी.सी. पक्कि पुल देखि खोरनाला सम्म) ३० मी. दायाँ - बायाँ ।
- आर.सी.सी पक्कि पुल देखि कर्णाई हल सम्म जोड्ने सडकको ३० मी. दायाँ - बायाँ ।
- घरपझोङ रिङरोड को ३० मी. दायाँ - बायाँ ।

९) कृषि क्षेत्र:

थिनाङ कृषि क्षेत्र, नमोघिर्किनाङ कृषि क्षेत्र, स्याङ्बोचे कृषि क्षेत्र

प्रमिला

शोभा

यमप्रसाद थकाली
वडा अध्यक्ष

घरपझोङ गाउँपालिका
४ नं. वडा कार्यालय
जोमसोम, मुस्ताङ
गण्डकी प्रदेश, नेपाल

आज मिति २०८१/१/१५ गते शनिवारका दिन यस घरपझोङ गा.पा. वडा नं. ५ को वडा अध्यक्ष श्री प्रदिप थकालीको ज्यू.को संयोजकत्वमा तपसिलका विभिन्न दल, संस्थाहरुका प्रतिनिधी तथा भद्र भलादमीहरुको उपस्थितिमा ककोठघर मा बैठक बसी तपसिलको निर्णय गरियो।

उपस्थिति

वडा अध्यक्ष - श्री प्रदिप थकाली
वडा सदस्य - श्री आईत बहादुर थकाली
वडा सदस्य - श्री लक्ष्मी कुमारी थकाली
" —— " - श्री कृष्ण प्रसाद थकाली
" —— " - श्री मञ्जु वि.क.
" सचिव - श्री सविता राई
- श्री. मनिन्द्रिरि थकाली
श्री संजय थकाली (आमा समूह)
श्री कुल बहादुर थकाली (जोमसोम)
श्री. पहिरधी थकाली
श्री. कर्ण बहादुर थकाली
श्री. विरेन्द्र थकाली
श्री. मित्र बहादुर थकाली
श्री. नारायण प्रसाद थकाली
श्री. बल बहादुर थकाली
श्री मान बहादुर थकाली
श्री. धन बहादुर थकाली
श्री. लाल प्रसाद थकाली
श्री कुल बहादुर थकाली (ठिनी)
श्री सुबी थकाली
श्री. पुर्ण प्रसाद ~~थकाली~~ नेपाली परिवार
श्री. खेम बहादुर वि.क.
श्री. अनिल थकाली
श्री. लाल प्रसाद थकाली
श्री सत बहादुर थकाली
श्री टसी गुरुङ
श्री कुटि वि.क.
श्री. सुदिप थकाली
श्री भुवन भट्ट

घरपझोङ गाउँपालिका
५ नं. वडा कार्यालय
ठिनी, मुस्ताङ
गण्डकी प्रदेश, नेपाल

श्री. इन्द्र सुवेदी (इन्जिनियर, परामर्शदाता)
श्री मनोज तिवारी
श्री. मदन थकाली
श्री. नरेन्द्र थकाली
श्री रमेश थकाली
श्री. कृष्ण थकाली
श्री महेश थकाली
श्री. सन्त प्रसाद थकाली
श्री. विजय थकाली
मया श्री. माया वि.क.
श्री निरज थकाली
श्री धन प्रसाद थकाली
श्री आइत बहादुर थकाली
श्री. च्याङ बहादुर थकाली
श्री टिका प्रसाद थकाली
श्री राजेन्द्र कुमार थकाली
श्री अमित थकाली

१. भू-उपयोग क्षेत्र वर्गीकरण सम्बन्धमा ।

प्रस्ताव नं. १ मा वडा नं. ५ का वडाध्यक्ष, वडा सदस्यहरु, गाउँ मुखियाहरु, राजनितिक दलका प्रतिनिधिहरु, समाजसेवी व्यक्तित्व तथा सरोकारवालाहरु संग को छलफल तथा अन्तरक्रिया गर्दा यस घरपमोड गाउँपालिका वडा नं ५ भित्र का तपसिल बमोजिम का जग्गाहरुलाई तपसिल बमोजिम ले वर्गीकरण को लागी भू-उपयोग परिषद, घरपमोड गाउँपालिका मा पेश गर्ने निर्णय गरियो ।

तपसिल
१) औद्योगिक क्षेत्र:
विश्वास फर्निचर उद्योग, लिमुघाट औद्योगिक क्षेत्र, तमलेघाट औद्योगिक क्षेत्र:

२) स्थानीय तथा स्थानान्तर क्षेत्र:

वडा अध्यक्ष
Ward Chairman

CamScanner

ताङ्लुङ कोइला खानी, तिरक्यु डापनी ढुङ्गा खानी

३) वन क्षेत्र:

ध्याम्चिङ थाङ वृक्षारोपण सामुदायिक वन

४) नदी, खोला, ताल तथा सिमसार क्षेत्र:

ध्युङक्यु खोला, मुरध्युङ खोला, ह्याकाङध्युङ खोला, ओरेध्युङ खोला, सोरेच्युध्युङ खोला, तच्युध्युङ खोला, लाङमाध्युङ खोला, ह्याकाङध्युङ खोला, सिध्युङ खोला, तिरध्युङ खोला, दुरबा ताल, डोकोङ्गो ताल, डोक्राचा ताल, छुपा ताल, कालिगण्डकी नदी

५) सांस्कृतिक तथा पुरातात्विक महत्वको क्षेत्र:

कुङ्गप युण्डुक गुम्बा, भोक फोर्पे (थोर्चे फुर्पा) गुम्बा, न्यु होम्स चर्च, ~~स्तुन्डुम~~ तेरेङ्गा गुम्बा, स्तो लियोपार्ड गुफा, ध्याङ्मा ड्योरतेन, थोङा ड्योरतेन, लहख्योवा गुम्बा, लहरवीमक्पो गुम्बा, भगोरबा गुम्बा, वरपकोङ ऐतिहासिक किल्ला, लाबु पुजास्थल, थकाली म्युजियम, ह्याली पुजा, सर च्यावा, चन डेवा, सैपोथाङ, ढुंगा पूजा गर्ने स्थल मेसोकन्टो

३) सार्वजनिक उपयोग को क्षेत्र

श्री मुक्ति नमुना आधारभूत विद्यालय, दुरबा आधारभूत विद्यालय, थन्ध्युङ आ.वि., मुरध्युङ आ.वि., लामाल्ची आ.वि., तच्युध्युङ आ.वि., ध्युङक्यु आ.वि., थामध्युङ आ.वि., ~~जिल्ला स्वास्थ्य कार्यालय~~ छिमी आमा समूह भवन, युवा क्लब भवन, ~~श्री दुरबा छिमी~~ खेल मैदान, ~~जिल्ला प्रहरी कार्यालय~~, जोमसोम स्वास्थ्य चौकी, खानेपानी टंकीहरु, तोकथाङ खेल मैदान, फलफूल संकलन केन्द्र, हिलियाक, डुम्बाहा (चिहानडाँडा), फोहोर संकलन स्थल, चिहानघाटहरु, दलित समाज घर, मुलिथाङ पार्क, दुरबा सबले सामुदायिक भवन, दुरबा समाजघर, गाउँघर क्लिनिक दुरबा, सिंचाई पोखरी

वडा अध्यक्ष
Ward Chairman

CamScanner

त्रिशिङ फोर्ये घर, सार्वजनिक बङ्गहरू

६) आवासीय क्षेत्र :

१) ठिनि गाउँ भित्र पर्ने सम्पूर्ण नगगाहरू ।

२) थाङचुङबाङ हुँदै चिलीबाङ हुँदै गल्फी डाँडा गेट सम्म जोड्ने बाटो को २५ मी. दायाँ-बायाँ ।

३) चिलीबाङ छेउँदै - छ्योंली नगालसम्म जोड्ने बाटो को २५ मी. दायाँ-बायाँ ।

४) छुरबा गाउँ को बाटो को २० मी. दायाँ-बायाँ ।

८) व्यवसायिक क्षेत्र :

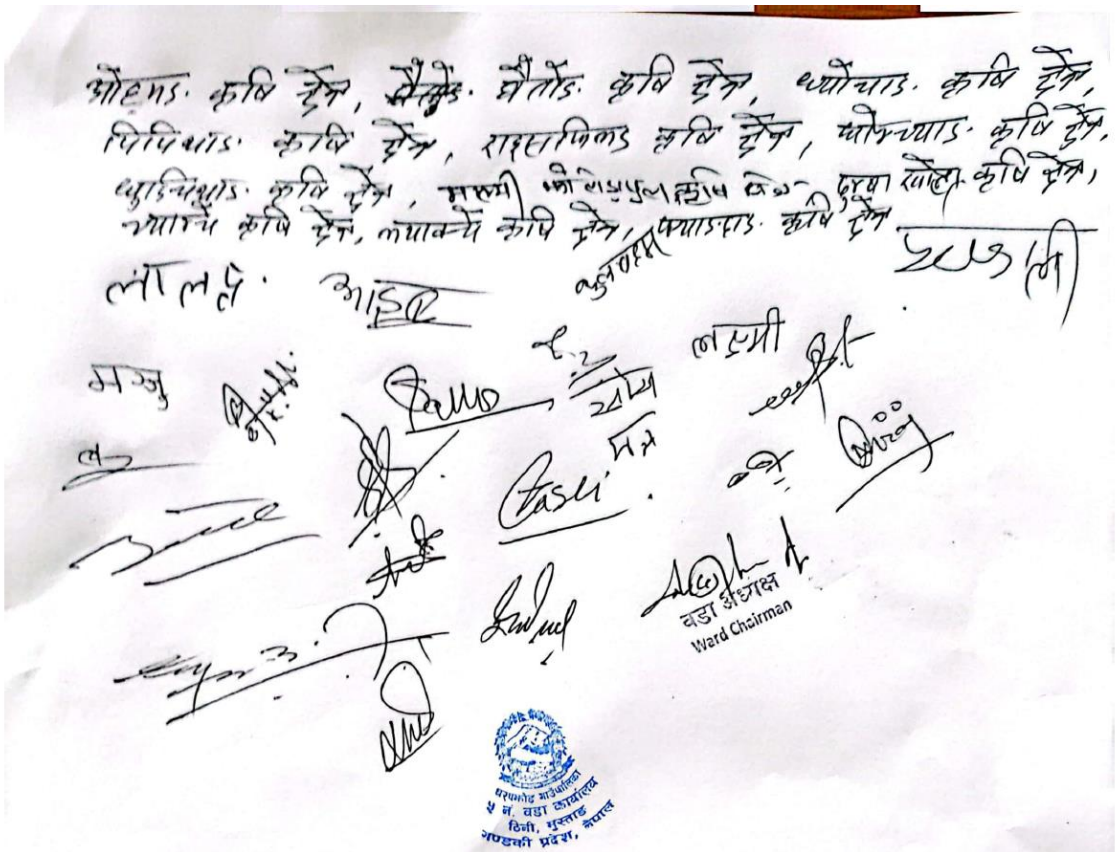
~~जिल्ला प्रशासन कार्यालय~~, मुस्ताङ ~~जिल्ला अदालत~~,

- थकाली सामुदायिक होमस्टे
- थरपजोङ रिङरोड सडकको ३० मी. दायाँ-बायाँ
- वडा नं. ५ को कार्यालय, नाकुबाङ पर्यटकीय स्थल, नाकुबाङ भिउ पोइन्ट, छ्युगी पर्यटकीय स्थल, तिलिचो केरा क्याम्प १, तिलिचो केरा क्याम्प २, कुम्स, नथाङ, तिलिगिरी केरा क्याम्प १, तिलिगिरी केरा क्याम्प २, ताङचुङ क्षेत्र, नाकु २, छ्याङ्जु भिउ प्वाइन्ट,

९) कृषि क्षेत्र :

छुरबा आमा समूह कृषि क्षेत्र, थोंच्याङ कृषि क्षेत्र, तिरन्चु कृषि क्षेत्र, ङ्ले कृषि क्षेत्र, गाङचे कृषि क्षेत्र, छोंची कृषि क्षेत्र, च्याङदाङ इको गो स्याउ खेती, गलथाङ कृषि क्षेत्र

वडाध्यक्ष
Ward Chairman

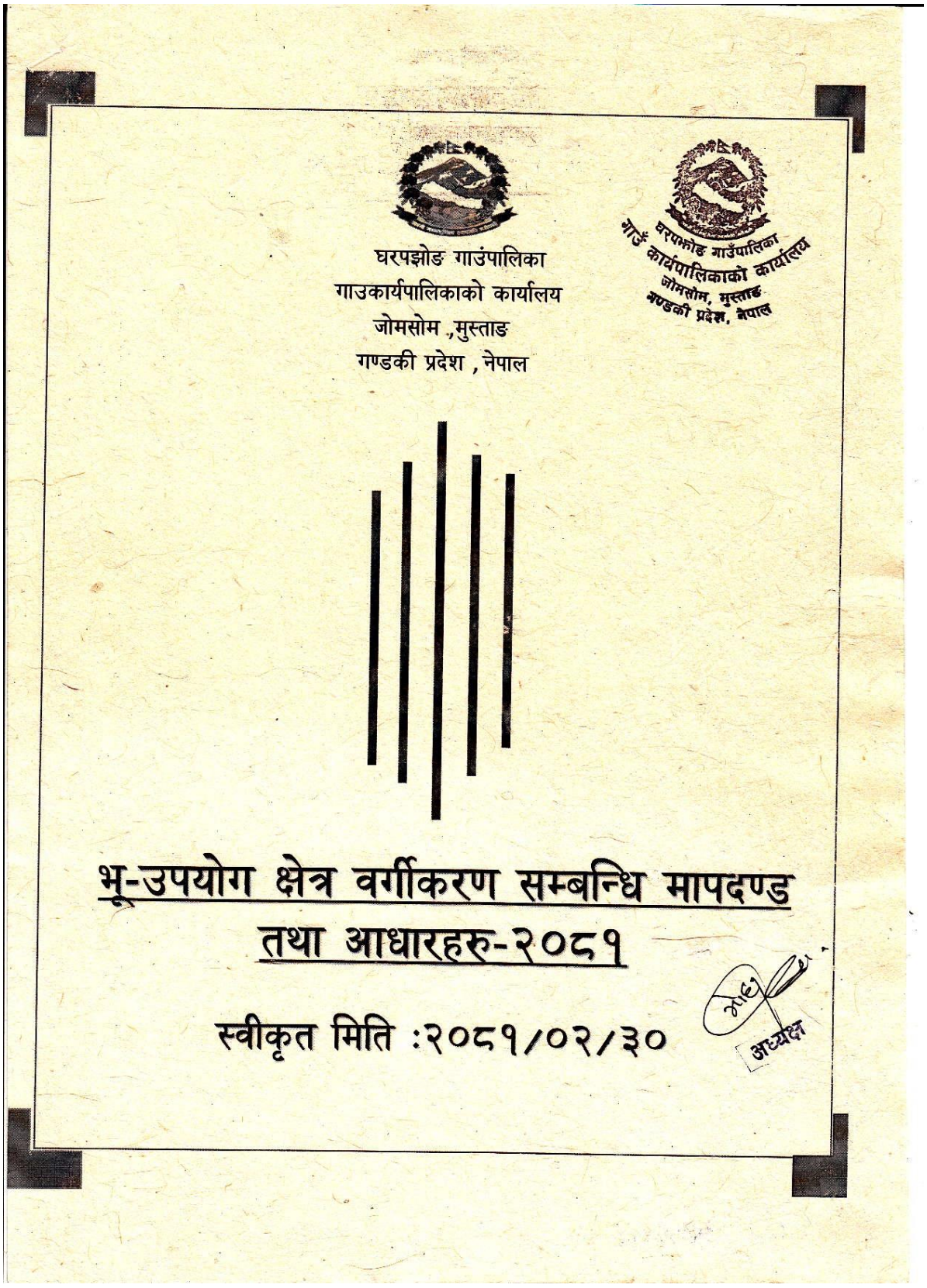


Appendix C: Photographs


कला संस्कृतिको जगेर्ना
बासीहरूको प्रबल चाहना।
सबै भाषा सबै धर्म सबै संस्कृति


कृपया शान्त बसीदिनु होला ।

Appendix D: Approved Guidelines and Criteria For Land Use Zoning



घरपझोङ गाउंपालिका
गाउकार्यपालिकाको कार्यालय
जोमसोम ,मुस्ताङ
गण्डकी प्रदेश , नेपाल

घरपझोङ गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय
जोमसोम, मुस्ताङ
गण्डकी प्रदेश, नेपाल

भू-उपयोग क्षेत्र वर्गीकरण सम्बन्धि मापदण्ड तथा आधारहरु-२०८१

स्वीकृत मिति :२०८१/०२/३०

अध्यक्ष

भू-उपयोग क्षेत्र वर्गीकरण सम्बन्धि मापदण्ड तथा आधारहरू

१.१ भू- उपयोग क्षेत्र वर्गीकरण सम्बन्धी मापदण्ड तथा आधारहरू २०८१

प्रस्तावना :

भू-उपयोग ऐन, २०७६ तथा भू-उपयोग नियमावली, २०७९ को मापदण्ड तथा आधारहरुका अतिरिक्त देहाय अनुसार यस घरपझोङ गाउंपालिका क्षेत्रको जग्गालाई भू-उपयोग क्षेत्रमा वर्गीकरण गरिने प्रयोजनको लागि भू- उपयोग ऐन, २०७६ को दफा (५) को उपदफा (४) वमोजिम भू-उपयोग क्षेत्र नक्सालाई अध्यावधिक गर्न यो मापदण्ड र आधार जारी गरिएको छ।

१. संक्षिप्त नाम र प्रारम्भः-

(क) यस मापदण्डको नाम "भू-उपयोग क्षेत्र वर्गीकरण सम्बन्धी मापदण्ड तथा आधारहरू-२०८१" रहेको छ ।

(ख) यो मापदण्ड घरपझोङ गाउं कार्यपालिकाले स्वीकृत भएको मितिबाट घरपझोङ गाउंपालिका क्षेत्र भित्र लागू हुनेछ ।

२. परिभाषाः- विषय वा प्रसङ्गले अर्को अर्थ नलागेमा यस मापदण्डमा,

(क) "ऐन" भन्नाले भूउपयोग ऐन, २०७६ लाई सम्झनुपर्दछ।

(ख) "नियमावली" भन्नाले भूउपयोग नियमावली, २०७९ लाई सम्झनुपर्दछ ।

(ग) "गाउंपालिका" भन्नाले घरपझोङ गाउंपालिका लाई सम्झनुपर्दछ।

(घ)"कार्यपालिका" भन्नाले घरपझोङ गाउं कार्यपालिकालाई सम्झनुपर्दछ ।

(ङ) "आवासीय क्षेत्र" भन्नाले मानवीय बासस्थानको लागि प्रयोग भएको घर, जग्गा तथा घरसँग जोडिएको वा नजोडिएको गोठ, भकारी, ग्यारेज, तवेला, इनार, फलफूल बगैंचा, करेसाबारी, आँगन वा त्यस्तै अरु कुनै काममा प्रयोग गरिएको जग्गा सम्झनु पर्छ र सो शब्दले बसोबासको लागि प्रचलित कानून बमोजिम तोकिएको कुनै क्षेत्रलाई समेत जनाउँदछ।

(च) "औद्योगिक क्षेत्र" भन्नाले कुनै पनि कार्यस्थल वा वस्तु उत्पादन गर्ने उद्योग तथा सो सञ्चालन गर्ने प्रयोजनको लागि निर्माण गरिएका भवन, घर, टहराले चर्चेको जग्गा लगायत सो प्रयोजनको लागि छुट्याइएका जग्गा सम्झनु पर्छ र सो शब्दले कुनै निश्चित भौगोलिक क्षेत्रमा उद्योग प्रवर्द्धन गर्ने उद्देश्यले प्रचलित कानून बमोजिम तोकिएको विशेष आर्थिक क्षेत्रलाई समेत जनाउँदछ ।

(छ)"कृषि क्षेत्र" भन्नाले कृषि बाली उत्पादन, पशु/पन्छी पालन, फार्महाउस, मत्स्यपालन, माहुरीपालन, रेशम खेती लगायत कृषिजन्य उत्पादन, बागवानी वा वनबाटिका, जडिबुटी र कृषि वनको लागि प्रयोग भएको वा हुन सक्ने जग्गा सम्झनु पर्छ ।

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(ज) "खानी तथा खनिज क्षेत्र" भन्नाले प्रचलित कानून बमोजिम खानी तथा खनिज पदार्थको उत्खनन, उत्पादन, शुद्धीकरण, प्रशोधन, सञ्चय गर्ने प्रयोजनको लागि छुट्याइएको क्षेत्र सम्झनु पर्छ।

(झ) "तोकिएको" वा "तोकिए बमोजिम" भन्नाले ऐन अन्तर्गत बनेको नियममा तोकिएको वा तोकिए बमोजिम सम्झनु पर्छ।

(ञ) "भू-उपयोग" भन्नाले भूमिको उपयोग सम्झनु पर्छ।

(ट) "भू-उपयोग क्षेत्र" भन्नाले ऐनको दफा ४ बमोजिम वर्गीकरण गरिएको क्षेत्र सम्झनु पर्छ।

(ठ) "भू-उपयोग क्षेत्र नक्सा" भन्नाले ऐनको दफा ५ बमोजिम तयार गरिएको भू-उपयोग क्षेत्र नक्सा सम्झनु पर्छ ।

(ड) "भू-उपयोग योजना " भन्नाले भू-उपयोगलाई व्यवस्थित गर्न दफा ६ बमोजिम तयार गरिएको योजना सम्झनु पर्छ ।

ढ) "भूमि" भन्नाले पृथ्वीको सतह, सतहभन्दा सिधा तेल पृथ्वीको केन्द्रसम्म र सतहभन्दा माथि पृथ्वीको गुरुत्वाकर्षणले भेट्ने सीमासम्मको भाग सम्झनु पर्छ।

ण) "वन क्षेत्र" भन्नाले प्रचलित कानून बमोजिम तोकिएको वन क्षेत्र सम्झनु पर्छ ।

त) "व्यावसायिक क्षेत्र " भन्नाले बैक, सहकारी र वित्तीय संस्था, पसल, होटेल, प्रदर्शनी कक्ष, पेट्रोल पम्प, गोदामघर, चलचित्र घर, स्वास्थ्य, सञ्चार, मनोरञ्जन सम्बन्धी सेवा, वस्तुको खरिद बिक्री हुने स्थान, कुनै साहित्यिक, वैज्ञानिक, प्राविधिक सेवा, सूचना तथा परामर्श उपलब्ध गराउने संस्था, अन्य कुनै व्यावसायिक प्रयोजनको लागि निर्माण गरिएको भवनले चर्चेको जग्गा तथा सो प्रयोजनको लागि छुट्याईएको जग्गा तथा पर्यटन व्यवसायले चर्चेको जग्गा सम्झनु पर्छ र सो शब्दले कुनै निश्चित भौगोलिक क्षेत्रमा बजार विस्तार गर्ने गरी प्रचलित कानून बमोजिम तोकिएको क्षेत्रलाई समेत जनाउँछ।

थ) "सांस्कृतिक तथा पुरातात्विक महत्त्वको क्षेत्र" भन्नाले धार्मिक स्थल, धर्मशाला, पुरातात्विक महत्वका दरवार तथा प्रचलित कानून बमोजिम सांस्कृतिक तथा पुरातात्विक महत्त्वका क्षेत्र भनि तोकिएका क्षेत्र सम्झनु पर्छ ।

(द) "सार्वजनिक उपयोगको क्षेत्र" भन्नाले विद्यालय, विश्वविद्यालय, छात्रावास, शवदाह स्थल, सडक, सिँचाई कुलो वा नहर, इनार, कुवा, चौतारी, पाटी, पौवा, गौशाला, उद्यान, बसपार्क, विमानस्थल, गौचर, खेलकुद मैदान तथा अन्य सार्वजनिक उपयोगको लागि निर्माण गरिएका भवन, घर, टहरा, स्थान तथा त्यस्ता संरचनाले चर्चेको जग्गा सम्झनु पर्छ र सो शब्दले कुनै निश्चित भौगोलिक क्षेत्रमा सार्वजनिक उपयोगको क्षेत्र भनि प्रचलित कानून बमोजिम तोकिएको क्षेत्रलाई समेत जनाउँछ।

३. भू-उपयोग मापदण्ड निर्धारणका आधारहरुः

(क) विद्यमान भू-उपयोगको अवस्था,

अध्यक्ष

(ख) नापी विभागले पठाएको भू-उपयोग क्षेत्र वर्गीकरणको तथ्याँक
(ग) सडक, बाटोको पहुँच र सो को वर्गीकरण,
(घ) कृषि उत्पादन र उत्पादकत्वको अवस्था,
(ङ) भू-उपयोग ऐन २०७६,
(च) भू-उपयोग नियमावली २०७९,
(छ) Google Satellite Images,
(ज) GIS Analysis
(ठ) वडाबाट आएको राय सुझाव,
(ड) विभिन्न क्षेत्रका विज्ञहरु र सर्वदलीय, सर्वपक्षीय भेलाबाट प्राप्त राय सुझाव

४. भू-उपयोग क्षेत्र वर्गीकरण सम्बन्धी मापदण्डहरुः

क). जोखिम लगायत अन्य सम्वेदनशील क्षेत्रको जग्गालाई नापी विभागबाट वर्गीकृत क्षेत्रमा वर्गीकरण गर्ने ।

ख). यस अघि नापी विभागबाट आवासिय, व्यवसायिक र औद्योगिक क्षेत्रमा विभाजन भएको जग्गालाई सोही क्षेत्रमा वर्गीकरण गर्ने, तर गाउँपालिकाको आवश्यकता र उपर्युक्त देखेमा आवासिय क्षेत्रलाई यस मापदण्डको अधिनमा रही व्यवसायिक क्षेत्रमा अध्यावधिक गर्न सकिने छ ।

ग). नगर गाउँपालिकाले नदी उकासबाट आएको जमिनमा सार्वजनिक सडक, ढल, उद्यान बाहेक कुनै संरचना निर्माण गर्न दिनु हुदैन। नदी उकासबाट आएको क्षेत्र स्वतः हरित क्षेत्र घोषणा हुने गर्दछ र उक्त क्षेत्रमा वनस्पति विभाग वा बन मन्त्रालयले सिफारिस गरे अनुसारका बोट विरुवा रोपी हरियाली कायम गर्नु पर्दछ ।

५. सार्वजनिक उपयोगको क्षेत्र

- भूउपयोग नियमावली २०७९ को अनुसुची-१ ज. मा व्यवस्था भएका क्षेत्र
- सरकारी, सार्वजनिक तथा समुदायिक प्रयोजनका लागि प्रयोग हुने जग्गा (सेवा प्रदान गर्ने सरकारी कार्यालयहरु बाहेक) लाई सार्वजनिक उपयोग क्षेत्रमा वर्गीकरण गर्ने ।

६. नदी, खोला, ताल, सीमसार क्षेत्र

- भूउपयोग नियमावली २०७९ को अनुसुची-१ छ. मा व्यवस्था भएका क्षेत्र ।
- हाल उपयोगमा रहेका नदीनाला, ताल, तलैया, पोखरी (व्यक्तिको निजी पोखरी बाहेक) लगायतका पानीजन्य उपयोगमा रहेको क्षेत्रलाई नदी, खोला, ताल तथा सिमसार क्षेत्रमा वर्गीकरण गर्ने ।

७. खानी तथा खनिज क्षेत्र

- भूउपयोग नियमावली २०७९ को अनुसुची-१ ङ. मा व्यवस्था भएका क्षेत्र ।

- स्थानीय तहबाट स्वीकृति प्राप्त गरी खानी तथा खनिजजन्य पदार्थहरु जस्तै: ढुङ्गा, गिट्टी, बालुवा उत्खनन् गर्ने क्षेत्रलाई खानी तथा खनिज क्षेत्रमा वर्गीकरण गर्ने ।

८. वन क्षेत्र

- भूउपयोग नियमावली २०७९ को अनुसुची-१ च. मा व्यवस्था भएका क्षेत्र
- हाल कायम सबै किसिमका वन पैदावार क्षेत्र (धार्मिक, निजी जग्गामा भएको बाहेक) लाई वन वर्गीकरण गर्ने ।

९. सांस्कृतिक तथा पुरातात्विक महत्वको क्षेत्र

- भूउपयोग नियमावली २०७९ को अनुसुची-१ झ. मा व्यवस्था भएका क्षेत्र
- हाल उपयोगमा रहेको मठ, मन्दिर ,मस्जित ,गुम्बा ,चर्च लगायत धार्मिक क्षेत्रले चर्चेको खाली जग्गा परापुर्व काल देखीका ऐतिहासिक धरोहर साँस्कृतिक तथा पुरातात्विक महत्वका क्षेत्र ।

१०. औद्योगिक क्षेत्र

- भूउपयोग नियमावली २०७९ को अनुसुची-१ घ. मा व्यवस्था भएका क्षेत्र ।
- गाउँपालिका भित्र संचालनमा रहेका उधोग र औद्योगिक ग्राम क्षेत्रलाई यस क्षेत्रमा वर्गिकरण गर्ने ।

११. व्यवसायिक क्षेत्र

- भूउपयोग नियमावली २०७९ को अनुसुची-१ ग. मा व्यवस्था भएका क्षेत्र ।
- हाल उपयोगमा रहेका आवासिय भवन व्यापारिक भवन जस्तैः- पसल, बैंक तथा वित्तिय संस्था, होटल, रेष्टुरा ,चमेना गृह, व्यवसायिक प्रयोजनका लागी उपयोग गर्ने स्टोरेज क्षेत्र, सेवा प्रदान गर्ने सरकारी कार्यालयले चर्चेको खाली जग्गा, निजि अस्पताल, बिधालय क्षेत्रहरु।

१२. कृषि क्षेत्र

- भूउपयोग नियमावली २०७९ को अनुसुची-१ क. मा व्यवस्था भएका क्षेत्र ।
- कृषि क्षेत्र भन्नाले कृषि बाली उत्पादन पशु/पन्छी पालन फार्महाउस मत्स्यपालन माहुरीपालन रेसम खेती लगायतका कृषिजन्य उत्पादन बागवानी वा वनबाटिका जडिबुटी र कृषि वनको लागी प्रयोग भएको वा हुन सक्ने जग्गा सम्झनु पर्छ ।

१३. आवासिय क्षेत्र

- भूउपयोग नियमावली २०७९ को अनुसुची-१ ख. मा व्यवस्था भएका क्षेत्र ।
- हाल उपायोगमा रहेको सम्पुर्ण आवासिय क्षेत्रको जग्गा ।

२४. माथि उल्लेख भए बमोजिमका अलवा घरपझोङ गाउंपालिका रहेका तपसिल बमोजिमका क्षेत्रहरुलाई देहाए बमोजिम क्षेत्रमा वर्गीकरण गर्ने:-

वडा नं.१

क. औद्योगिक क्षेत्र
चिमाङ वेभरेज, सानो ल्हकी देखि चिमाङ खोला सम्मको औद्योगिक क्षेत्र
ख. खानी तथा खनिज क्षेत्र
हुमछहरा ढुंगा खानी, सागर माटो खानी, चिमाङ माटो खानी।
ग. सांस्कृतिक तथा पुरातात्त्विक महत्वको क्षेत्र
चर्चको भवन, घ्याल्घिपल फोपे घर, भर्ती फोपे, छैरो छहरा गुम्बा, सेबिथान मन्दिर, गुरु पदमसम्ब ढाक्चन गुफा र पाउको छाप, ठुलो म्हाने, सानो म्हाने, घेसिङघोङ पुजा गर्ने ठुलो रुख, हुम छहरा पुजा गर्ने थान, छैरो छहरा गुम्बा, छैरो छो दह ।
घ. नदि खोला ताल सिमसर क्षेत्र
कालीगण्डकी नदी, छैरो छहरा, छैरो ल्हकी छहरा, चिमाङ खोला, तलीघ्याङ सिमसार, ठुलो र सानो ल्हकी सिमसार।
ङ. वन क्षेत्र
छैरो बन, चिमाङ बन, छैरो कालीगण्डकी वृक्षारोपन।
च. सार्वजनिक उपयोगका क्षेत्र
चिमाङ सामुदायिक भवन, आमा समुहको भवन, दलित समाज घर, छैरो गुम्बा भवन, छैरो आधारभुत विधालय, निलगिरी आधारभुत विधालय, तिब्बेतियण झो.पु., कालीगण्डकी झो. पु., चिमाङ झो. पु., चिमाङ खेल मैदान, फोहोर संकलन केन्द्र, छैरो आमा समुह भवन, छैरो दलित समाज घर, स्वास्थ्य इकाइ, म्हुताङचे चिहान घाट क्षेत्र, छैरो पानी घट्ट, तल छैरो पानी घट्ट, छैरो गणतान्त्रिक सामुदायिक भवन, छैरो फोहोर संकलन केन्द्र, मार्फा ९ ख कित्ता न. १४ ।
छ. व्यवसायिक क्षेत्र
वडा नं. १ को कार्यालय, एनसेल टावर, मार्फा ९ ख कित्ता न. १८०, टुकुचे ९ कित्ता न. ३२,३३,३४,३५,३६,३८ र १४१

घरपझोङ गाउंपालिका को भू-उपयोग क्षेत्र वर्गीकरण सम्बन्धी मापदण्ड तथा आधारहरू २०८१ ५

छैरो छहरा कृषि क्षेत्र देखि पक्की पुल सम्म रिङरोड बाटोको ३० मिटर दाँया बाँया

ज. कृषि क्षेत्र
छैरो छहरा कृषि क्षेत्र, उल्लेखित क्षेत्र बाहेक रहेको अन्य सबै जग्गा हरु कृषि क्षेत्र
झ. आवासिय क्षेत्र

क्र स	सडकको नाम	बाटोको दाया बाया पर्ने जग्गा मिटरमा	कैफियत
१	छैरो गाउँ देखी पक्की पुल जोड्ने बाटोको खेत तर्फ ४० मि.		खेत तर्फ
२	छैरो गाउँ मुलबाटोको	४०	
३	छैरो गाउँ मुलबाटो हुदै गुम्बा जाने बाटोको	४०	
४	छैरो तलिग्याङ हुदै पक्की पुल जाने बाटोको	४०	
५	छैरो मुलबाटो देखी ठुलो ल्हकी जोड्ने सडकको	३०	
६	छैरो मुल बाटोको (ठुलो ल्हकी चोक जाने बाटो देखी सानो ल्हकी जोड्ने बाटोको)	३०	
७	चिमाङ गाउँ बस्ती क्षेत्र पर्ने सम्पुर्ण जग्गाहरु		
८	झेनेघाङ देखी माथि चिमाङ गाउँ सम्मको सहायक बाटोको	३०	
९	चिमाङ गाउँ देखी विधालय हुदै ठुलो ल्हकी सडकको	३०	

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क. औद्योगिक क्षेत्र
ओल्ड मार्फाली डिस्टिलरी, निलगिरी डिस्टिलरी उद्योग, धौलागिरी अल्कोहलिक वेभरेज, मार्फा डिस्टिलरी उद्योग, भोङमोर फलफुल प्रशोधन केन्द्र, मार्फा ब्लक उद्योग।
ख. खानी तथा खनिज क्षेत्र
उल्लेखित यस वडामा कुनै पनि खानी तथा खनिज क्षेत्र नभएको

ग. सांस्कृतिक तथा पुरातात्त्विक महत्वको क्षेत्र
हिसुम गुम्बा, सम्तेछ्योलिङ गुम्बा, प्रा गुम्बा, मार्फा फोलो (कुल देवता), माम्ती गुर्फा, स्तुर गुम्बा, गुरु कोत्रे खोला पुजास्थल, लोपेन मार्फा धर्मशाला, कङग्युर गुम्बा (इकाई कावा गुची), शिकारी कुलघर कोवाङझोङ, मार्फा म्युजियम घर, कोत्रे खोला पुजा गर्ने स्थल, तेर पुर्जा गर्ने स्थल (अन्न र जल पुजा गर्ने स्थल)।
घ. नदि खोला ताल सिमसर क्षेत्र
पोम्क्यु (राज खोला), धुङलानाङक्यु (फार्म खोला), छ्युरच्युङ (थाले) खोला, कालीगण्डकी नदी, चिन ताल, मुक्पल्दे ताल।
ङ. वन क्षेत्र
नाकुमभाले बन, सपिघसाङ बन, डेरासाङ आलुबारी बन, छेकोङन्हा बन, लम्बुक्य बन, झोखर्क बन (फोटोङ), सेची बन, मार्फा वृक्षारोपन, मार्फा आमा समुह वृक्षारोपन, थल्चे बन, झोङ बन।
च. सार्वजनिक उपयोगका क्षेत्र
जनवाल मा.वि., मार्फा खेल मैदान, तिब्बेतीयन झो.पु., छैरो कालीगण्डकी झो.पु., सभा गृह हल, मार्फा स्वास्थ्य चौकी, आमा समुह भवन, सेल्तुन्हाङ धर्मशाला, मार्फा ध्यान केन्द्र, कोटघर, मिलिजुली युवा क्लब भवन, स्योम्बो घर, डुइमिनस्या घर, दलित समाज भवन, दलित कृया घर, चिहान घर, जनवाल मा.वि.को जग्गा, ताराखेल घर, जनवाल मा.वि. छात्रवास, मिलिजुली पार्क।
छ. व्यवसायिक क्षेत्र
कोसेली चोकदेखि मार्फा मितेरी पार्क जोड्ने गाउँ भित्रि बाटोले हुने दायाँबायाँ तर्फका पहिलो कित्ताहरु, एप्पल पार्क, मितेरी पार्क, वार्ड कार्यालय २, क्षेत्रसुम भिउ प्वाइन्ट, इम्पाक्यावं भिउ प्वाइन्ट, प्रोङोथाङ व्यवसायिक क्षेत्र
• बेनी जोमसोम सडकको ४० मि. दायाँबायाँ • कोसेली चोकदेखि मार्फा मितेरी पार्क जोड्ने गाउँ भित्रि बाटो र बेनी जोमसोम सडक भित्र पर्ने सम्पूर्ण जग्गाहरु • बेनी जोमसोम सडकको बुद्धको घर देखि चि जोड्ने बाटोको ३० मि. दाँया बाँया
ज. कृषि क्षेत्र
पम्क्यु कृषि क्षेत्र, मार्फा कृषि क्षेत्र पम्क्यु खोला, सपि कृषि क्षेत्र, लेझत कृषि क्षेत्र, मार्फा आलुबारी कृषि क्षेत्र, धवाङ कृषि क्षेत्र।
झ. आवासिय क्षेत्र

क्र स	सडकको नाम	बाटोको दायाँ बाया पर्ने जग्गा मिटरमा	कैफियत
१	मार्फा गाउँको व्यवसायिक क्षेत्र बाहेक रहेका बस्ती क्षेत्रमा पर्ने सम्पुर्ण जग्गाहरु।		

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क. औद्योगिक क्षेत्र
हिमाली फर्निचर उद्योग, ज्यामरुक फर्निचर उद्योग, उत्तरगंगा फर्निचर उद्योग, रामलक्ष्मी फर्निचर उद्योग, रामलक्ष्मी डिस्टिलरी उद्योग, गुरुङ ब्लक उद्योग, टसी फेन्सिङ जालि उद्योग, टसि ब्लक उद्योग ।
ख. खानी तथा खनिज क्षेत्र
घ्योरल्हे तामाखानी
ग. सांस्कृतिक तथा पुरातात्विक महत्वको क्षेत्र
इको म्युजियम, टसि ल्हाङ गुम्बा, थाकस्याङ फोला ढोला देउता,टसि ल्हाखाङ गुम्बा, धेछिलिङ आनी गुम्बा, शिव मन्दिर, उर्केन छ्योकलिङ गुम्बा, चाङ्फु गुफा, स्याङ पुरानो गुम्बा, धर्मशाला, सगन फोपै फोला, सन फोपै फोला, स्याङ्ने फोपै फोला, पासीन फोपै फोला
घ. नदि खोला ताल सिमसर क्षेत्र
स्याङ खोला, कालीगण्डकी नदी, स्यपुलि खानेपानी मुल, लेफो खानेपानी मुहान, सताङ फु खानेपानी (पुथाङको), झ्याङ्ला उ एयरपोर्ट खानेपानी मुल
ङ. वन क्षेत्र
आमा समुह वृक्षारोपण (स्कुल पछाडी),स्याङ आमा समुह वृक्षारोपन
च. सार्वजनिक उपयोगका क्षेत्र

जनकल्याण आधारभूत विद्यालय, सामुदायिक भवन, धर्मशाला झो.पु, कालिगण्डकी झा.फे, स्याङ खोला मैदान, स्याङ स्वास्थ्य चौकी, स्याङ शबदाह, घैलुङ ध्यानकेन्द्र, नागरिक आरोग्य सेवा केन्द्र, इन्डोर खेलमैदान, बुद्ध सामुदायिक भवन, दलित सामुदायिक भवन, स्याङ आमा समुह भवन, नमुना आधारभुत विद्यालय, किचिथाङबाट रछमे सम्म जोड्ने झो.पु., जनकल्याण क्लब भवन, पुरानो तारा खेल हुने ठाउ (धर्ची), फोहोर संकलन केन्द्र, परम्परागत पानी घट्ट, एयरपोर्ट खानेपानी लिफ्टिङ, मसानघाट
छ. व्यवसायिक क्षेत्र
वडा कार्यालय ३, नापी कार्यालय, मालपोत कार्यालय, झोड्नघाङ मन शान्ती पार्क, निलगिरी पार्क, स्याङ्तीभ्रा भिउ पोइन्ट, कारागार,नेपाल खाद्य संस्थान, निलगिरी सहकारी संस्था (विद्युत कार्यालय), कृषि उपज बिक्री केन्द्र, बिमानस्थल प्रवेशद्वार पार्क, पालिका भवन, जिल्ला समन्वय कार्यालयको भवन -जोमसोम बजार क्षेत्र भित्र पर्ने सम्पूर्ण जग्गाहरु -बेनी जोमसोम सडकको ४० मि. दायाँ- बायाँ -एक्लो भट्टि देखि बिदाई ढुङ्गा सम्म शाखा बाटोको ६० मि. खोला तर्फ।
ज. कृषि क्षेत्र
स्याङ खोला सामुदायिक कृषि सहकारी क्षेत्र, लाङमुथाङ कृषि क्षेत्र, किचिथाङ कृषि क्षेत्र, झोची कृषि क्षेत्र, युमथाङ कृषि क्षेत्र, पन्चो कृषि क्षेत्र, ताङ्चो कृषि क्षेत्र, घडो कृषि क्षेत्र, सिनक्याङ कृषि क्षेत्र, चिल्ताङ कृषि क्षेत्र, भ्रेको कृषि क्षेत्र, स्यपुली कृषि क्षेत्र।
झ. आवासिय क्षेत्र

क्र स	सडकको नाम	बाटोको दाया बाया पर्ने जग्गा मिटरमा	कैफियत
१	बेनी जोमसोम सडक देखि रिसोर्ट जोड्ने सडकको ३० मि. दायाँ-बायाँ	३०	
२	ढुक्चे देखि जोमसोम जाने शाखा मोटरबाटोको ४० मि. खेतबारी तर्फ		४०मि. खेतबारी तर्फ
३	धैतीमे देखि पुलचोक बस्ति हुदै स्याङ खोलाको पक्की पुल सम्म जोड्ने बाटोको ४० मि. बस्ती		४० मि. बस्ती तर्फ
४	स्याङको माथिल्लो बस्ती भित्र पर्ने सम्पूर्ण जग्गाहरु।		

५	ढुक्चे देखि पुलचोक जोड्ने सडक (सोकोप्ला सडक)	३० मि.

घरपझोङ गाउँपालिका
कार्यपालिकाको कार्यालय
जोमसोम, मुस्ताङ

वडा नं.४

क. औद्योगिक क्षेत्र
ज्योती काष्ठ फर्निचर उधोग, निलगिरी फर्निचर उधोग, अरुणा फर्निचर उधोग, मुस्ताङ ब्लक उधोग, जोमसोम मोर्डन बेकरी, होम्दा औधोगिक क्षेत्र।
ख. खानी तथा खनिज क्षेत्र
उल्लेखित यस वडामा कुनै पनि खानी तथा खनिज क्षेत्र नभएको
ग. सांस्कृतिक तथा पुरातात्त्विक महत्वको क्षेत्र
लोपन कुने, चेहेन कुन्गा क्षोरखोर लिङ, भ्होतोघाङ, धोफु गणेश मन्दिर, जीवन चक्र (रिदम अफ लाइफ), कन्याली भगवती, रिचघोप्चो, थुङप्रुक लिङ गुम्बा, मुस्ताङ साँस्कृतिक तथा शिक्षा केन्द्र।
घ. नदि खोला ताल सिमसर क्षेत्र
कालीगण्डकी नदी, पुछ खोला।
ङ. वन क्षेत्र
खालाधुङब्लेन सामुदायिक बन, छब्लेन, धफुब्लेन बन क्षेत्र।
च. सार्वजनिक उपयोगका क्षेत्र
जनहित नमुना मा.वि., तेज नरला जनहित बहुमुखी क्याम्पस, बालमन्दिर विधालय, जोमसोम कभर्ड हल, जोमसोम बहुउदेश्यीय सामुदायिक भवन, जोमसोम बाल उत्थान पार्क, ताङवे समाजघर, बाह्रगाउँ समाजघर, जोमसोम महिला समुह भवन, उथाङ दलित सामुदायिक भवन, म्हधुङे समाज घर, जनहित युवा क्लब भवन, गाउँ पुजा घर तथा ताराखेल भवन, थासाङ-सिजोङ थकाली समाज घर, जनहित बानस्पतिक उत्थान केन्द्र जोमसोम, जोमसोम बसपार्क, तिनधारा कुना, उधोग वाणिज्य संघ भवन, जिल्ला प्रहरी कार्यालय, जोमसोम झो पु, धोथाङ स्नान स्थल, दलित डिपिङ ट्याकी, जनहित पुस्तकालय, निर्माण व्यवसायि संघ, संरक्षण व्यवस्थापन समिति भवन, सार्वजनिक शौचालय।
छ. व्यवसायिक क्षेत्र
ए.पि.एफ.क्याम्प, आर्मी क्याम्प, पर्यटन सुचना केन्द्र, सरकारी वकिल कार्यालय, जिल्ला शिक्षा कार्यालय मुस्ताङ, जिल्ला अदालत, मुस्ताङ सांस्कृतिक तथा शिक्षा केन्द्र, पुर्वाधार विकास कार्यालय,

डिभिजन बन कार्यालय, जिल्ला प्रशासन कार्यालय, जिल्ला पशुधन कार्यालय, खानेपानी लिमिटेड कार्यालय, जोमसोम भिउ टावर, हार्डवयर एण्ड सप्लायर्स, जिल्ला निर्वाचन कार्यालय, जिल्ला [illegible] कार्यालय, मुस्ताङ एफ.एम., वडा नं. ४ को कार्यालय, घरपझोङ गाउँपालिकाको कार्यालय, आयुर्वेद औषधालय, आर्मी क्याम्प देखि जोमसोम आर.सि.सि. पक्की पुल अन्तर्गतका जोमसोम बजार भित्रका सम्पुर्ण जग्गाहरु,

बेनी जोमसोम सडकको (आर.सि.सि. पक्की पुल देखि खोरनन् सम्म) ३० मि. दायाँबायाँ,

आर.सि.सि. पक्की पुल देखि कभर्ड हल सम्म जोड्ने सडकको ३० मि. दायाँबायाँ,

घरपझोङ रिङरोडको ३० मि. दायाँबायाँ।

ज. कृषि क्षेत्र

धोथाङ कृषि क्षेत्र, नमोघिर्कीथाङ कृषि क्षेत्र, म्हल्चे कृषि क्षेत्र, मातृ चक्र कृषि क्षेत्र

झ. आवासिय क्षेत्र

क्रस	सडकको नाम	बाटोको दाया बाया पर्ने जग्गा मिटरमा	कैफियत
१	लिटि ख देखि थाङलेधुङ सम्म जोड्ने सडकको	३०	
२	राजेन्द्र शेरचनको घरदेखि टेलिकम कार्यालय जोड्ने सडकको	३०	

वडा नं.५

क. औद्योगिक क्षेत्र

विश्वास फर्निचर उद्योग, तिमुथाङ औद्योगिक क्षेत्र, तमलेथाङ औद्योगिक क्षेत्र।

ख. खानी तथा खनिज क्षेत्र

ताङतुङ कोइला खानी, तिक्यु छपनी ढुङगा खानी।

ग. सांस्कृतिक तथा पुरातात्त्विक महत्वको क्षेत्र
युङटुङ गुम्बा, भोम फोपे (धोर्चे फुर्वा) गुम्बा, न्यु होम चुवे, कछुप तेरङगा गुम्बा, स्नो लियोपार्ड गुफा, झ्याङमा छ्योर्तेन, घोङा छ्योर्तेन, ल्हथ्योवा गुम्बा, ल्हखीमकर्पो गुम्बा, भ घुम्पा गुम्बा, घरपझोङ ऐतिहासिक किल्ला, नमु पुजास्थल, थकाली म्यूजियम, ह्याली युमा, सर च्यावा, चन छेवा , सैपोथाङ, (ढुंगा पुजा गर्ने स्थल) मेसोकन्दो।
घ. नदि खोला ताल सिमसर क्षेत्र
ल्हाङमाघ्युङ खोला, मुरघ्युङ खोला, ह्याकाङघ्युङ खोला, झोरेघ्युङ खोला, सोम्च्युघ्युङ खोला, तच्युङघ्युङ खोला, लाङमाघ्युङ खोला, मुरघ्युङ खोला, सिघ्युङ खोला, तिघ्युङ खोला, ढुम्बा ताल, छोमाछो ताल, छोझचा ताल, कृष्ण ताल, कालीगण्डकी नदी।
ङ. वन क्षेत्र
धुन्चिङ भाङ वृक्षारोपण, सामुदायिक बन।
च. सार्वजनिक उपयोगका क्षेत्र
श्री मुक्ति नमुना आधारभुत विद्यालय, ढुम्बा आधारभुत विद्यालय, मुरघ्युङ झो.पु., ल्याक्ची झो.पु., तच्युघ्युङ झो.पु., घ्युङक्यु झो.पु., याकघ्युङ झो.पु., ठिनि आमा समूह भवन, युवा क्लब भवन, ठिनि खेलमैदान, जोमसोम स्वास्थ्य चौकी, खानेपानी टंकीहरु, तोपथाङ खेलमैदान, फलफुल संकलन केन्द्र, हिल्धिम छम्ल्हा (चिहानडाँडा), फोहोर संकलन स्थल, चिहानघाटहरु, दलित समाज घर, भुतिथाङ पार्क, ढुम्बा सम्ले सामुदायिक भवन, ढुम्बा समाज घर, गाउँघर क्लिनिक ढुम्बा, सिचाई पोखरी, झिसिङ फोपे घर, सार्वजनिक घट्टहरु।
छ. व्यवसायिक क्षेत्र
थकाली सामुदायिक होमस्टे, घरपझोङ रिङरोड सडकको ३० मि. दायाँबायाँ, वडा नं. ५ को कार्यालय, नमुघाङ पर्यटकीय स्थल, नमुघाङ भ्यु पोइन्ट, छ्युर्मी पर्यटकीय स्थल, तिलिचो बेस क्याम्प १, तिलिचो बेस क्याम्प २, भ्रप्स ,भथाङ, निलगिरी बेस क्याम्प १, निलगिरी बेस क्याम्प २, ताङतुङ क्षेत्र, नमु २, ह्यारुझो भिउ प्वाइन्ट।
ज. कृषि क्षेत्र
ढुम्बा आमा समूह कृषि क्षेत्र, धोच्याङ कृषि क्षेत्र, तिक्यु कृषि क्षेत्र, ङले कृषि क्षेत्र, भाङाचे कृषि क्षेत्र, घोचि कृषि क्षेत्र, फ्याङताङ इको ग्रो स्याउ खेती, मनथाङ कृषि क्षेत्र, ओमाङ कृषि क्षेत्र, घैतोङ कृषि क्षेत्र, ध्योचाङ कृषि क्षेत्र, पिपिथाङ कृषि क्षेत्र, राइसफिल्ड कृषि क्षेत्र, धोम्च्याङ कृषि क्षेत्र, धुन्चिथाङ कृषि क्षेत्र, मल्मी झो.पु. कृषि क्षेत्र, ढुम्बा खोला कृषि क्षेत्र, च्याम्चे कृषि क्षेत्र, ल्याक्चे कृषि क्षेत्र, फ्याङताङ कृषि क्षेत्र।

झ. आवासिय क्षेत्र
उल्लेखित बाटो हरुको व्यवसायिक क्षेत्र बाहेक रहेको जग्गा,
ठिनि गाउँ भित्र पर्ने सम्पुर्ण जग्गाहरु,

क्रस	सडकको नाम	बाटोको दाया बाया पर्ने जग्गा मिटरमा	कैफियत
१	थाङथुङघाङ देखि चिनिघाङ हुँदै मल्ली डाँडा गेट सम्म जोड्ने बाटोको	२५	
२	चिनिघाङ देखि छ्योती भगल सम्म जोड्ने बाटोको	२५	
३	ढुम्बा गाउँको बाटोको	२०	

१५. वर्गीकरण गरी तयार गरिएको नक्सामा व्यक्तीका कित्ता लाई बनजनियको भएतापनि त्यस्ता कित्ताहरुलाई कृषि क्षेत्रको जग्गामा कायम गर्ने ।

१६ भू-उपयोग नियमावली, २०७९ अनुसार बसोबास, व्यावसायिक क्षेत्र वा अन्य उपयोग भएको क्षेत्रसँग जोडिएको भए तापनि कित्ताको क्षेत्रफल ५००० (पाँचहजार) वर्ग मिटर भन्दा बढी भई खेती गरिएको वा खनजोत गरिएको वा प्रति बाँझो रहेको जग्गालाई कृषि क्षेत्रमा वर्गीकरण गर्नु पर्ने भएतापनि स्थानिय आवश्यकताका आधारमा आवासिय वा व्यावसायीक मापदण्ड बमोजिमको क्षेत्रमा वर्गिकरण गरिनेछ ।

१७. भूउपयोग क्षेत्र वर्गीकरण भई प्रत्येक कित्ताको विवरण तयार गरे पश्चात कित्तानापि नक्सामा कुनै कित्ता न दोहोरिएमा,छुट हुन गएमा वा अस्पष्ट (जस्तै ० अथवा ९९९९९) हुन गएमा साबिक नक्सा तथा अन्य प्रमाणको आधारमा वर्गीकरण गरिएको भूउपयोग क्षेत्र फरक नपर्ने गरि त्यस्तो त्रुटि संशोधनका लागि स्थानीय तहको सिफारिस बमोजिम संशोधन गर्न सकिने ।

१८ फाईल नक्सामा भएका कित्ताहरुको हकमा साबिक कित्ता व्यवसायिक क्षेत्रमा भए व्यवसयिक क्षेत्रमा नै कायम गर्ने र साबिक कित्ता अन्य जुनसुकै क्षेत्रमा भए पनि आवासिय क्षेत्रमा कायम गर्न सकिने ।

१९.भू-उपयोग (पहिलो) संशोधन नियमावली २०८० को नियम ४ को उपनियम ४ घ बमोजिम भू-उपयोग क्षेत्र वर्गिकरण भइ प्रत्येक कित्ताको विवरण तयार गर्ने क्रममा वर्गिकरण गरिएको भू-पयोग क्षेत्र भन्दा फरक क्षेत्रमा वर्गिकरण हुन गई त्रुटि हुन गएमा वर्गिकरण गरिएको भू-पयोग क्षेत्र फरक नपर्ने गरि त्रुटी संशोधन गरि सिफारिस गरिने ।

२०. जग्गाको मूल्य निर्धारण गर्दा कृषि क्षेत्रलाई विशेष प्राथमिकता दिईनेछ साथै कृषि तथा पशुजन्य उत्पादन क्षेत्रमा गाउँपालिका बाट दिईने सेवा सुविधाको दायरा बढाईनेछ ।

२१. जग्गा वर्गिकरण गरि नापि नक्सालाइ भूउपयोग नक्सामा खप्टाउदा एउटै कित्ता फरक फरक सिटमा परी र दुई वा दुई भन्दा बढी क्षेत्रमा वर्गिकरण भएको खण्डमा विधमान जग्गा उपयोग प्रयोजनलाई ध्यान दिदै निम्न प्राथमिकता क्रम बमोजिम एक क्षेत्रमा कायम गरि सिफारिस गर्न सकिने ।

क. व्यवसायिक क्षेत्र
ख. आवासीय क्षेत्र
ग. कृषि क्षेत्र
घ. सार्वजनिक उपयोगको क्षेत्र

२२. **मापदण्डको संशोधनः** भू-उपयोग परिषद्को सिफारिसमा गाउँ कार्यपालिकाले आवश्यकता अनुसार संशोधन गर्न सक्नेछ ।

२३. **बाधा अड्काउ :** यस मापदण्ड कार्यान्वयनमा कुनै समस्या आएमा भू-उपयोग परिषद्ले बाधा अड्काउ फुकाउन सक्नेछ ।

अध्यक्ष

घरपझोङ गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय
जोमसोम, मुस्ताङ
गण्डकी प्रदेश, नेपाल

अध्यक्ष

Appendix E: Maps