



PROFILE 2019

TAPLI RURAL MUNICIPALITY
Udayapur District
Province 1, Nepal

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FOREWORD

The New Constitution of Nepal in 2015 has enshrined the rights and responsibilities of the local governments to chart the path to prosperity and development of their people. Such a path to the prosperity can be materialized through the implementation of the comprehensive and integrated plan that build upon the objective analysis of the existing situations, clearly defied objectives, and action plans.

Understanding the historical path of development and existing situation is essential for formulating any plan. In this context, this Profile of Tapli Rural Municipality 2019 is at our hands. This profile of the rural municipality has been prepared with the objective of assessing the current situation in terms of the biophysical features, demographic patterns, socio-economic features, and institutional features. We hope that the profile will be helpful exploring project banks, preparing comprehensive plan and providing the benchmark to assess the performance of our development interventions.

This Profile has been prepared based on the Guidelines developed by the National Planning Commission of the Government of Nepal by applying the scientific tools such as integration of attribute data with the spatial data, collection of geographic coordinates of all the households, and calculation of the Gini coefficient to assess the degree of inequality among others. Several verification were also made through workshop, consultation and meeting.

We would like to thank the Conservation Development Foundation and their experts Mr. Shailendra Kumar Pokharel and Dr. Govinda Basnet to jointly lead the task of preparing profile. Further, the experts namely Mr. Juddha Bahadur Gurung, Dr. Bhuvan Keshar Sharma, Dr. Bharat Subba, Mr. Manish Kokh Shrestha, Mr. Damodar Bhandari, Er. Pradeep Chandra Neupane, Dr. Puspahal Pokharel and other team members are greatly thankful for thier valuable inputs.

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At the end but never less, we greatly acknowledge Mr. Bed Prasad Pokharel, the former President of District Development Commettee, Udayapur, and Deepak Budhathoki, District Coordinator, Save the Children International to be instrumental in many ways making this profile the great success.

We hope, this profile will be a milestone to all sharing us their hands for the sustainable development of the the Tapli Rural Municipality.

Uddhav Singh Thapa
Chairperson
April 19, 2019

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ABBREVIATION AND ACRONYMS

°C	Degree Celsius
C	Carbon
AMIS	Agency Managed Irrigation System
DDC	District Development Committee
DHM	Department of Hydro Meteorology
DFO	District Forest Office
FMI	Farmer Managed Irrigation System
GIS	Geographic Information System
GPS	Global Positioning System
Ha	Hectare
Hh	Households
IPS	Inter-Bank Panel System
IVI	Important Value Index
Kg	Kilogram
LULC	Land Use Land Cover
Mm	Millimetre
NPC	National Planning Commission
NPR	Nepalese Rupees
NTFP	Non Timber Forest Product
PV	Prominence Value
RC	Relative Coverage
RD	Relative Density
RF	Relative Frequency
RM	Rural Municipality
TRM	Tapli Rural Municipality
Sq. Km.	Square Kilometre
VDC	Village Development Committee

SAILENT FEATURE

Location	6°28'14" to 86°36'20" E - 27°01'17" to 27°08' 54" N
Physiographic zones	Mahabharat zone
Total Area	120.72 square kilometer, which is about 5.77 % of the total area of Udayapur district.
Elevation	300 m at Sunkoshi (Thanagaun) to 2310 m (near Nigalbas) in Iname.
Climatic zones	Subtropical to Warm Temperate Climate
Annual rainfall	2089 mm
Temperature range	15.89°C-28.48°C.
Major river systems	Yari Khola, Rakula Khola, Gahatekhola, Gharikhola, Kuvindekhola
Major landcover type	Forest (47.98%), cultivated land (32.08%), and shrubland (13.43%)
Community forest no.	8 (2 in Okhle, in Lekhgau, 1 in Iname, 2 in Thanagau, 2 in Rupatar)
Average carbon stock	70.8 ton/ha
Floral diversity	174 species (67 Trees, 67 Shrubs, 40 Herbs)
Faunal diversity	159 species (25 Pieces, 4 Amphibians, 12 Reptiles, 76 Aves, 18 Mammals, 34 butterflies)
Socio-economic features	
Total population	14,989 (7,113 male and 7,226 female)
Population density	124.16 per sq km
Total households	2,574
Average household size	5.82
Major ethnic groups	Magar (21.43%), Rai (20.66%), Tamang (12.03%),and Thakuri (10.45%).
Literacy rate	76% of above 5 years age population
People with Disability	114
Livestock	Cows, buffaloes, goats, sheep, pigs, and chicken
Foreign employment	388 people
Gini coefficient	0.659 (household income), 0.556 (landholding size)
Metallic minerals	Pyrite [FeS ₂] at Gahate Khola and Gideri Gaun, Malachite [Cu ₂ CO ₃ (OH) ₂] at KhaniDanda and Iname.
Industrial minerals	Limestone at Tare vir area (Thanagau)
Tourism attractions	Tapli pond at Tapli in ward number 2.Kakani Mai at Dumre, Shiva temple at Shiddhetar, Sangechheling monastery at Iname.
Schools	38 (Basic-17, Primary -4, Lower secondary-8, Secondary-6, Higher secondary-3), Total no of teacher 191, total no of student 4246.
Health posts	5 (one in each ward)



Tapli Danda

1. INTRODUCTION

1.1 Background

Adoption of federal system in Nepal has been a watershed event in the development path of the country. Although the country enters into an uncharted water, the new state restructuring offers unprecedented opportunities for the local level governments to plan and execute their own development path. The Constitution of Nepal 2015 enshrines the rights of local level governments to address the aspirations of the people residing within their jurisdiction. The newly elected local governments want to seize the moment of euphoria filled with hope to design a clear development path.

Formulation of such a comprehensive development plan requires having a clear assessment of the existing situation in the municipality in terms of demography, economy, environment, infrastructure base, resource base etc. The Municipality Profile provides such a basis for understanding the current context, identifying areas for intervention, and establishing benchmark for assessing the achievement.

1.2 Objectives

Overall objective of the profile is to present comprehensive objective analysis of the information of the municipality related to social, economic, environmental sectors and to identify potential for development path. The specific objectives are:

- To analyze and present the existing conditions of the municipality in relation to bio-physical features; population and demography; social and economic features; and institutional features, and
- To analyze and present the social and economic institutions functioning in the municipality

1.3 Methodology

The profile of the municipality has been prepared following the 'Guidelines for Preparation of Periodic Plan of Local level Governments' Published by the National Planning Commission. The overall methodological approach was consultative and participatory involving Municipality officials and ward officials in designing the contents and methods of information collection. Following specific methods were used in the preparation of the municipality profile.

1.3.1 Orientation:

An orientation/inception workshop was organized the Rural Municipality Office at Rupatar to orient the Municipality and ward officials about the content of the profile and procedures for collection and analysis of the information. In addition to the orientation workshop at the

municipality level, consultation meetings were organized in each ward office about the profile preparation.

1.3.2 Census

Household level information related with the population, education, economy, etc. were collected by conducting census. A draft questionnaire for census was prepared and intensive consultations were held with the municipality officials for revising the questionnaire. Feedback of the officials and the participants of the orientation workshop were incorporated in the questionnaire. The questionnaire was further refined during the training of enumerators. The questionnaire is in the **Annex.**

Two enumerators were hired for census data collection in each ward. A two- day orientation workshop was organized for the enumerators to orient them on data collection. The questionnaire was pre-tested as well.

The collected were entered and analyzed in Microsoft Excel environment. The inaccuracies in the collected data were checked and further information was collected.

1.3.3 Community level information collection

Community level information which are beyond the realm of household level information were collected by conducting workshops at ward level. A checklist (**Annex...**) was developed for generating community level information.

1.3.4 Integration of Geographic Information System

The information generated through household census and community level workshops were integrated with the Geographic Information System. Geographic coordinates of all the households were collected using Global Positioning Systems. Thus collected geographic data were analyzed along different social parameters like ethnicity, education status etc. Geographic coordinates of community infrastructures such as Schools, Health posts, ward offices, temples etc were also collected.

Satellite images were used to assess the trend of land use land cover (LULC) changes. Google Earth image was used to digitize and calculate the current area under different classes of LULC. The ward boundaries, name of the settlements, community infrastructures were digitized/refined in consultation with knowledgeable people during the planning workshops organized in each ward.

1.3.5 Thematic studies:

Specific studies under different themes of forest, wildlife, water sources, and geology were conducted by thematic experts. Thematic experts conducted field study in September.

1.3.6 Review of literature:

Relevant information was also collected from review of other literature such as reports of district offices (DFO), Disaster Risk Management Plans of Wards (previously VDCs), annual plan of the municipality, CBS reports etc.

2. GENERAL FEATURES

2.1 Etymology of Tapli

The etymological root of Tapli Rural Municipality is linked with the famous pond called Tapli Pokhari, located at the Lekhgaun. The local legend says a sage did *Tapasya* (meditation, atonement) in this place, so the name of the place came as 'Tapli' after his long atonement. The Tapli pokhari is widely known in the district and away and is famous for cultural and tourism significance. It draws visitors from the the rural municipality itself and adjoining areas.

In addition, several places within the municipality have roots in some legends. For example, Rupatar, the headquarters of the municipality has been named following the legend that Ruparani has danced in this place; Thanagaun was an administrative center in the past and there was a police post (Thana); Iname has root in Magar language as I meaning house and *name* meaning yam; Kumaltar is named as a resident of ethnic group *Kumals*. Other places such as Jordhunga, Madale, Khanidanda, Bijuwa, Admara, kamile danda, Tamkharka, Dadhuwa, Diyathumka, Adhmara, Siddhe have one or other stories attached with their names. The Tapli pond can be considered a unifying heritage in the rural municipality

2.2 Location and Area

2.2.1 Location and Boundaries

Tapli Rural Municipality, one of the eight local level units (*Palika*) in Udayapur District of Province 1, lies in the Mahabharat range. The Rural Municipality extends from 86° 28' 14" to 86° 36' 20" E Longitude and 27° 01' 17" to 27° 08' 54" North Latitude (Figure 1). Rupatar in ward 5 is the headquarters of the municipality. Katari is the nearest major market center; which is at about 52 km from Rupatar. It is at 23 km from the nearest black-topped road head at Betini, the growing small market palce also considered as the gateway to Solukhumbu from Katari. The Tapli Rural Municipality comprises five erstwhile Village Development Committees (VDC) viz. Okhle, Lekhgaun, Iname, Thanagaun, and Rupatar. Each of these erstwhile VDCs now constitutes one ward of the Municipality.

The Tapli Rural Municipality (RM) borders with Udaypurgadhi Rural Municipality in the South, Katari Municipality in the West, Sunkoshi Rural Municipality in the East, Rautamai Rural Municipality in the South east of Udayapur district, and Haleshi Tuwachung Rural Municipality of Khotang district in the North (Figure 2). The Sunkoshi River borders with the Khotang district.

2.2.2 Areas

Total area of TRM is 120.72 square kilometer, which is about 5.77 % of the total area of Udayapur district. Area occupied by each ward is shown in the table.

Table 1 Area of each ward in Tapli Rural Municipality

Ward's Name	Ward number	Area (km ²)	Percent of Total
Okhle	1	23.20	19.22
Lekhgaun	2	19.77	16.38
Iname	3	23.02	19.07
Thanagaun	4	24.32	20.15
Rupatar	5	30.41	25.19
Total		120.72	



Photo: Rupatar, Adminstative centre of Tapli Rural Municipality.

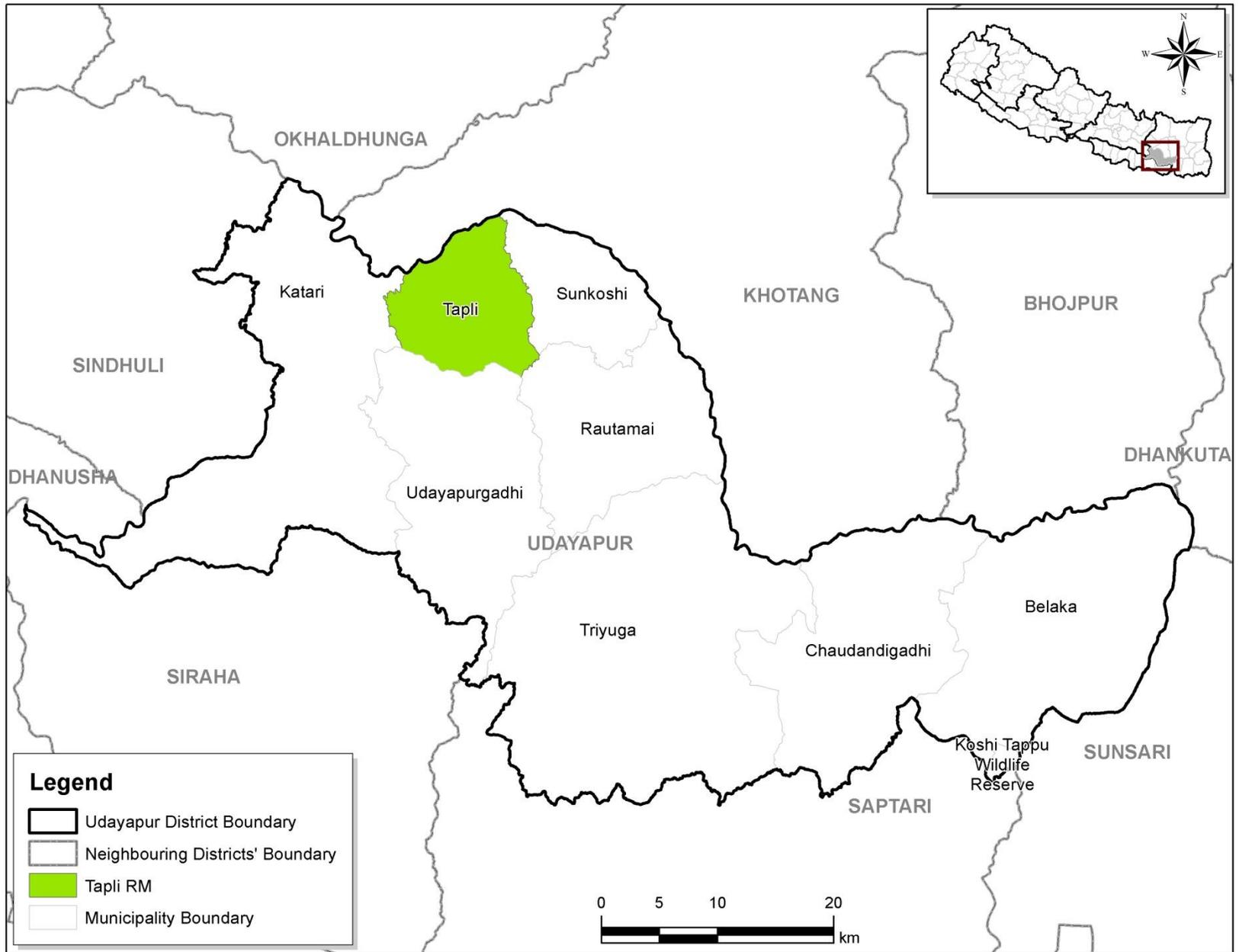


Figure 1: Location of Tapli Rural Municipality

2.3 Geology, Topography and Elevation

2.3.1 Geology and Topography

Tapli RM has the presence of unfossiliferous, sedimentary, and Meta -sedimentary rocks such as slate type rock, Limestone. The rocks are correlated with the Kathmandu Group of the Higher Himalaya rock groups. Some of the formation like the Sorung Khola formation and the Tawa Khola Formation are exposed, and the granitic rocks cover a wide area in the middle parts of the Tapli RM. The lithology constitutes a high grade metamorphic rock which is thick and massive bedded fine to coarse grained quartzite, schist, gneiss, and limestone and dolomite in some parts.

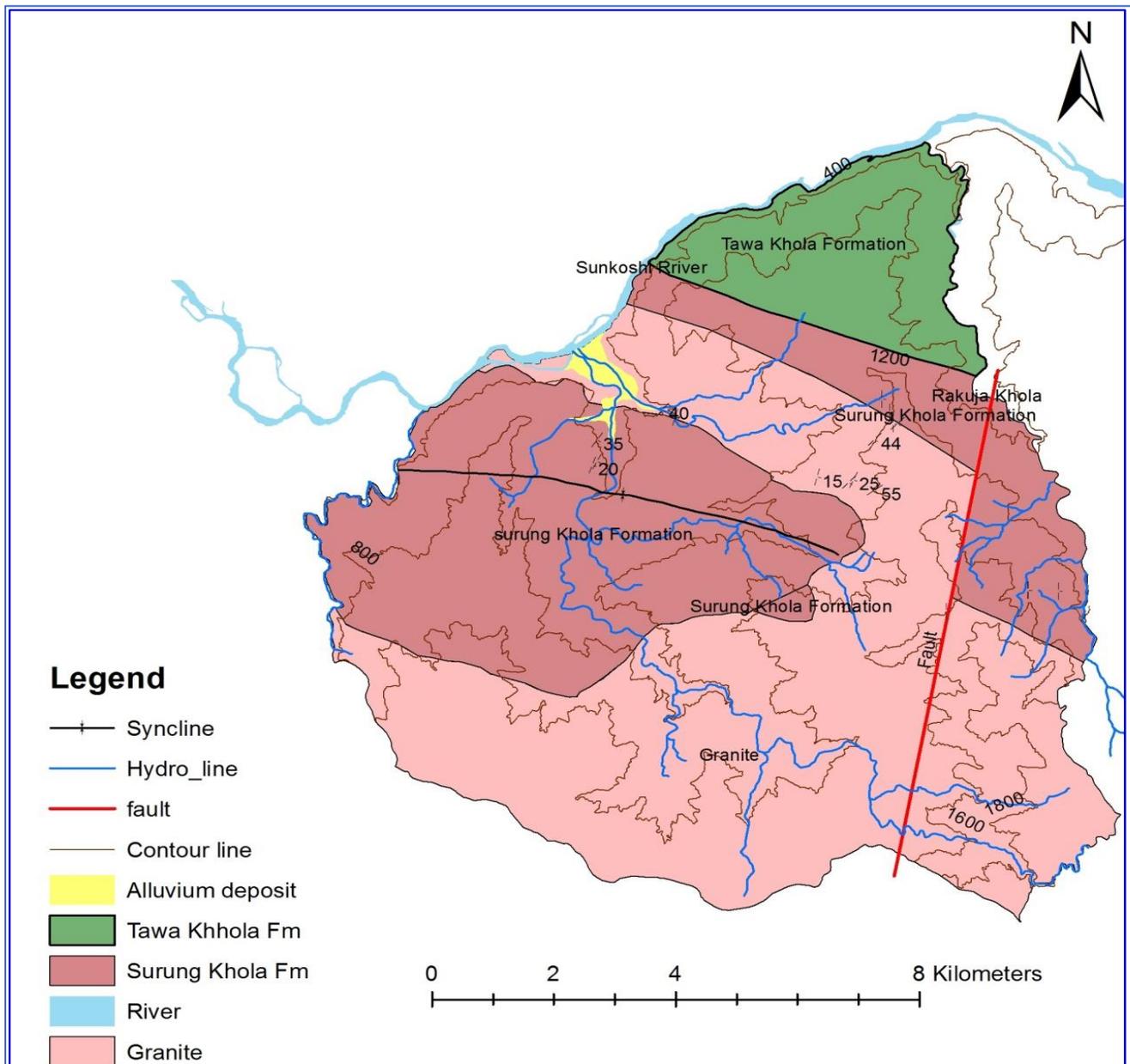


Figure 3: Neighbouring rural municipalities around the Tapli Rural Municipality in Udayapur and Khotang districts

Municipality area consists of mixed lithology. The northwestern part of municipality consists of the Sorung Khola Formation that is characterized by the presence of fine textured dark-grey to greenish-white quartz-biotite-schists, quartz-feldspar-biotite-schists interbedded with white quartzites and micaceous quartzites and intrusions of pegmatities Cs-calc silicate rocks. In the north part of rural municipality, there is the Tawa Khola Formation which is coarse grained, dark-grey muscovite-biotite quartz schists with intercalations of grayish-white quartzites and amphiboles in the lower part. Granites are widely distributed in the middle part of the rural municipality, which is a giant intrusion in the form of batholiths. The weathered granites are observed in the lower and middle part of TRM surrounded by the Formation of Sorung Khola.

Topographically, Tapli Rural Municipality is mostly a hilly rural municipality. It extends from the lowland, called *Taar* in the north, to the higher mountain of Mahabharat range in all directions. Most of the northern parts (ward no 5) and river basins' low lands cover 8.68 percent area of the Tapli Rural Municipality. Similarly, Midland lies at the altitudinal range of 500 to 1200 meters, which occupies 51.60 % of the total area. Remaining 39.73 % of the land lies at Higher Mahabharat Range. Mahabharat hill stretches across the elevations, between 1100 to 2300 meters. The mountainous parts of Mahabharat range above 1100 meter altitude is more rugged in a form and has steep face toward north, east and west direction. It has several deep and narrow valley and small stream basins.

2.3.2 Elevation and Aspects

The elevation of the Rural Municipality ranges from 300 m at Sunkoshi in Thanagaun to 2,310 m near Nigalbas in Iname. The area under less than 500 m elevation is only 8.64% of the total area. Table 2 and Figure 4 (upper) shows the area under different elevation zones.

Most of the areas are north-faced {Table 3 and Figure 4 (lower)}.

Table 2 Area under different elevation zone in Tapli Rural Municipality

S.N	Altitude Category (m)	Area (ha)	Percent
1	<500	1,043.2	8.64
2	500 - 1000	4,347.9	36.02
3	1000 - 1500	4,497.5	37.26
4	1500 - 2300	2,183.2	18.09
	Total	12,071.8	100.01

Table 3: Area under different aspects in Tapli Rural Municipality

S.N	Aspect Category	Area (ha)	Percent
1	North	2,298.9	19.0
2	North-East	1,641.8	13.6
3	East	1,326.8	11.0
4	South-East	856.5	7.1
5	South	916.3	7.6
6	South-West	1,169.9	9.7
7	West	1,630.2	13.5
8	North-West	2,231.6	18.5
	Total	12071.8	100

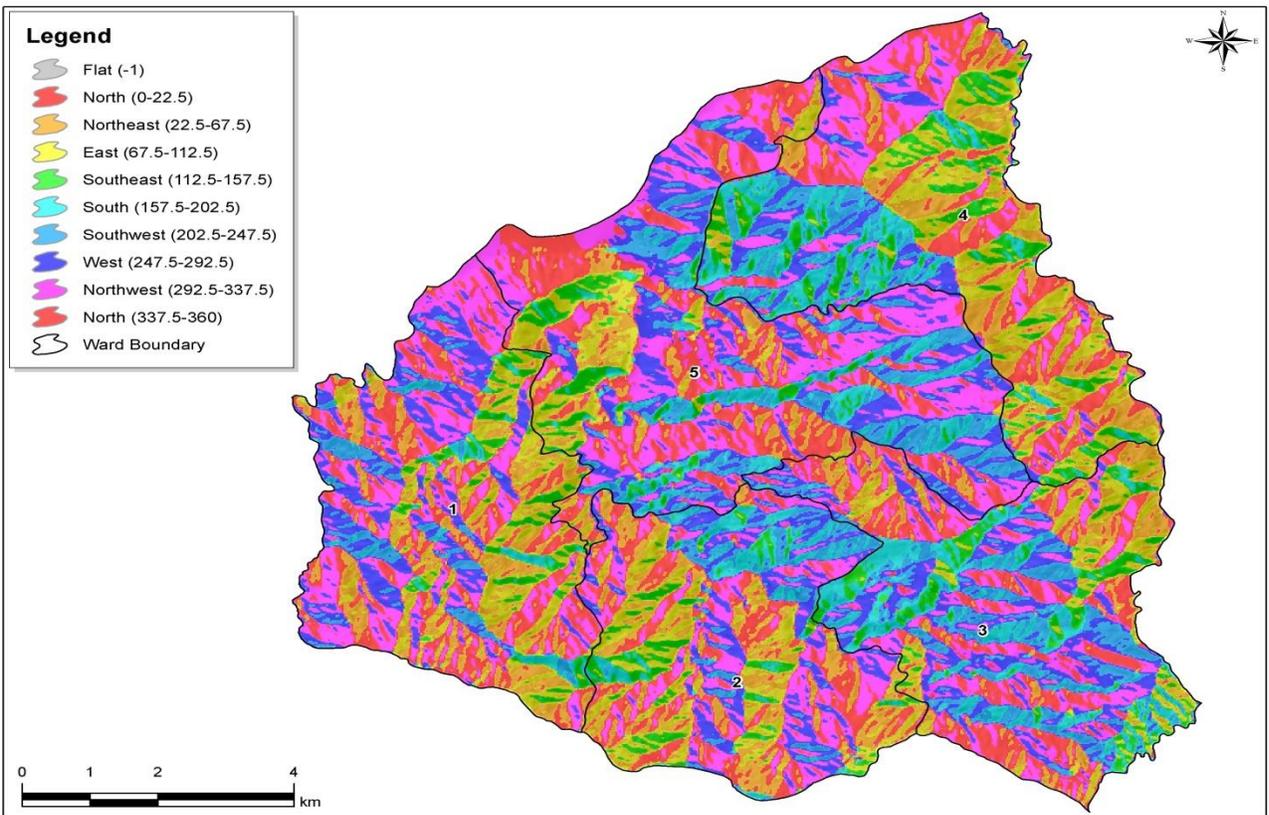
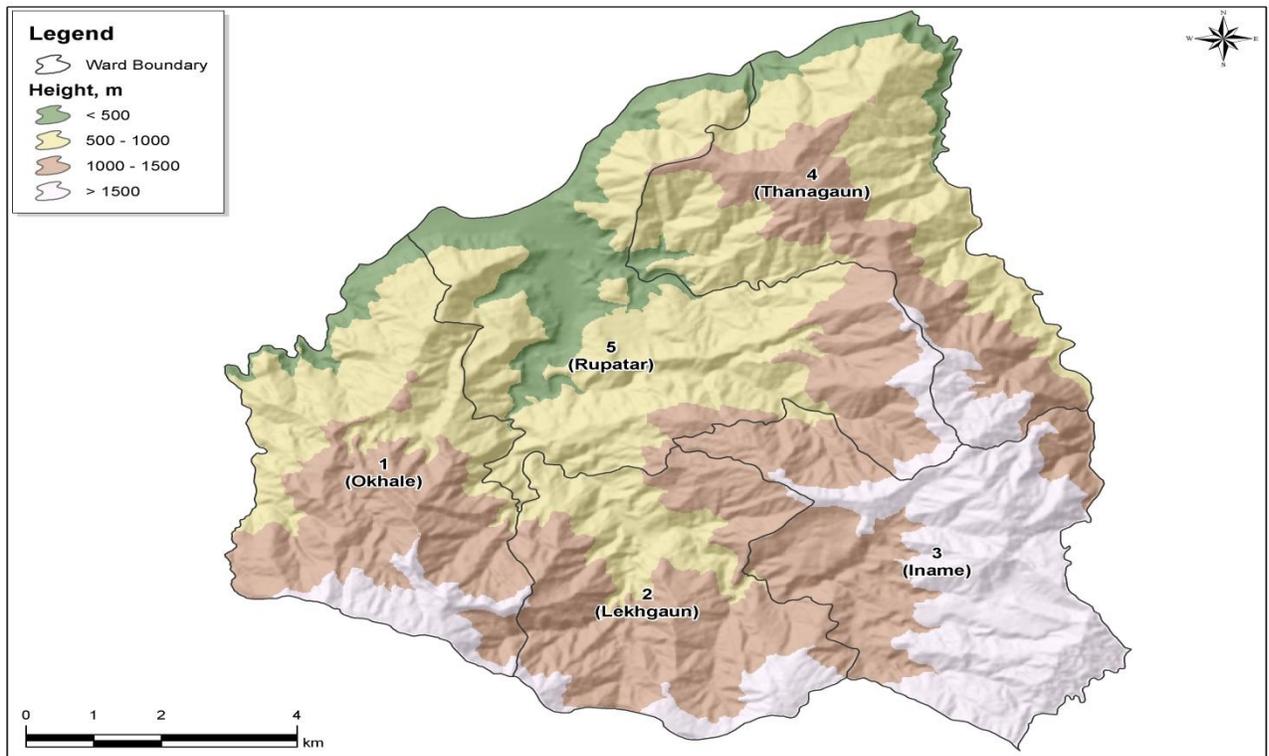


Figure 4: Maps showing areas under different elevation gradients (upper) and aspects (lower) in each wards of the Tapli Rural Municipality

2.4. Climate

Generally, the climate of the Rural municipality is the sub-tropical type but it anges to warm temperate in the higher elevation. There is diversity in precipitation within the rural municipality. The north-facing slope of the Mahabharat range of the TRM is characterized by the rain shadow features, which receive low amount of rainfall. These rain shadow areas in TRM include the most parts of ward-4 (Thanagaun), ward-5 (Rupatar) and many parts of ward-1 (Okhle); whereas ward 2 (Lekhgaun) and ward 3 (Iname) recieve comparatively higher rainfall.

There is no weather station in TRM, so weather pattern analysis has been done based on the data from the nearby stations in Udaypurgadhi and Kuruleghat by the Department of Hydrology and Meteorology (DHM). The data from Udaypurgadhi has information on both the temperature and rainfall; whereas Kuruleghat records only the precipitation. Some monthly records of particular years are missing.

2.4.1 Temperature

In general, January is the cold month with minimum temperature of 10.3⁰C; whereas May remains the hottest month with maximum temperature of more than 33⁰C. December to February is the cold period and April to September the warm period exceeding the 30⁰C. The average temperature ranges from 15.9⁰C in January to 28.5⁰C in June (Figure 5).

The maximum and minimum annual average temperature is 28.6⁰C and 19.1⁰C respectively. Average annual temperature is almost warm in Tapli RM i.e. 23.9⁰C, and a little lower than physiological temperature.

2.3.2 Precipitation

Tabe 4 shows the average precipitation of each month in Tapli RM with reference to the raifall records at the nearby weather stations in Kuruleghat, Khotang and Udayapurgadhi, Udayapur. The rainy months in Tapli RM start from June with an average rainfall of 474.35 mm thereby the successive increase in the rainfall observed in July and September then the

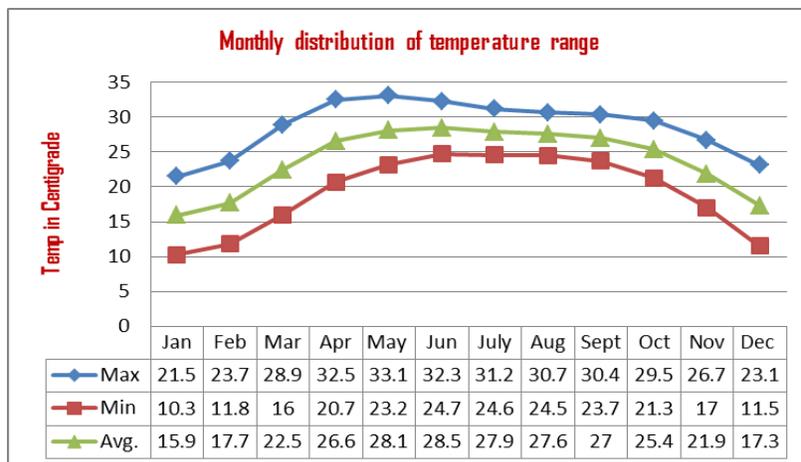


Figure 5: Monthly maximum-minimum temperature in ⁰C in Tapli RM (DHM, 2019, Udaypurgadhi Station)

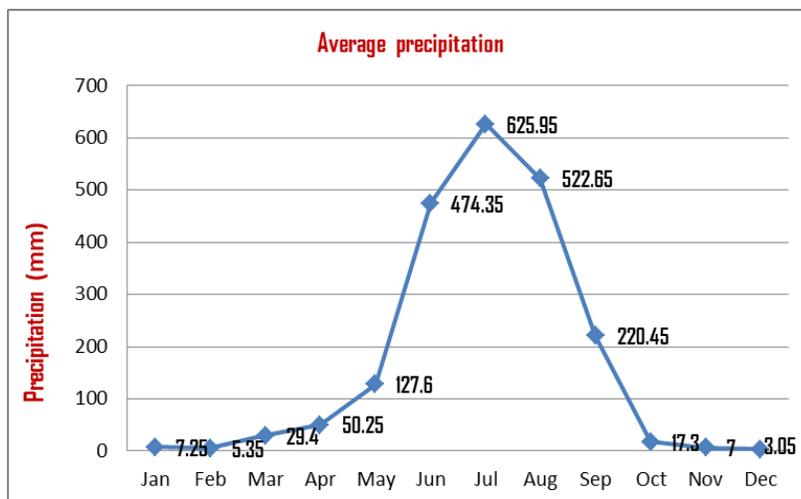


Figure 6: An average monthly precipitation in mm in Tapli RM (DHM, 2019, Udaypurgadhi Station)

sudden downfall in October at a limit of 220.45 mm. Generally, October to May is dry months.

The analysis of precipitation pattern indicates that Tapli has an average annual rainfall of 2090.60 mm; which gives an impression of Tapli RM, the dry area with an average monthly rainfall of 174.22 (Table 4, Figure 6). Further, there is a large variation in terms of precipitation within the rural municipality. For example, northward flow of rain bearing clouds in the parts of Thanagaun (ward-4) and Rupatar (ward-5) is obstructed by the Mahabharat range, which sheds rain to these areas. In contrast, Iname and Lekhgaun receive higher rainfall, so are comparatively better for rainfed upland agriculture.

Table 4: Average monthly precipitation in Tapli RM with referenece to the nearby weather stations (DHM, 2019)

Months	Kuruleghat station	Udayapurgadi station	Average
January	8.20	6.3	7.25
February	6.70	4	5.35
March	30.30	28.5	29.4
April	48.20	52.3	50.25
May	122.50	132.7	127.6
June	486.40	462.3	474.35
July	613.70	638.2	625.95
August	534.70	510.6	522.65
September	231.60	209.3	220.45
October	20.20	14.4	17.3
November	7.20	6.8	7
December	2.30	3.8	3.05
Total rainfall	2112.00	2069.20	2090.60
Avg. monthly rainfall	176.00	172.43	174.22

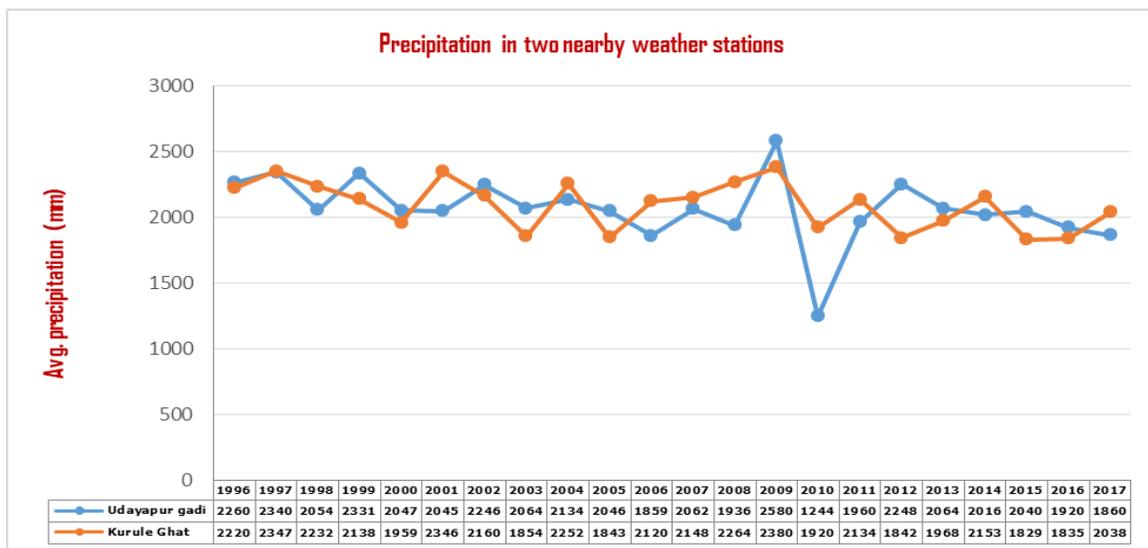


Figure 7: Time series data on precipitation in two nearby stations in Kuruleghat (Khotang) and Udaupurgadhi (Udayapur) for the proxy estimation of time-serial precipitation data in Tapli RM (DHM, 2019, Udayapurgadhi Station)

3. BIOPHYSICAL FEATURES

3.1 Landuse Landcover in Tapli Rural Municipality

3.1.1 Land Use Landcover Pattern

The landuse land cover (LULC) pattern in Tapli RM has been analyzed using the satellite image from the Google Earth for the year 2017 and compared with LULC of year 1996 derived from the Land Resource Mapping Project (LRMP) of the Department of Survey, Nepal.

Amongst the different LULC classes, forest accounts for the largest LULC classes with 47.98 % followed by cultivated land (32.08 %) and scrubland (13.43 %) in the year 2018. In contrast with these three classes, grassland and sand cover only 3.55 % and 2.19 % respectively. The study indicates that sand in river and stream banks may qualify one of the best grade sand marketable for the domestic and commercial uses. Barren land, and water bodies have less area in the rural municipality.

Table 5 shows the LULC in Tapli RM has gone through significant changes in LULC from 1996 to 2018. The forest cover has declined by about 6 percent point. Similarly, cultivated area has also declined by 4.86 percent point. Such decline in the forest and cultivated land cover corresponds with the increase in shrubland by 11.1 percent. Large tracts of cultivated land have remained uncultivated and abandoned for longer period of time, which then converted to the shrubland with the process of succession. Similarly, the natural forest areas also converted to shrubland as the process of degradation.

Table 5 LULC change between 1996 and 2018

SN	LULC type	1996		2018		Change in percentage
		Area (ha)	Percentage	Area (ha)	Percentage	
1	Forest	6,505.70	53.89	5,792.10	47.98	(5.91)
2	Shrubland	281.10	2.33	1,621.50	13.43	11.10
3	Grassland	472.80	3.92	428.50	3.55	(0.37)
4	Cultivated Land	4,459.00	36.94	3,872.90	32.08	(4.86)
5	Barren land	46.80	0.39	57.10	0.47	0.08
6	Sand	252.80	2.09	264.50	2.19	0.10
7	River/Pond	53.60	0.44	35.30	0.29	(0.15)
	Total	12,071.80	100	12,071.80	100	

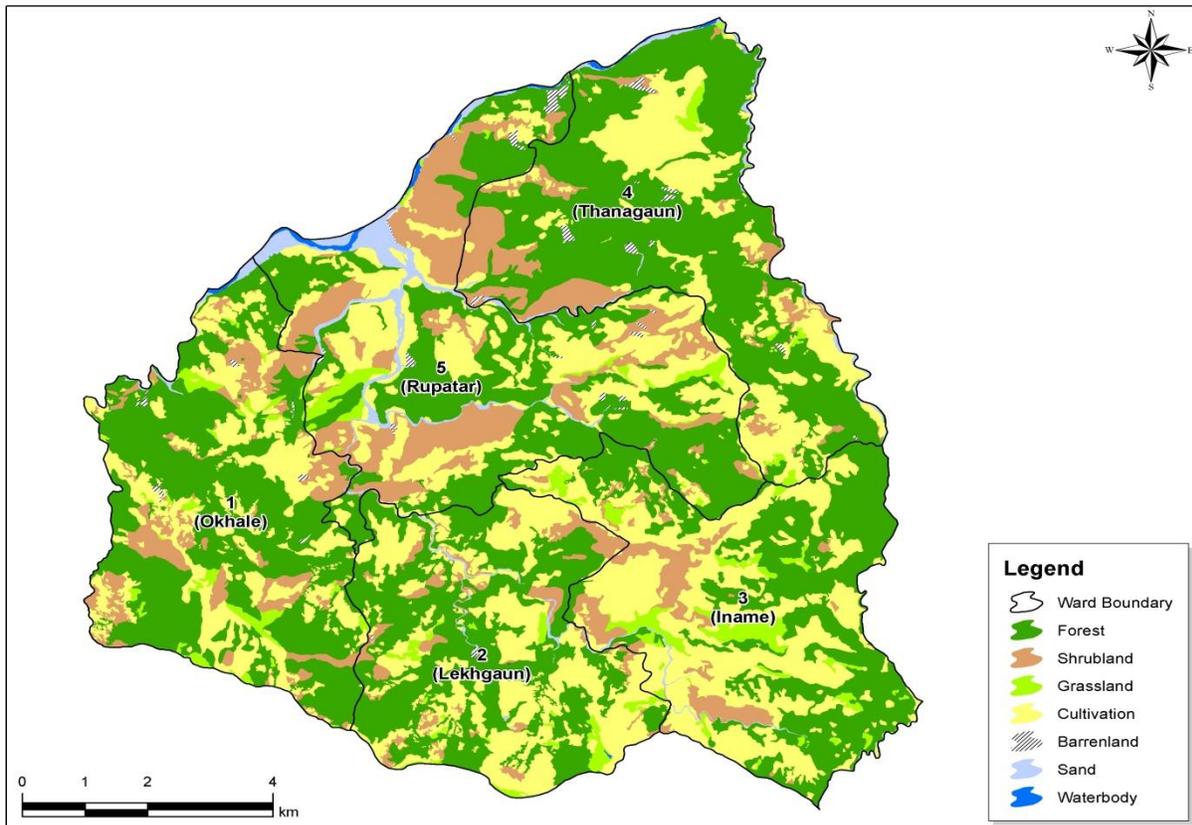
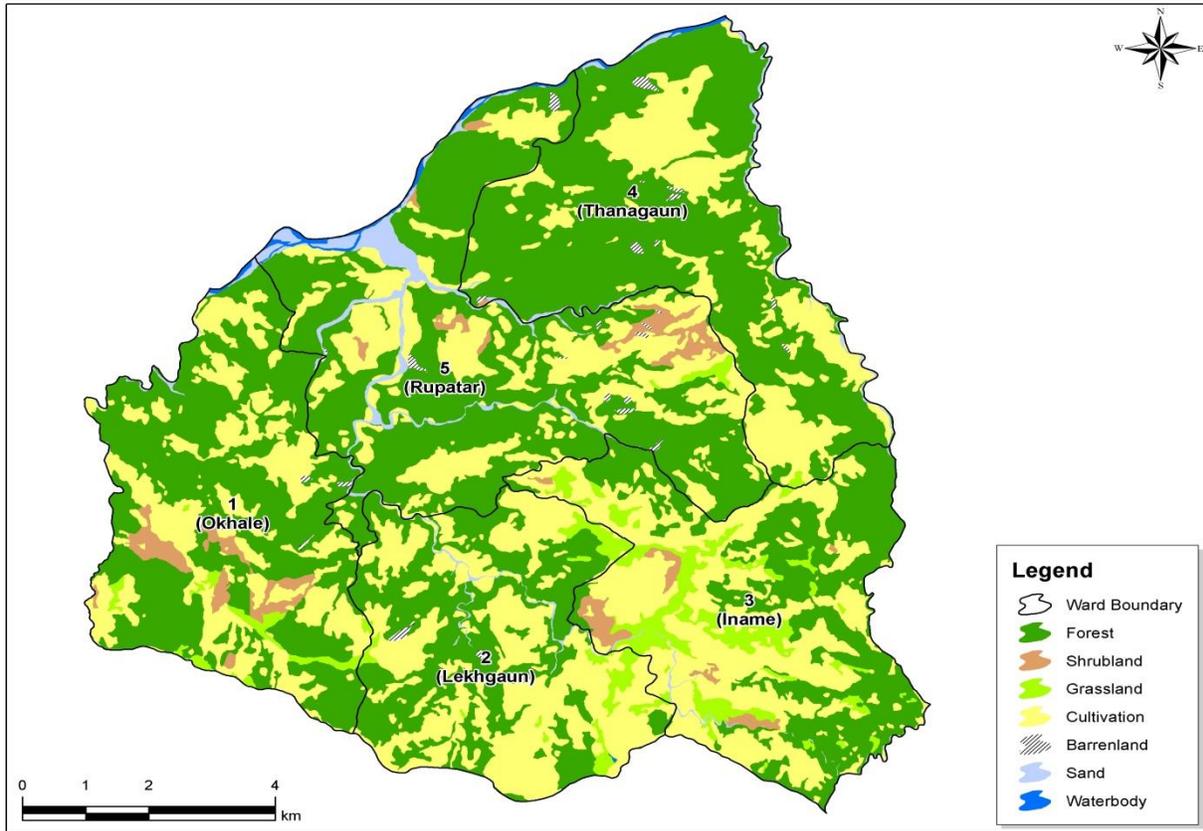


Figure 8: Landuse landcover change in 1996 (upper) and 2018 (lower) in the Tapli RM

3.1.2 Wardwise Landuse Landcover Pattern

Table 6 and Figure 9 show wardwise land use land cover pattern. Ward-5 (Rupatar) is the largest and ward-2 (Lekhgaun) the smallest wards in the total area in the municipality with the respective total area of 3,040.5 ha (25.19%) and 1,976.7 (16.37 %) followed by ward-4 (Thanagaun), ward-1 (Okhle, 2,320.4 ha) and ward-3 (Iname, 2,302.1 ha).

i . Forests

Forest is the dominant landcover type in Tapli RM with accounting for about 48 percent of the total area (Figure 10 A). Of this, ward-4 (Thanagaun) has the highest percentage of forest cover followed by ward 1 (Okhale). Other wards have forest cover less than 10 percent. The strategic efforts with attention given to address the low forest cover in three wards for forest management in Tapli RM may result progressive contribution in achieving the national target of the Sustainable Development Goal (SDG).

ii . Shrubland

Over 13 percent of lands in Tapli RM is under shrubland assessed higher in ward-5 (Rupatar) followed by ward-4 (Thanagaun) and ward-1 (Okhale). Lekhgaun and Iname have very nominal shrubland (Figure 10 B).

iii . Grassland

Tapli RM holds about 3.6 percent of total area as grassland. Of this, Iname and Okhale have the largest percentage. Such cover in Tapli RM is low in comparison to the national account of the grassland cover of nearly 11.56 percent (1.7 million ha) (GON 2014) (Figure 10 C).

iv . Barren land

The barren land cover in the municipality is 0.47 percent. Iname does not have any barren land but Rupatar and Thangaun have some barren areas; 27.2 ha (0.23 percent) and 19.5 ha (0.16 percent) respectively (10 D).

v . Cultivation area

Of 32.08 percent of the cultivation land of municipality, ward-3 (Iname) holds the largest proportion of cultivated areas (979.2 ha, 8.11 %) followed Rupatar (880.7 ha, 7.3 %); Lekhgaun (786.9 ha, 6.52 %); Okhale (616.9 ha, 5.11 %) and Thanagaun (609.2 ha, 5.05 %). Rupatar has paddy cultivation in the basin of the Yari; Ghari; Badahare and Gahate khola.

vi . Sand area

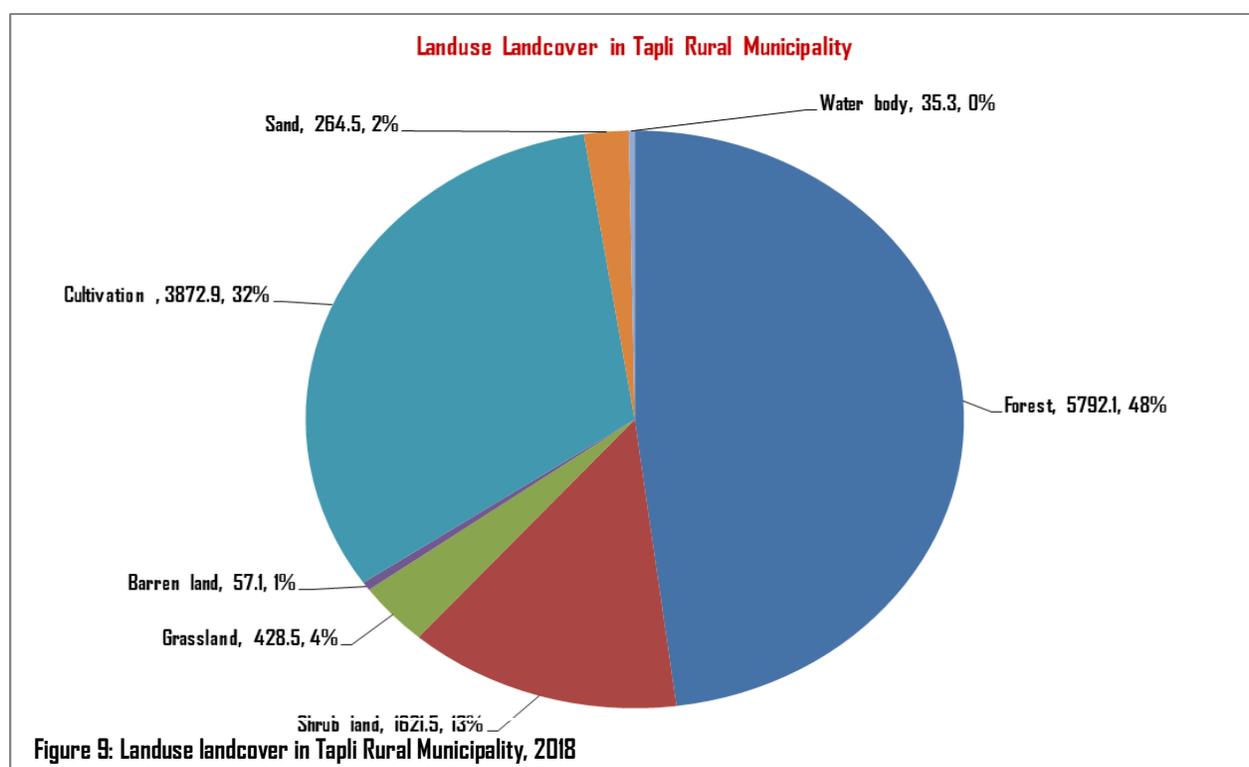
Of total 264.5 ha (2.19 percent) of sand area, ward-5 (Rupatar) and ward-4 (Thangaun) have the largest sand areas by 1.36 % and 0.4 % respectively. Other wards are in the headwork of Yari khola and its tributaries so very negligible coverage of sand areas.

vii . River and pond

The perennial streams and ponds cover only 35.3 ha of total area in the municipality. Of this cover, Rupatar has 23.6 ha of areas under water bodies largely due to the Yari Khola and its tributaries followed by water coverage in the Thangaun (6.7 ha), Okhale (4.4 ha) and Lekhgaun (0.5 ha) respectively. Iname does not have area under water bodies.

Table 6 Proportion of landuse landcover in different wards of Tapli RM, 2018

LULC type & percentage against the total	Wards					Total
	1 (Okhale)	2 (Lekhgaun)	3 (Iname)	4 (Thanagaun)	5 (Rupatar)	
Forest	1263.7	944.3	943.8	1441.6	1198.6	5792.1
<i>% of Grand Total</i>	<i>10.47</i>	<i>7.82</i>	<i>7.82</i>	<i>11.94</i>	<i>9.93</i>	<i>47.98</i>
Shrub land	322.2	161	203	271.9	663.5	1621.5
<i>% of Grand Total</i>	<i>2.67</i>	<i>1.33</i>	<i>1.68</i>	<i>2.25</i>	<i>5.50</i>	<i>13.43</i>
Grassland	87	62	162.5	34.3	82.6	428.5
<i>% of Grand Total</i>	<i>0.72</i>	<i>0.51</i>	<i>1.35</i>	<i>0.28</i>	<i>0.68</i>	<i>3.55</i>
Barren land	8.1	2.2	0	19.5	27.2	57.1
<i>% of Grand Total</i>	<i>0.07</i>	<i>0.02</i>	<i>0.00</i>	<i>0.16</i>	<i>0.23</i>	<i>0.47</i>
Cultivation	616.9	786.9	979.2	609.2	880.7	3872.9
<i>% of Grand Total</i>	<i>5.11</i>	<i>6.52</i>	<i>8.11</i>	<i>5.05</i>	<i>7.30</i>	<i>32.08</i>
Sand	18.1	19.8	13.6	48.8	164.2	264.5
<i>% of Grand Total</i>	<i>0.15</i>	<i>0.16</i>	<i>0.11</i>	<i>0.40</i>	<i>1.36</i>	<i>2.19</i>
Water body	4.4	0.5	0	6.7	23.6	35.3
<i>% of Grand Total</i>	<i>0.04</i>	<i>0.00</i>	<i>0.00</i>	<i>0.06</i>	<i>0.20</i>	<i>0.29</i>
Grand Total	2320.4	1976.7	2302.1	2432.1	3040.5	12071.8
%	19.22	16.37	19.07	20.15	25.19	100.00



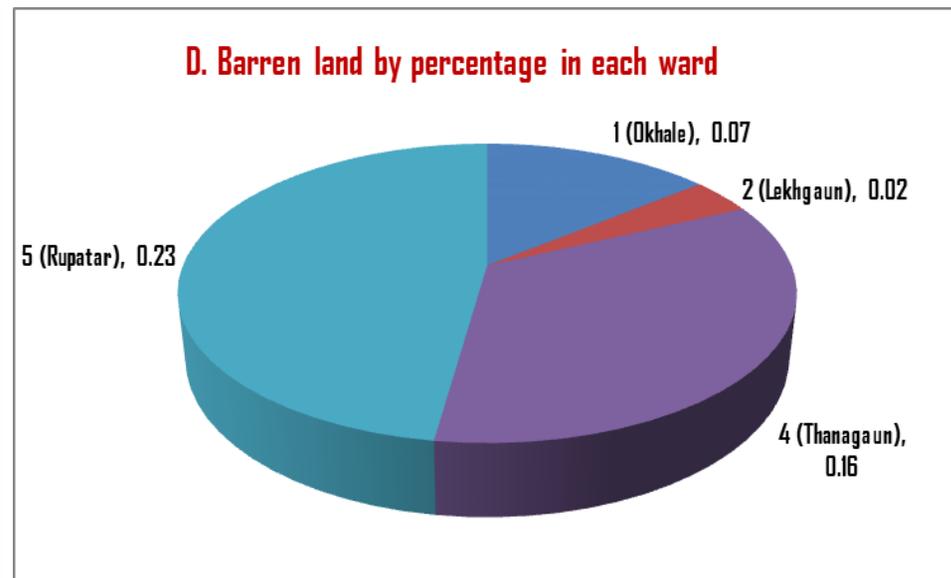
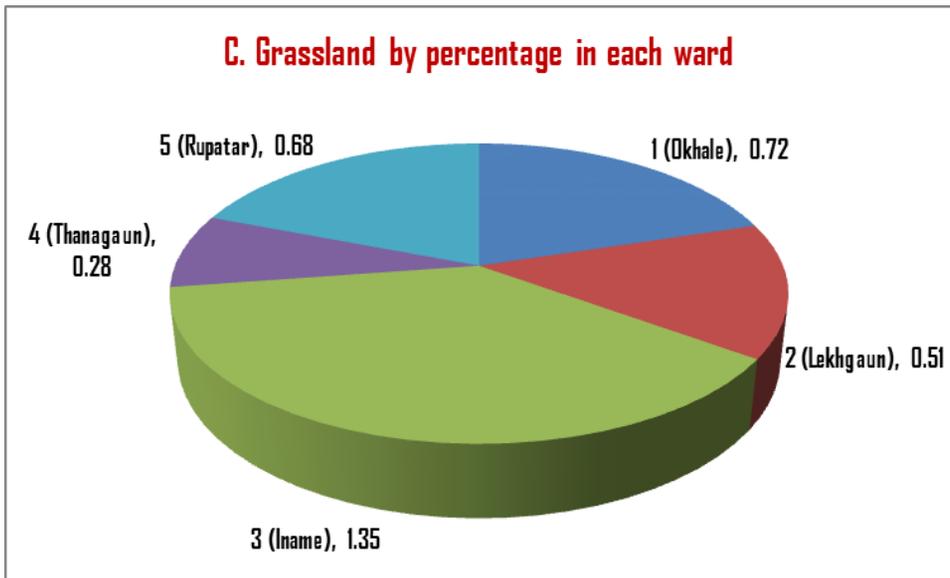
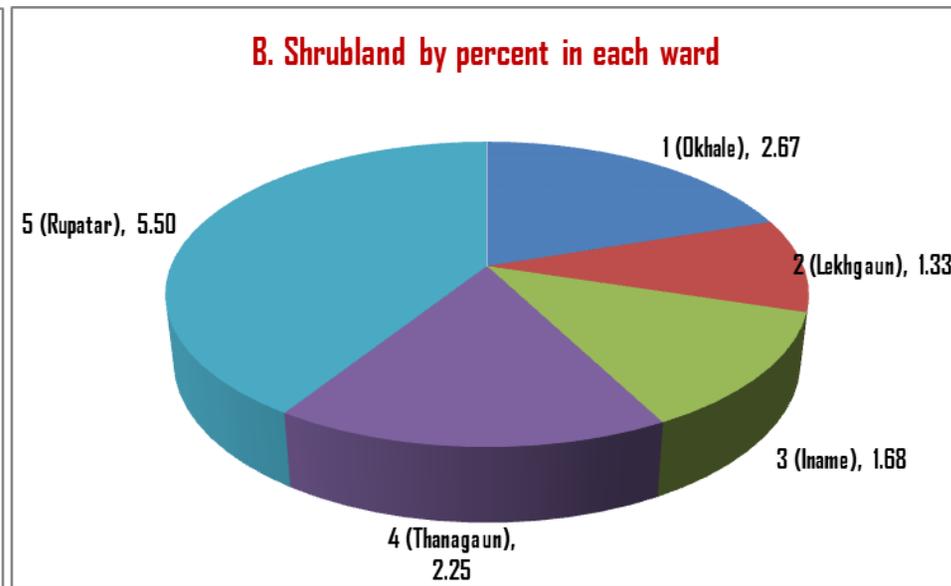
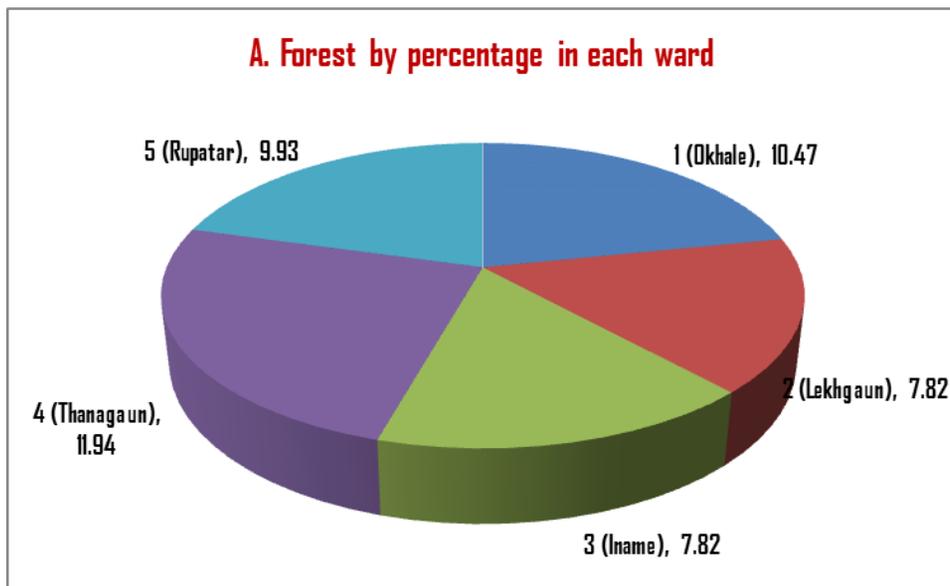
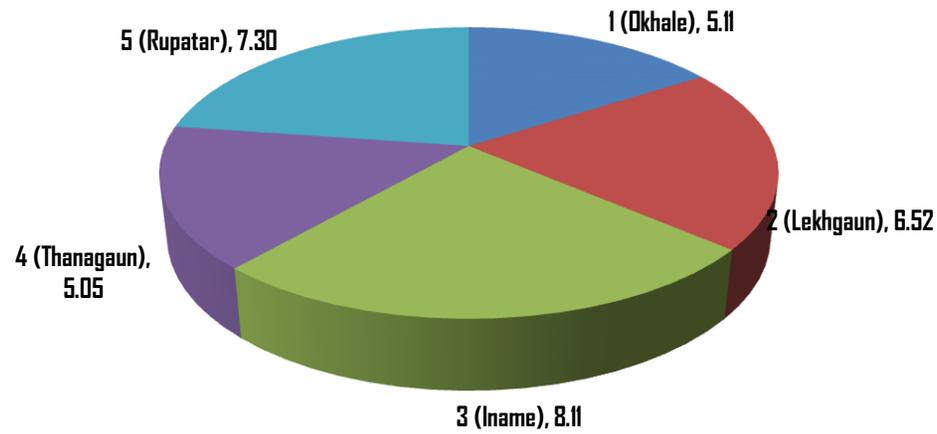
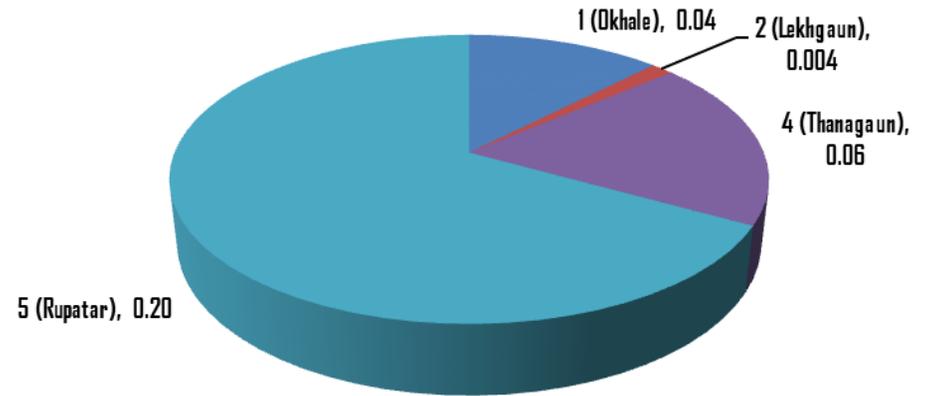


Figure 10: Landuse landcover percentage in each ward against total area of the TRM. A. Forests; B. Shrubland; C. Grassland; and D. Barren land

E. Cultivation area by percentage in each ward



G. Water bodies by percentage in each ward



F. Sand by percentage in each ward

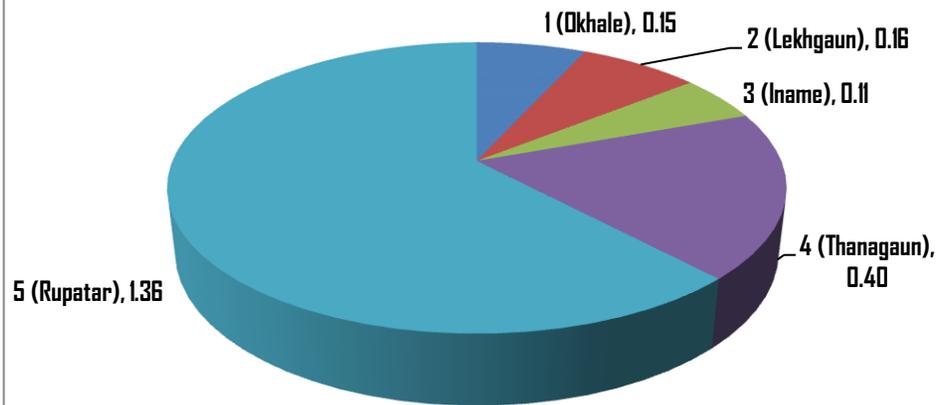


Figure 10: Landuse landcover percentage in each ward against total area of the TRM. E. Cultivation area, F. Sand, and G. Water bodies (River and pond)

3.2 Forests Environment

3.2.1 General Description

Forest in the municipality accounts for 47.98 % of the total land area, it is thinly distributed and characterized by low canopy cover. The variation in elevation gradients ranging from 300 m to 2300 offers climatic variation and opportunity for bearing different types of forest. The range includes tropical, sub-tropical and lower temperate climatic zones in different wards. Based on floristic composition, there are 4 sub-types of forests i.e., *Schima*-Pine forest, mixed forest, *Alnus* forest, and Sal-Pine forest (Table 7). The sub-tropical forest is dominating type. Ward-5 (Rupatar) has all four forests types, and mixed forest occurs in all wards. So, it included the tropical subtropical and lower temperate climatic zone.

Table 7 Forest types and their distribution in Tapli Rural Municipality

SN	Forest type	Elevation range (m)	Climatic zone	Major species	Wards				
					1	2	3	4	5
1	Schima-Pine forest	1350-1550	Sub-tropical	<i>Shorea robusta</i> , <i>Pinus roxburghii</i>				■	■
2	Mixed forest	400-1750	Sub-tropical	<i>Bambusa</i> sp., <i>Schima wallichii</i> , <i>Alnus nepalensis</i> , <i>Macaranga</i> sp.	■	■	■		■
3	Alnus forest	1500-1750	Sub-tropical	<i>Alnus nepalensis</i>					■
4	Sal-Pine forest	600-800	Tropical	<i>Shorea robusta</i> , <i>Pinus roxburghii</i>					■

3.2.2 Forest Types

i. Schima-Pine forest

This forest type is found in ward-4 (Thanagaun) and ward-5 (Rupatar) of the municipality, and is the remnant patch of *schima-castanopsis* forest evolved due to anthropogenic disturbances. The Dominance in this forest is characterized by *Pinus roxburghii* (IVI = 45.9) and *Semicarpus anacardium* (IVI= 22.9) followed by *Engelhardia spicata*, *Castanopsis hystrix*, and *Lagerstroemia parviflora*. Among shrub, species like *Phoenix humilis*, *Woodfordia fruticose*, *Ageritina adenophora*, and *Lantana camara* are prominent here. Similarly, prominent herb species are *Dactyloctenium aegypticum*, *Bidens pilosa*, *Ageratum haoustonianum*, *Ageratum conyzoides* and *Chrysopogon serrulatus* (Annex..).

ii. Mixed forest

Mixed forest is distributed in the lower belt of the municipality along the Sunkoshi river bank as well as at upper elevation above 1,100 m. The forest compositions of these two areas are quite different as described below:

Koshi river belt of mixed forest

The Rupatar area of ward-5 has the distinct vegetation of mixed forest with bamboo species mixed with other vegetation. The dominant tree species in this forest is *Bambusa vulgaris* (IVI = 51.9) and *Tamarindus indica* (IVI = 47.3) followed by *Holarrhena pubescens*, *Acacia catechu*, *Aegle marmelos* and *Ficus hipsida*. Prominent shrub species in this forest are *Phyllanthus parvifolius*, *Woodfordia fruticose*, *Zizyphus mauritiana*, and *Lantana camara*. Similarly prominent herbs species of the forest are *Bidens pilosa*, *Ageratum houstonianum*, *Ageratum conyzoides*, and *Eulaliopsis binate* (Annex ..).

Okhale-Lekhgaun-Iname belt of mixed forest (Tapli RMC ward 1, 2 & 3)

Okhale, Lekhgaun and Iname have this category of forest. The dominant tree species in this association include *Castanopsis hystrix* (IVI = 48.7) and *Rhododendron arboreum* (IVI = 38.2) followed by *Alnus nepalensis*, *Engelhardia spicata*, and *Schima wallichii*. *Maesa chisia*, *Berberis aristata*, *Melastoma normale*, *Rubus ellipticu*, and *Woodfordia fruticosa* are prominent shrub species. Further, more prominent herbs species include *Chrysopogon serrulatus*, *Eulaliopsis binata*, *Ageratum haustanianum*, *Ageratum conyzoides*, and *Anaphalis busua* (Annex ...).

iii. Alnus forest

Bajhung area of ward-5 (Rupatar) has association of *Alnus* forest dominated by *Alnus nepalensis* (IVI = 77.2) and *Castanopsis hystrix* (IVI = 28.5), and followed by *Schima wallichii*, *Engelhardia spicata*, and *Rhododendron arboreum*. Prominent shrub species includes *Lantana camara*, *Berberis aristata*, *Zanthoxylum armatum*, *Melastoma normale*, and *Pyracantha crenulata*. Further, prominent herbs like *Digitaria sp.*, *Ageratum conyzoides*, *Heteropogon contortus*, *Ageratum haustanianum*, and *Fragaria nubicola* are prominent here (Annex...).



iv. Sal-Pine forest

The Hill sal mixed with pine is distributed from Yari khola basin of Rupatar up to 1200m elevation in the municipality. In this association, dominant tree species are *Shorea robusta* (IVI= 47.1) followed by *Pinus roxburghii*, *Phyllanthus emblica*, *Bombax ceiba*, and *Schima wallichii*. Prominent shrub species here are *Phoenix humilis*, *Rhus parviflora*, *Melastoma normale*, *Annona squamosa*, and *Lantana camara*. Similarly, *Chrysopogon serrulatus*, *Eulaliopsis binate*, *Saccharum spontaneum*, *Bidens pilosa*, and *Ageratum houstonianum* are prominent herb species (Annex...).

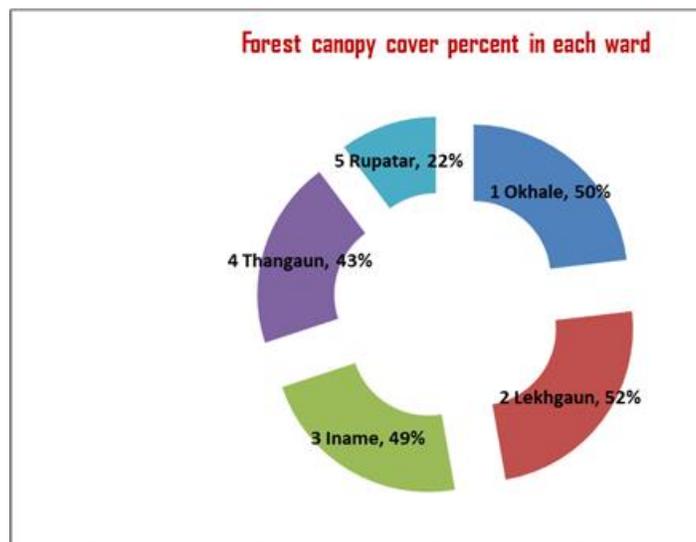


Figure II: War wise foest canopy cover in Tapli RM, 2019

3.2.2 Forest Canopy¹

Forest canopy cover, also known as canopy coverage or crown cover, is the proportion of the forest floor covered by the vertical projection of the tree crowns. In forest management, canopy cover is also the indication to assess condition of the forest. The higher canopy percent is the better indication of good forest condition.

In general, all forests in Tapli RM are more open with an average of 43.1 % of cover or forests are naked by 47 percent. Such situation is very intense in ward-5 (rupatar) where forest canopy is only 22 percent. Here, trees are cut to such an extent that forests are distinctively open, and the general condition of forest is bad. Thanagau follows the degrading trend of forest canopy cover of Rupatar. The forest canopy in higher altitude wards such as Lekhgaun, Okhale and Iname is comparatively better by 52 percent, 50 percent and 49 percent.

Ward-5 (Rupatar) has to undertake immediate measures to improve forest condition.

3.2.3 Floral Diversity

A total 174 species of plant were reported from the municipality. Of this species, 67 species were belonging to trees, 67 to shrubs and 40 species to herbs. Annex .. provides detail list of species distribution in the municipality.

S.N	Species	No.
1	Trees	67
2	Shrubs	67
3	Herbs	40
	Total	174

¹ Forest canopies are home to unique flora and fauna not found in other layers of forests. The highest terrestrial biodiversity resides in the canopy of forests, and many animals have evolved to live solely in the canopy, and never touch the ground (Lowman and Moffett 1993). In forest management, canopy cover is also an indication to assess condition of the forest.

3.3 Forests' Resources

3.3.1 Wood Stock: NPR 224 Million Per Annum

Wood is the hard, fibrous substance composing most of the stem and branches of a tree or shrub. Fuelwood is the lowest valued wood, and the best or the highly valued wood is timber or poles utilized for the construction and furniture.

In Tapli RM, merchantable wood and available fuelwoods is estimated . A total of 685,185.37 ft³ merchantable round-log wood and 19,154 tons of fuelwood are available in the municipality. This stock is ... than national average in hill and mountains.

The sale of at least 10 percent of log and fuelwood stocks each year at a very nominal market price (NPR 2000/ft³ for timber; NPR 50/kg for fuelwood) may generate per annum income of NPR 224. 67 million (Timber: 131.48 million; Fuelwood: NPR 93.19 million).

Table 8 shows 46 types of hard and softwood trees contributing to the wood stock.

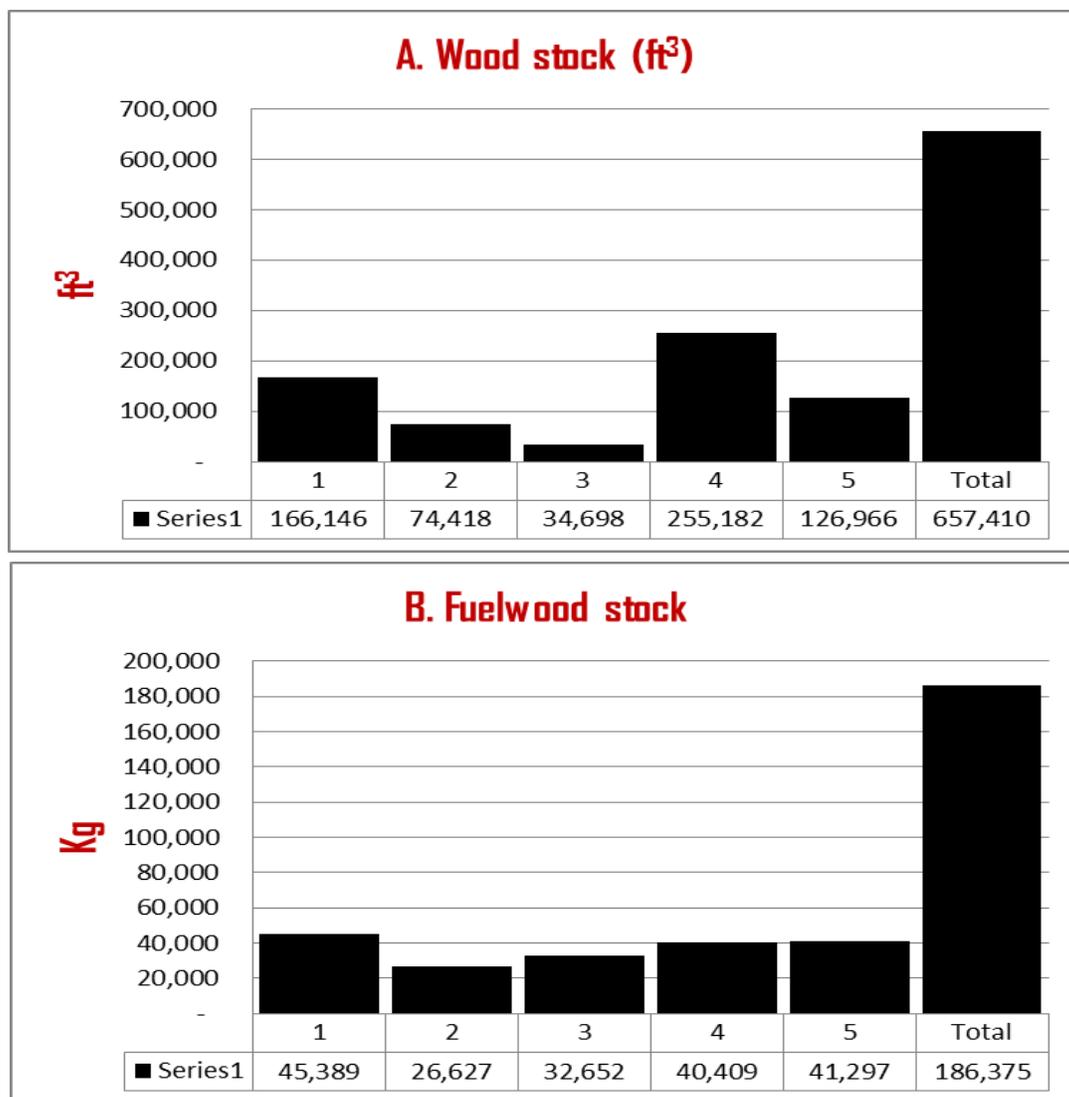


Figure 12: Wood stock particularly the round-log (A) and fuelwood availability in Tapli RM, 2019

Table 12: Table showing key tree species in the forests that have merchantable wood and fuelwood stock in each ward of the Tapli RM, 2018

SN	Local name	Scientific name	1 (Okhale)		2 (Lekhgaun)		3 (Iname)		4 (ThanagaunIname)		5 (Rupatar)		Total	
			Woods volume (ft ³)	Firewood (Kg)	Woods volume (ft ³)	Firewood (Kg)	Woods volume (ft ³)	Firewood (Kg)	Woods volume (ft ³)	Firewood (Kg)	Woods volume (ft ³)	Firewood (Kg)	Wood	Fuel
1	Amala	<i>Phyllanthus emblica</i>	-	-	-	-	-	-	-	50,442	-	24,425	-	74,867
2	Anau Kath	<i>Alangium salvifolium</i>	-	-	-	-	-	-	-	47,752	-	6,381	-	54,132
3	Angeri	<i>Lyonia ovalifolia</i>	-	-	-	-	-	4,107	-	-	-	-	-	4,107
4	Bajh	<i>Quercus leucotricophora</i>	-	-	-	-	3,822	394,403	-	-	-	-	3,822	394,403
5	Bel	<i>Aegle marmelos</i>	-	-	-	-	-	-	-	-	-	55,393	-	55,393
6	Bhogote	<i>Maesa macrophylla</i>	-	68,768	-	30,082	-	104,677	-	-	-	-	-	203,527
7	Butdhayero	<i>Lagerstroemia parviflora</i>	-	-	-	-	-	-	-	169,547	-	233,956	-	403,503
8	Chilaune	<i>Schima wallichii</i>	29,459	742,056	17,945	428,768	2,388	282,912	-	160,717	19,338	706,527	69,130	2,320,981
9	Dar	<i>Boehmeria rugulosa</i>	-	-	-	-	-	-	-	220,305	-	-	-	220,305
10	Dhatrung	<i>Ehretia laevis</i>	-	-	-	-	-	-	-	-	-	124,320	-	124,320
11	Emily	<i>Tamarindus indica</i>	-	-	-	-	-	-	-	-	-	144,060	-	144,060
12	Fadim	<i>Cleistocalyx operculatus</i>	-	-	-	-	-	-	-	23,059	-	189,035	-	212,095
13	Ghotle	-	-	-	-	-	-	-	-	260,079	-	-	-	260,079
14	Gogoon	<i>Sauraria nepalensis</i>	-	-	-	4,557	-	56,989	-	-	-	-	-	61,546
15	Haade	<i>Osyris sp</i>	-	-	-	-	-	-	-	55,731	-	-	-	55,731
16	Hade Kafal	<i>Myrica esculenta</i>	-	-	-	-	-	51,658	-	-	-	46,805	-	98,463
17	Ipilipi	<i>Leucaena leucocephala</i>	-	-	-	-	-	-	-	-	-	17,227	-	17,227
18	Kagbhalayo	<i>Rhus wallichii</i>	-	-	-	13,671	-	92,893	-	-	-	-	-	106,565
19	Karam	<i>Hymenodictyon flaccidum</i>	-	-	-	-	-	-	-	283,618	-	38,549	-	322,167
20	Kavro	<i>Ficus infectoria</i>	-	-	-	-	-	-	-	-	-	25,710	-	25,710
21	Khair	<i>Acacia catechu</i>	-	-	-	-	-	-	-	-	1,753	43,671	1,753	43,671
22	Khaniya	<i>Ficus semicordata</i>	-	-	-	-	-	-	-	-	-	18,226	-	18,226
23	Khasru	<i>Quercus semicarpifolia</i>	-	-	-	-	3,942	188,612	-	-	-	-	3,942	188,612
24	Khirro	<i>Holarrhena pubescens</i>	-	15,412	-	12,034	-	31,166	-	32,767	-	123,104	-	214,483
25	Laligurans	<i>Rhododendron arboretum</i>	14,742	770,405	6,286	630,591	-	296,815	-	77,249	-	-	21,029	1,775,059
26	Loth	<i>Symplocos dryophila</i>	-	-	-	-	-	-	-	-	-	70,345	-	70,345
27	Mauwa	<i>Engelhardia spicata</i>	76,741	978,711	4,529	251,615	3,057	297,324	-	194,081	8,703	177,850	93,029	1,899,581
28	Niwara	<i>Ficus auriculata</i>	-	-	-	-	-	15,563	-	-	-	-	-	15,563
29	Paiyo	<i>Prunus cerasoides</i>	-	77,504	-	19,775	-	274,411	-	-	-	-	-	371,689
30	Parjat	<i>Nyctanthes arbortritis</i>	-	-	-	-	-	-	-	-	-	74,470	-	74,470
31	Patlay Katush	<i>Castanopsis hystrix</i>	5,249	1,175,323	26,376	340,221	2,975	497,352	-	460,322	-	-	34,600	2,473,217
33	Piyari	<i>Buchanania latifolia</i>	-	-	-	-	-	-	-	-	-	186,637	-	186,637
34	Rajbrikshya	<i>Cassia fistula</i>	-	-	-	-	-	-	-	24,926	-	52,852	-	77,778
35	Rani Bhalayo	<i>Rhus succedanea</i>	-	-	-	4,944	-	-	-	-	-	-	-	4,944
36	Saajh	<i>Terminalia alata</i>	-	-	-	-	-	-	-	47,068	-	-	-	47,068
37	Saal	<i>Shorea robusta</i>	-	-	-	-	-	-	5,230	257,728	1,753	368,357	6,983	626,084
38	Sajiwani	<i>Jatropha curcas</i>	-	-	-	-	-	-	-	-	-	6,948	-	6,948
39	Salla	<i>Pinus roxburghii</i>	-	-	6,468	51,628	6,382	209,482	238,829	1,505,012	65,317	437,947	316,996	2,204,069
39	Simal	<i>Bombax ceiba</i>	-	-	-	-	3,328	15,547	-	-	-	25,077	3,328	40,624
40	Siris	<i>Albizia julibrissin</i>	9,292	192,710	8,196	310,001	955	115,202	-	-	-	-	18,444	617,913
41	Sisoo	<i>Dalbergia sisoo</i>	-	-	-	-	-	-	-	-	-	12,283	-	12,283
42	Tejpat	<i>Cinnamomum tamala</i>	8,271	132,474	-	-	-	-	-	-	-	-	8,271	132,474
43	Thotne	<i>Ficus hipsida</i>	-	8,710	-	7,495	-	-	-	-	-	41,676	-	57,881
44	Utis	<i>Alnus nepalensis</i>	22,393	376,793	4,619	557,360	7,849	310,337	11,123	170,515	30,103	475,002	76,087	1,890,007
45	Vakyamlo	<i>Rhus javanica</i>	-	-	-	-	-	25,765	-	-	-	-	-	25,765
46	Valayo	<i>Semecarpus anacardium</i>	-	-	-	-	-	-	-	-	-	402,894	-	402,894
		Total	166,146	4,538,867	74,418	2,662,740	34,698	3,265,215	255,182	4,040,918	126,966	4,129,729	657,410	18,637,469
		Fuel wood in Ton		45,389		26,627		32,652		40,409		41,297		18,637

Ward-4 (Thanagaun) has highest wood stock of 244,059 ft³ by nearly 39 percent of total of the municipality followed by ward-1 (Okhale) i.e. 166,146 ft³ (25 percent) and ward-5 (Rupatar) i.e., 126,966 ft³ (19 percent). Similarly, fuelwood stock is very high by 24 percent (45,389 ton) in ward-1 (Okhale) followed by ward-5 (Rupatar) i.e., 41,297 ton (22 percent) and ward-4 (Thanagaun) i.e., 40,409 ton (22 percent).

3.3.2 Wardwise Wood Stock

Ward-1: *Engelhardia spicata* (Mauwa) tree has the highest volume (76,740.69 ft³) and fuelwood stocking is contributed more by *Castanopsis hystrix* (1,175,322.55 kg) (Table 13).

Table 13: Key plants with high wood stock in ward-1 (Okhale)

Local name	Scientific name	Total wood (ft ³)	Firewood (kg)
Mauwa	<i>Engelhardia spicata</i>	76,740.69	978,711.39
Patley	<i>Castanopsis hystrix</i>	52,48.76	1175,322.55
Laligurans	<i>Rhododendron arboreum</i>	14,742.18	770,404.99
Chilaune	<i>Schima wallichii</i>	29,459.23	742,056.17
Uttis	<i>Alnus nepalensis</i>	22,392.95	376,792.50

Ward-2: *Castanopsis hystrix* tree has the highest volume (26,375.81 ft³) but fuelwood stock is highest in *Rhododendron arboreum* (630,590.66 kg) (Table 14).

Table 14: Key plants with high wood stock in ward-2 (Lekhgaun)

Local name	Scientific name	Total wood (cubic ft.)	Firewood (kg)
Patlay	<i>Castanopsis hystrix</i>	26,375.81	340,220.61
Laligurans	<i>Rhododendron arboreum</i>	6,286.47	630,590.66
Uttis	<i>Alnus nepalensis</i>	4,618.63	557,360.06
Chilaune	<i>Schima wallichii</i>	17,944.67	428,768.19
Mauwa	<i>Engelhardia spicata</i>	8,196.36	310,000.99

Ward-3: *Alnus nepalensis* tree contributes the highest round-log stock (7,848.65 ft³) and fuelwood stock is greatly contributed by *Castanopsis hystrix* (497,351.83kg) (Table 15).

Table 15: Key plants with high wood stock in ward-3 (Iname)

Local name	Scientific name	Total wood (cubic ft)	Firewood (kg)
Uttis	<i>Alnus nepalensis</i>	7,848.65	310,337.12
Salla	<i>Pinus roxburghii</i>	6,381.77	209,482.29
Bajh	<i>Quercus leucotricophora</i>	3,821.57	394,403.42
Mauwa	<i>Engelhardia spicata</i>	3,057.26	297,323.96
Patlay	<i>Castanopsis hystrix</i>	2,975.21	497,351.83

Ward-4: *Pinus roxburghii* tree has higher both the merchantable log stock (238,829.10 ft³) and fuelwood stock (1,505,012.16kg) (Table 16).

Table 16: Key plants with high wood stock in ward-4(Thanagaun)

Local name	Scientific name	Total wood (cubic ft)	Firewood (kg)
Salla	<i>Pinus roxburghii</i>	238829.10	1505012.16
Uttis	<i>Alnus nepalensis</i>	11123.16	170515.026
Sal	<i>Shorea robusta</i>	5229.99	257727.56
Patlay	<i>Castanopsis hystrix</i>	0	460322.07
Karam	<i>Hymenodictyon flaccidum</i>	0	283618.27

Ward 5: *Pinus roxburghii* tree has higher log stock (65317.27cubic ft.), and *Schima wallichii* has higher fuelwood stock of 706527.31 kg in this ward (Table 17).

Table 17: Key plants with high wood stock in ward-5 (Rupatar)

Local name	Scientific name	Total wood (cubic ft)	Total firewood (kg)
Salla	<i>Pinus roxburghii</i>	65317.27	437946.57
Uttis	<i>Alnus nepalensis</i>	30103.44	475002.07
Chilaune	<i>Schima wallichii</i>	19337.73	706,527.31
Sal	<i>Shorea robusta</i>	1752.55	368356.79
Valayo	<i>Semecarpus anacardium</i>	0	402894.4

3.3.3 Carbon Stock²

An average forest-carbon stock in Tapli RM is estimated as 70.8 ton/ha. Of this, tree carbon stock is 435,045.48 ton, and ward-5 has the largest amount of tree carbon i.e., 117,673.3 ton (Figure 13).

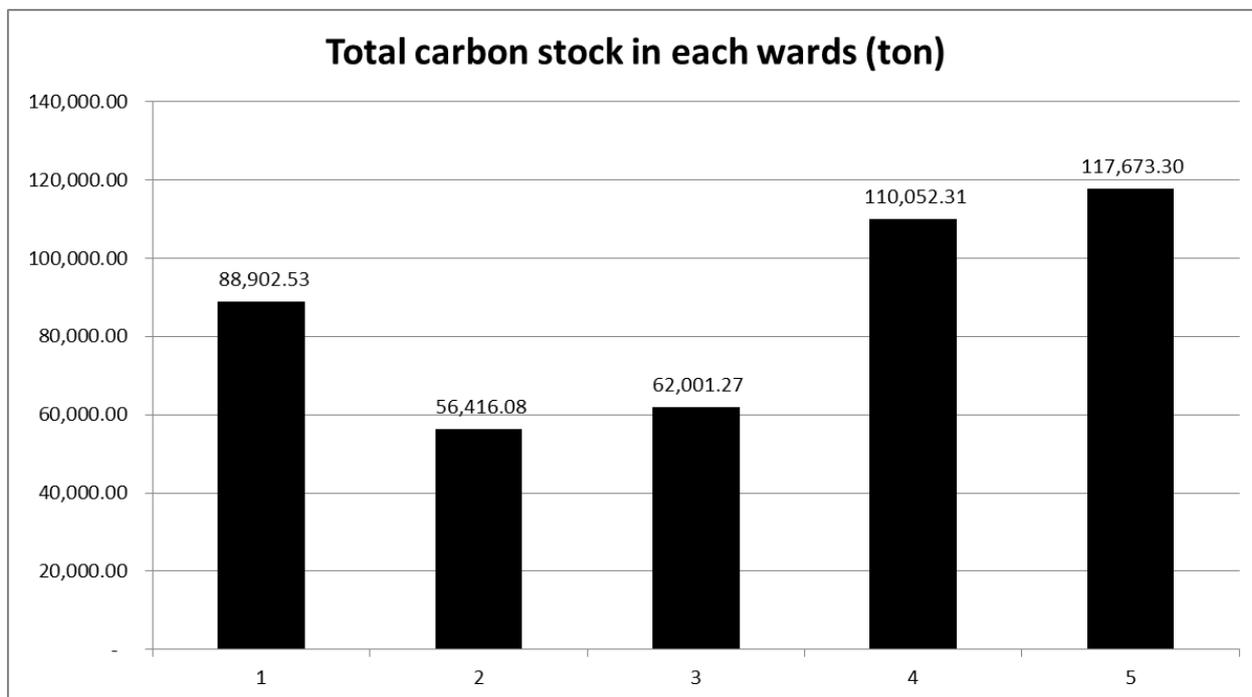


Figure 13: Wardwise forest carbon stock in Tapli RM, 2019

² In the context of forests, the carbon stocking refers to the amount of carbon stored in the forest ecosystem, mainly in living biomass and soil, but to a lesser extent also in dead wood and litter.

A particular tree has uneven carbon sequestration response as per climatic/weather condition that varies in different geography. For example, *Castanopsis hystrix* has highest carbon stock (of more than 17,411.47 ton) in Okhle, whereas same tree species in ward-2 (Lekhgaun) has the highest carbon accumulation of 10918.09 ton followed by 11712.72 ton carbon stocking by the same species in ward-3 (Iname). In ward 4 (Thanagaun) and 5 (Rupatar), *Pinus roxburghii* has contributed the highest carbon stock of more than 55,943 and 53,670 ton respectively. Table 18 shows some key valuable tree species for carbon stocking in different wards

Table 18 Principle contributing trees for carbon stocking in different wards of Tapli RM, 2019

SN	Local name	Scientific name	Okhale	Lekhgaun	Iname	Thanagaun	Rupatar	Total
1	Butdhayero	<i>Lagerstroemia parviflora</i>	0	0	0	3,705.54	0	3,705.54
2	Chilaune	<i>Schima wallichii</i>	13,486.75	8,457.04	6,125.91	0	0	28,069.70
3	Laligurans	<i>Rhododendron arboretum</i>	17,160.62	10,760.79	11,566.34	0	0	39,487.75
4	Mauwa	<i>Engelhardia spicata</i>	16,182.76	10,147.61	9,108.60	9,037.49	20,558.28	65,034.74
5	Patlay	<i>Castanopsis hystrix</i>	17,411.47	10,918.09	11,712.72	7,694.72	8,498.09	56,235.09
6	Pine	<i>Pinus roxburghii</i>	0	0	0	55,943.19	53,670.24	109,613.43
7	Sal	<i>Shorea robusta</i>	0	0	0	0	2,562.08	2,562.08
8	Utis	<i>Alnus nepalensis</i>	8,640.19	5,417.94	10,880.01	0	0	24,938.14
9	Valayo	<i>Rhus parviflora</i>	0	0	0	8,568.88	17,114.52	25,683.40
Total			72,881.79	45,701.47	49,393.58	84,949.82	102,403.21	355,329.87

3.3.4 Non-Timber Forests Products³

Tapli RM has not made much use of Non-Timber Forests Products (NTFPs) in its socio-economic development; however, there are a total of 35 species of plants classified under 27 families used as NTFP mainly for food and folk medicine. Table 19 shows lifeform and number of plant species used as NTFPs in the municipality, and Annex ... enlists in detail the species used as NTFP in the Municipality.

Table 19 NTFPs' species number available in different life form in wild in each ward of Tapli RM

Lifeform category of NTFPs	NTFPs species no.	No. in ward 1	No. in ward 2	No. in ward 3	No. in ward 4	No. in ward 5
Tree	10					
Shrub	12					
Herb	6					
Climber	7					
Total	35					

³ NTFPs are the goods of biological origin other than timber or fuelwood derived from forests, other wooded land and trees outside forests (FAO 1999). In Nepal, about 90% of NTFPs/MAPs are harvested from the wild; 80% of the value and volume in trade is occupied by 20 high demand and high value products, and half of the traded amount is covered by the transaction of five highly-traded NTFPs (Olsen 2005). NTFPs/MAPs make up about 5% of the GDP of Nepal (CECI 2006).

3.4 Wildlife Environment

Assessment of Wildlife conducted during the preparation of the profile reports Tapli RM to hold 160 species of wildlife which includes of 27 number of butterfly species. Avian group has the highest number of species i.e. 76 species, (> 47 % of total wildlife diversity)

followed by Pisces (nearly 17 percent); Butterfly (15 percent); Mammal (>11 percent); Reptile; and Amphibian (Figure 14).

Two species of Pisces have been designated as vulnerable and endangered, and one species

each from reptiles and mammals are reported endangered. Further, the wildlife diversity at different levels is in Figure 15 and in wardwise in Annex .

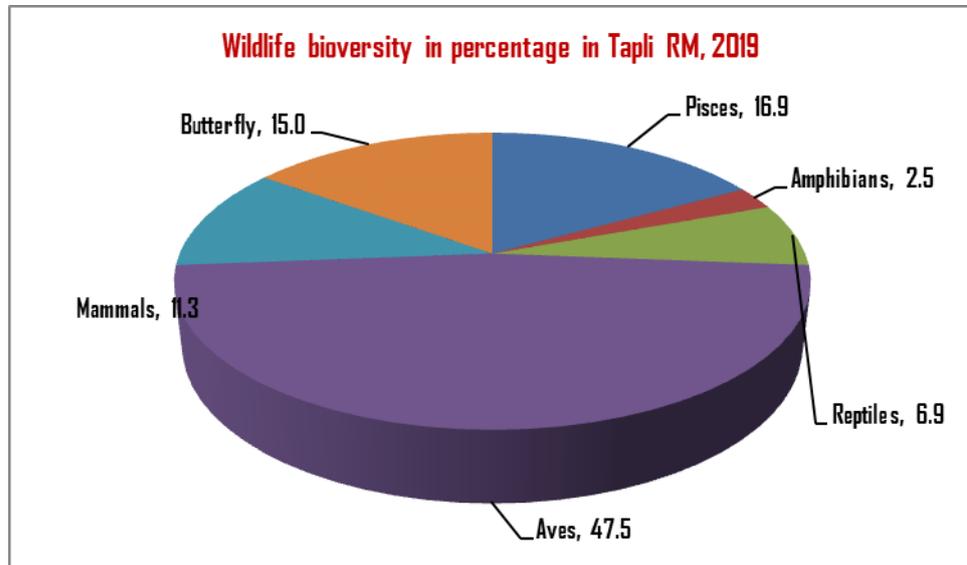


Figure 14: Wildlife biodiversity in percentage in Tapli RM, 2019

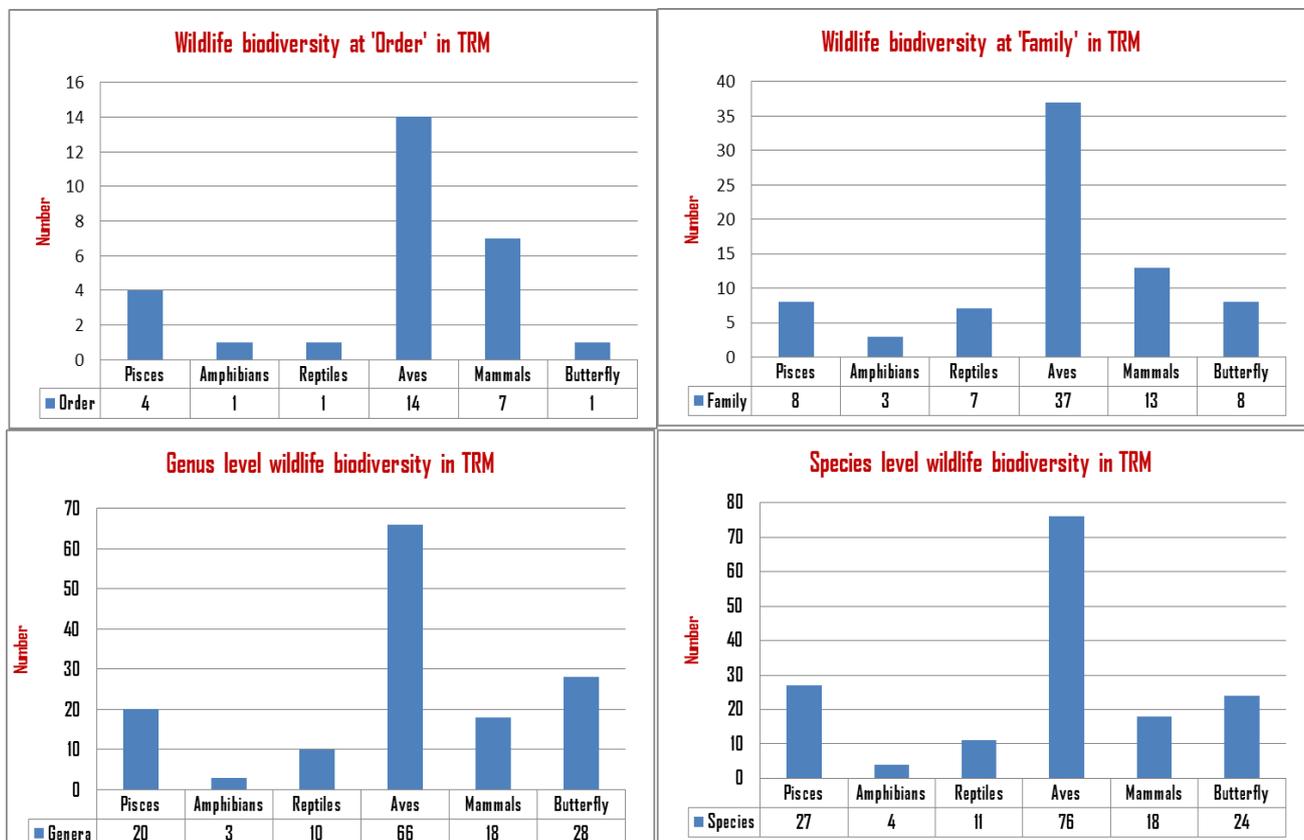


Figure 15: Wildlife biodiversity at different levels including genera and species levels in Tapli RM, 2019

3.4.1 Pisces

A total of 27 species of fishes categorized under 4 Orders, 8 Families, and 19 Genus are known to occur in the Sunkoshi river in ward-4 & 5 and in Yari Khola down to Sunkoshi river from the conjunction of the Kuvinde Khola. Among Order, Cypriniformes is diverse with four Families, and Family Cyprinidae and Sisoridae dominate by 56 and 19 percent of total fishes diversity respectively. Two species of Pisces belong to Vulnerable and Endangered group.

Annex [1](#), the detail of Pisces diversity.

Table 20 Diversities of Pisces in the Tapli RM

Order	Family	Genus no.	Sps. no.	Percent
Anguilliformes	Anguillidae	1	1	3.7
Cypriniformes	Balitoridae	1	1	3.7
	Cabotidae	1	2	7.4
	Cyprinidae	9	15	55.6
	Psilorhynchidae	1	1	3.7
Perciformes	Channidae	1	1	3.7
Siluriformes	Schilbeidae	1	1	3.7
	Sisoridae	4	5	18.5
Total: 4	8	19	27	100

3.4.2 Amphibian

Four species of Amphibian are found in the municipality which comprises 3 Genus, two families such as Bufonidae and Ranidae.

Annex [2](#), provides the detail of Amphibian's diversity.

3.4.3 Reptile

Tapli RM houses 11 species of reptiles comprised under 10 genus and 7 families (Table 21). The dominating families are Colubridae and Varanidae. Many species are common but *Varanus lavesdens* (Sungohoro) is endangered species reported from ward-1 (Okhale).

Annex [3](#), the detail of Reptile's diversity.

Table 21 Diversities of Reptiles in the Tapli RM

Order	Family	Genus no.	Sps. no.	Percentage
Sauria	Viperidae	3	1	9.1
	Elapidae	1	1	9.1
	Colubridae	1	4	36.4
	Angamidae	1	1	9.1
	Scincidae	1	1	9.1
	Varanidae	1	2	18.2
	Gekkonidae	1	1	9.1
Total: 1	7	10	11	100

3.4.4 Avi Fauna

A total of 76 species of birds under 14 Orders, 37 Families and 66 Genus has been reported from the municipality (Table 22). Among birds, family Muscicapidae is more diverse by nearly 8 percent of total bird species followed by species from the families Phasianidae and Cuculidae. Most of the species are common, and some occasional visitor. There are four rare and one vulnerable bird species in the municipality.

Annex **1**, the detail of the Avian diversity.

Table 22 Diversities of Bird species in the Tapli RM

Order	Family	Genus no.	Sps. no..	%	Order	Family	Genus no.	Sps. no.	%
Accipitriformes	Accipitridae	3	4	5.3	Galiformes	Hirundinidae	2	2	2.6
Apodiformes	Apodidae	1	1	1.3		Laniidae	1	1	1.3
Bucerotiformes	Upupidae	1	1	1.3		Leiothrichidae	1	1	1.3
Charadriiformes	Charadriidae	1	1	1.3		Motacillidae	2	2	2.6
Ciconiiformes	Ciconiidae	1	1	1.3		Muscicapidae	6	6	7.9
Columbiformes	Columbidae	3	3	3.9		Nectariniidae	1	1	1.3
Coraciiformes	Alcelinidae	1	1	1.3		Paridae	1	1	1.3
	Meropidae	1	1	1.3		Passeridae	3	3	3.9
Cuculiformes	Cuculidae	4	5	6.6		Phylloscopidae	1	3	3.9
Galiformes	Phasianidae	5	5	6.6		Pycnonotidae	3	3	3.9
	Aegithinidae	1	1	1.3		Rhipiduridae	1	1	1.3
	Alaudidae	1	1	1.3		Strunidae	2	2	2.6
	Campephagidae	2	2	2.6		Timaliidae	2	2	2.6
	Cettidae	1	1	1.3	Pelecaniformes	Ardeidae	1	1	1.3
	Cisticolidae	1	1	1.3	Piciformes	Picidae	2	2	2.6
	Corvidae	3	6	7.9		Ramphastidae	1	2	2.6
	Dicruridae	1	2	2.6	Psittaciformes	Psittacidae	1	1	1.3
	Estrildidae	1	1	1.3	Strigiformes	Strigidae	2	3	3.9
	Fringillidae	1	1	3.9					
Total		33	39	51.3			33	37	48.7

3.4.5 Mammal

Tapli RM harbors eighteen species of mammals comprising eighteen Genus and 13 Families, Order Rodentia with Muridae family has possession of higher diversity percentage i.e., >22 percent followed by Order Carnivora under the family Mustelidae (>11 percent) (Table 23). Some remarkable mammals include Nirbiral (*Viverricula indica*), Ban Biral (*Felis chaus*), Banel (*Sus scrofa*), Ratte Mirgha (*Muntiacus muntjak*), Salak (*Manis pentadactyla*), and Ban musa (*Nesokia indica*). Municipality reports to hold biodiversity significant species such as Common Otter (*Lutra lutra*) in ward-5 (Rupatar).

Annex **2** lists the detail of Mammal's diversity.

Table 23 Diversities of Mammals in the Tapli RM

Order	Family	Genus no.	Sps. no.	Percentage
Artiodactyla	Bovidae	1	1	5.6
	Carividae	1	1	5.6
	Suidae	1	1	5.6
Carnivora	Canidae	1	1	5.6
	Felidae	1	1	5.6
	Herpestidae	1	1	5.6
	Mustelidae	2	2	11.1
	Viverridae	1	1	5.6
Insectivora	Sorcidae	1	1	5.6
Lagomorpha	Leporidae	1	1	5.6
Pholidata	Manidae	1	1	5.6
Primates	Carcopithecidae	2	2	11.1
Rodentia	Muridae	4	4	22.2
Total: 7	13	18	18	100

3.4.6 Butterfly

A total of 34 species of butterfly is recorded from the Tapli RM under one Order Lepidoptera 8 Families and 28 Genera. Of this diversity, Family Nymphalidae holds over 35 percent of species diversity of butterfly followed by Danaidae and Lycaenidae (TABLE 24).

Annex , the detail of diversity of butterfly in Tapli RM.

Table 24 Diversities of Butterfly in the Tapli RM

Order	Family	Genus no	Species no	%
Lepidoptera	Amathusiidae	3	3	8.8
	Danaidae	4	6	17.6
	Lycaenidae	6	6	17.6
	Nemeobiidae	1	1	2.9
	Nymphalidae	10	12	35.3
	Papilionidae	1	1	2.9
	Peiridae	2	4	11.8
	Satyridae	1	1	2.9
Total: 1	8	28	34	100

3.5 Forest Resource Management

Forests in Tapli RM are under two systems of mangment: i) government mangment of forest under the national forestry and ii) community mangment of the national forestry under Community Forestry (CF) program. The forestry program in the municipality fell under two previous Rangepost namely the Thangaun Rangepost and Tawashri Rangepost. Private forestry is limited to either the home yards or in terrace buns.

Some butterfly species found in Tapli Rural Municipality



Himalayan Popinjay (*Stibochiona nicea*)



Common Mormon Butterfly (*Papilio polytes*)



Oriental Common Leopard (*Phalantha phalantha*)



Common Mime (*Chilasa clytia*)



Danaid Eggfly (*Hypolimnas misippus*)



Lemon Pansy, *Junonia lemonias*

**Common Mormon Butterfly
(*Papilio polytes*)**



Photo By: Dr. Bharat Subba
(CODEFUND 2019)

A total of 15.4 percent of the total forests of the municipality is under the CF management i.e., nearly 893 ha, this way 7.4 percent of total area of the municipality is in the direct management of forest which involves 842 household organized in the eight Community Forests User Groups (CFUGs). Janbhawana and Pandherapakha are the largest CFs in Thanagaun and Rupatar.

All CFUGs have good participation of women in the forest management. There is an average participation of 31 percent of women as executive bodies in CFUG; however Panchawati Hariyali CF in ward-1 (Okhale) has women members in all executive positions.

Table 25 provides further detail of CF management in the Tapli RM.

Table 25: Status of forest under community forest management in Tapli RM, 2019

CF name	Longitude	Latitude	Rangepost	Former VDC	Tapli RM/Ward	Area (ha)	HH no.	Ha/HH	Forest type	Committee member	Women in committee	% women in committee
Nevhariyali	86.54286432	27.07843175	Tawashri	Okhale-7,8,9	Okhle	156	157	0.99	Subtropical deciduous	11	6	55
Panchwati Hariyali	86.54286432	27.07843175	Tawashri	Okhale-7,8	Okhle	68.4	74	0.92	Subtropical deciduous	13	13	100
Panchwati	86.54286432	27.07843175	Tawashri	Rupatar-6	Rupatar	17	106	0.16	Shorea robusta (Sal)	11	2	18
Pandherapakha	86.54286432	27.07843175	Thanagaun	Rupatar-8,9	Rupatar	132.5	105	1.26	Schima castanopsis	13	3	23
Salleri	86.54286432	27.07843175	Tawashri	Iname-9	Iname	89.6	102	0.88	Subtropical deciduous	11	3	27
Laligurans	86.54286432	27.07843175	Tawashri	Lekhgaun-9	Lekhgaun	82.25	58	1.42	Pinus roxburghii (Pine)	9		0
Kalkadevi	86.54286432	27.07843175	Thanagaun	Thanagaun-7,8	Thanagaun	148	46	3.22	Upper slope mixed hardwood	11	1	9
Janbhawana	86.54286432	27.07843175	Thanagaun	Thanagaun-3,4,5	Thanagaun	199.2	194	1.03	Alnus nepalensis	13	2	15
Total						892.95	842	1.01				31
% of total forest area in TRM (5,792.1 ha)						15.4						
% of total area of TRM (12,071.8 ha)						7.4						

3.6 Water Resources

There are two types of waterbodies in Tapli RM namely i) freshwater perennial river/streams, and ii) modified lentic water bodies like lake and ponds. In addition, water coup and community managed *Dhara* (spout) are in operation at some places.

3.6.1 Perennial River and Stream

Figure 16 shows the distribution of water system, river and streams in Tapli RM. River and streamwise basin structures, area and length is in Table 26.

Water bodies occupy 0.30 of total area of the municipality. The entire municipality is the sub-watershed of Sunkoshi river basin, and river and streams predominate the water system. The Sunkoshi runs by 2.7 km and makes the northern boundary of municipality separating Khotang district in the North, and covers more than 17 percent of total municipality area under its direct catchment, whereas other sub-basins of Sunkoshi include the Sorung Khola, Yari Khola and Rakula Khola having their respective sub-basin coverage by xxx percent, 69 percent and nearly 14 percent. The Rakula and Sorung Kholas drain to the Sunkoshi river from the east and west borders of the municipality respectively.

The Yarii Khola is the largest sub-basin of the Sunkoshi river that drains across all wards of the municipality. It originates from the Rachane of ward-3 (Iname), where it is named as the Thado Khola. The running length of this stream from the Rachane to the destination the Sunkoshi river is 20.7 km. The catchment of this stream has seven micro-basins such as

- 1st Chisapani and the 2nd Susuli micro-basins in ward-2 (Lekhgaun)
- 3rd Bhaise and 4th the Kholekharka in ward-3 (Iname)
- 5th micro-basin of the Ghari Khola {the second longest stream length (11.4 km) starting from the Jordhunga/Okhale and converge to the Yari in Kumaletar)

- 6th one the Kubinde micro-basin with Bijuwa and Kubinde Khola; and
- 7th one Gahate Khola micro-basin originating from the Thanagaun which meets Yari Khola in Kapastar/Rupatar.

All the streams in the Municipality flow from South to North but the Sunkoshi river flows from the West to East. Some of the tributaries dry up in the Spring and Summer season for example, Ghari and Gahate Khola. Of all the wards, ward-5 has more than 25 percent of basin coverage and nearly 90 percent of river and stream length fall under water system. Eventhough, ward-5 and some parts of ward-4 belong to water-stress area within the municipality.

Table 26: Lenth and area of the rivers and streams in Tapli RM. , 2019

River and stream	Area in each ward of Tapli RM (ha)					Total river length Km	%Individual river length
	Ward-1 (Dkhale)	Ward-2 (Lekhgaun)	Ward-3 (Inene)	Ward-4 (Thanagaun)	Ward-5 (Rupatar)		
Badhare				2,548.9	114.9	2,663.7	2.7
Bhaise			2,803.8			2,803.8	2.8
Bharuwa			251.9	1,284.2		1,536.0	1.5
Bijuwa					3,643.2	3,643.2	3.6
Dhange	1,589.3					1,589.3	1.6
Chisapani		3,105.0				3,105.0	3.1
Dahate				3,146.8	3,754.1	6,900.0	6.9
Garkhe			98.8			98.8	0.1
Ghari	9,386.4				2,033.5	11,419.9	11.4
Ghyampa				1,741.1		1,741.1	1.7
Kholekharka			3,657.3			3,657.3	3.7
Kubinde			790.4		6,888.0	7,678.4	7.7
Mandata			463.4	419.0		882.5	0.9
Nunekhu	100.4					100.4	0.1
Pakula			1,874.0	2,153.5		4,027.5	4.0
Rangkula				7,973.5		7,973.5	8.0
Sarung	1,346.2					1,346.2	1.3
Sunkoshi	450.1			774.1	988.6	2,192.8	2.2
Susuli	1,398.8		3,887.4			5,286.3	5.3
Thulo			522.0	4.1		526.1	0.5
Yari	819.0	6,453.3	8,372.0		5,155.9	20,710.3	20.7
Total	15,080.2	13,524.5	18,680.8	20,045.2	22,538.2	89,948.9	89.8
KM	15.1	13.5	18.7	20.0	22.5	89.8	100.0
Wardwise % length	16.8	15.1	20.8	22.3	25.1	100.0	

River and streams	Area in each ward of Tapli RM (ha)					Total	Basin area %
	Ward-1 (Dkhale) and-2 (Lekhgaun)	Ward-3 (Inene)	Ward-4 (Thanagaun)	Ward-5 (Rupatar)			
Sunkoshi River	1,020.9	-	-	486.6	582.5	2,090.0	17.3
Sub-total	1,020.9	-	-	486.6	582.5	2,090.0	17.3
Sarung Khola sub-basin of Sunkoshi							
Sarung	-	-	-	-	-	-	-
Nunekhu	-	-	-	-	-	-	-
Dhange	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-
Yari Khola sub-basin of Sunkoshi river							
Yari Khola	1,298.6	1,976.7	1,988.8	11.7	1,831.6	7,037.6	58.3
Kholekharka Khola	-	-	-	-	-	-	-
Bhaise Khola	-	-	-	-	-	-	-
Kubinde Khola	-	-	-	-	-	-	-
Bijuwa Khola	-	-	-	-	-	-	-
Ghari Khola	-	-	-	-	-	-	-
Chisapani Khola	-	-	-	-	-	-	-
Susuli	-	-	-	-	-	-	-
Garkhe	-	-	-	-	-	-	-
Thulo Khola	-	-	-	-	-	-	-
Mandata Khola	-	-	-	-	-	-	-
Sub-total	1,298.6	1,976.7	1,988.8	11.7	1,831.6	7,037.6	58.3
Gahate khola microbasin of Yari Khola							
Dahate Khola	-	-	-	-	987.8	987.7	1,287.5
Badhare Khola	-	-	-	-	-	-	-
Sub-total	-	-	-	-	987.8	987.7	1,287.5
Rakule sub-basin of Sunkoshi							
Rakule Khola	-	-	-	383.3	1,268.1	65	1,656.8
Ghyampa Khola	-	-	-	-	-	-	-
Bharuwa Khola	-	-	-	-	-	-	-
Sub-total	-	-	383.3	1,268.1	65	1,656.8	13.7
Total	2,385.5	1,976.7	2,372.1	2,432.1	3,040.5	12,070.9	100
% of river/ stream basins	19.2	16.4	19.1	20.1	25.2	100	

3.6.2 Lakes and Ponds

Tapli Pokhari is a modified lentic and permanent waterbody located in ward-2 (Lekhgaun) at an altitude of 1,740 masl, and coordinates at 27⁰01'46.00" N; Lon: 86⁰33'31.00" E in the Mahabharat range. The pond has core and basin area of one ha and xxx ha respectively. In the East and South, the pond is encircled by the open and green meadow, whereas in West there is upland cropfield and settlement. The Gairigaun-Tapli earthen road is the boundary in the North. Its outlet in the South is earthen dammed. A Panchakanya temple is located in the west shoreline.

The basin area has forests of *Alnus nepalensis* (Utish); *Pyracantha cranulata* (Gangaru); *Juniperus* sp (Dhupi); *Schima wallichii* (Chilaune); and *Pinus roxburghii Erythrina indica* (Faledo). Some major wildlife in the basin includes *Hoplobatrachus tigerinus* (Bhyaguta); *Lycodon* sp. (Bwanse Sarpa); *Anas* sp. (Pani Haans); *Casmerodius albus* (Bakulla); *Naemorhedus goral* (Ghoral); *Muntiacus muntjak* (Ratuwa); and *Lepus* sp. (Kharayo).

The lake has both cultural and touristic significance. Over 1,000 local visitors travel this destination once in a major festival on New Year. The local communities are organized under the *Taple Lekh Paryatakiya Kshetra Bikas Samiti* which is committed for the management of pond.

Simle Pokhari is another small wetland of this village.



Scenic of Tapli Pokhari



Junction area of Sunkoshi River (Right) and Yari Khola (Left)

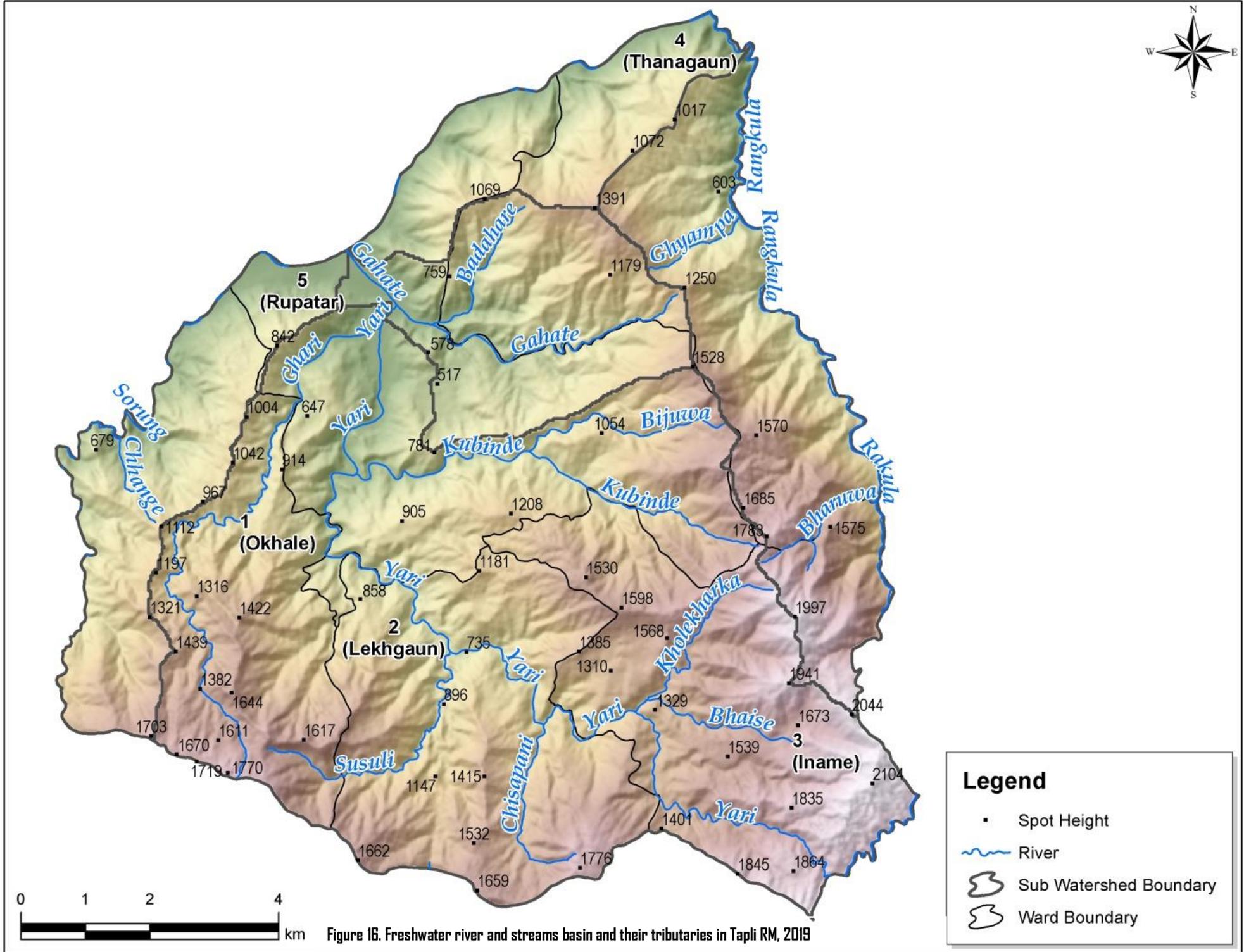


Figure 16. Freshwater river and streams basin and their tributaries in Tapli RM, 2019

3.6.3 Waterspout

Tapli RM has many waterspouts that are used for the drinking water supply for those people who have no access to piped water. Many waterspout destinations are also the sources for drinking water for livestock and wild animals.

3.6.4 General Use of Water Ecosystem

The water from the Rakula, Nunekhu, Yari Kholas generate hydro-power (63 KW) from three microhydro power plants. They supply power to the villages in Thanagaun, Rupatar and katahare in ward 5 and Okhle in ward 1. Several of the streams tributaries feed water to the famers managed irrigation systems. Bijuwa and Kubinde Khola supply irrigation water to Gairigaun and Bhainse of ward-5. Gahate and Bhadahare Kholas irrigate some of the paddy field particularly in Kapastar and Badhare; these two streams almost get dry in the summer. The Gahate Khola irrigates paddy field at the downstream in the Tallo Madale.

Water from Kholas are in use for drinking water; for example Gahate Khola for water supply in Gahate; Ginderi and Palatar (HH); Bijuwa khola to Gairigaun, Tilkechaur and Rupatar (...HH). Ghari Khola supply water for Mathlo and Tallo Madale, and Kumaltar (...HH). These streams also supply water for irrigation.

These streams are source for irrigation in different wards.

There are numerous springs in feeding the drinking various water systems. However, parts of Ward 1 (Okhale), Ward 4 (Thanagaun) and Ward 5 (Rupatar) have shortages of source of drinking water. Ward 3 (Iname) supplies drinking water source to Thangaun. It has been widely reported by the local communities that over the years there has been a decline in water discharge at water springs.

3.6.5 Water Quality

Table 27 shows the measurement of the water quality of some streams and water coups.

Table 27. Water quality analysis of some streams, coup amd spouts in Tapli RM. , 2019

SN	Parameters	Yari Khola	Gahate Khola	Gahate khola	Dittha Pandhero	Dhara Palatar	Units	Method
1	Iron (Fe)	0.15	0.16	0.17	0.19	0.12	mg/L	APHA-3111B
2	Manganese (Mn)	0.08	<0.05	0.2	<0.05	<0.05	mg/L	APHA-3111B
3	Zinc (Zn)	<0.05	<0.05	<0.05	<0.05	<0.05	mg/L	APHA-3111B
4	Nickel (Ni)	<0.05	<0.05	<0.05	<0.05	<0.05	mg/L	APHA-3111B
5	Lead (Pb)	<0.01	0.03	0.06	0.02	0.03	mg/L	APHA-3111B
6	T-Chromium (T-Cr)	<0.05	<0.05	<0.05	<0.05	<0.05	mg/L	APHA-3111B
7	Cadmium (Cd)	<0.003	<0.003	<0.003	<0.003	<0.003	mg/L	APHA-3111B
8	Sodium (Na)	6.51	6.51	6.23	6.44	7.31	mg/L	APHA-3500
9	Potassium (K)	4.82	4.82	4.72	3.94	2.65	mg/L	APHA-3500

3.7. Climate Change and Disaster

There is a long history of disaster events occurring in the Tapli RM. The most common types of hazards occurred in the municipality are flood, drought, and landslides. Some hazards like drought are of slow onset, whereas others such as landslides and floods have rapid

onset. The major disaster events in the municipality fresh in the memory of people living today are: the drought of 1965/2022 BS; flood in Yari of 1971/2028 BS; flood and landslide of 1984/2041 BS; earthquake of 1988/2045 BS; flood 1999/2056 BS, flood of 2008/2065 BS; and earthquake of 2015/2072 BS. The degree of damage caused disaster in different period varied. Among these, local people report that the drought of 1965, and floods and landslide of 1984 and 1999 had been more severe. Some examples include:

- Flooding of 1984 washed large tracts of land including houses. There was no loss of life in Okhale but landslide in Shikharpur and Saidanda damaged 5-6 houses. This year, Yari Khola damaged about 6 Ropani of land in Lekhgaun and 5 people were killed in Odare. The damaged land of this time has not been reclaimed yet.
- Flooding in Tapli tar in 1984, 1999 and 2006 which swept about 200 Ropani of land, destroyed 15 households, and killed 20 livestock.
- Dharekhola flooded land in 1984 Flooding in Siddhitar swept land in 1999 in Iname. Chhange Khola cut land in Shikharpur; Bhanise Khola damaged 2 houses in Iname; landslide damaged 5 houses in Khopgaun; and Ramche is at risk of landslide. Further, river cutting by Angare khola, Bhainse khola in Mangtar and 20 hhs are at risk
- Flooding of 1984 damaged about 150 ropani of land pushing 25 hhs at risk of landslide i.e., Thulopairo.

As the access to food has improved in the recent past, the effects of some of the hazards like drought are not severely felt as they used to be before. However, people reported that the drought has become more intense and frequent over the years.



Research Team Member testing water quality of river of TRM

4. SOCIO-ECONOMIC FEATURES

4.1 Demography

4.1.1 Key Settlements and Villages

Table 28 below enlist key settlements in each wards. Settlements in the Rural Municipality are evenly distributed. Settlements maps in Figure 17 to 21

Table 28. Major settlement in each ward, and ward's headquarter in Tapli RM. , 2019

Wards	Key Settlement
Ward-1 Okhale	Kholme; Okhale; Benji; Halde; Dadhuwa; Dumre; Pipal Bhanjyang; Dhuseni; Sisneri; Madale; Kartike; Debre; Dandagaun; Grase; Banpara; Simle; Charang. Okhale is the headquarters of the ward.
Ward-2 (Lekhgaun)	Tamakharka; Pultar; Gayatar; Bachhang; Wodhare; Habutar; Arubote; Palten; Lekhgaun; Dhapeni; Sakala; Kankuwa; Kalimati; Narimala; Gargare; Karali; Dharapani; Sano Okhale; Saurbote; Chisapani; Gerkhe Bhanjyang; Kankuwa; Taple; Tallo Taple. Lekhgaun is the headquarters of the ward.
Ward-3 (Iname)	Dhuseni; Dandagaun; Bhangtar; Ramche; Dagale; Kholakharka; Salle; Bhaisetar; Askande; Madire; Khopgaun; Jhilkiya; Iname; Mandata; Kamaere; Tallo Taple; Siddhitar; Sikharpur; Nigalbas; Runche Bhanjyang; Tallo Hattitar; Hattitar. Iname is the headoffice of the ward.
Ward-4 (Thanagaun)	Bhasme; Jyamire; Pokhari; Phalante; Lakhanda; Kopche; Tauke; Bhirgaun; holagaun; Thanagaun; Rigili; Ghampakhola; Tamakharka; Baspani; Ghumantar; Jatanpur; Anpechaur; Bahidar Thumki; Sepile; Thumki; Wanamala; Thulo Thumki. Thanagaun is the headoffice of the ward.
Ward-5 (Rupatar)	Rajdaha; Adamara; Badahare; Simle; Nibuwater; Simle; Badahare; Diyathumka; Madale; Rupatar; Gauwantar; Sirwani; Gahate; Kholekharka; Kerabari; Rampur; Khanidanda; Bijuwa; Tilkechaur; Salle; Pakhure; Lamidanda; Dhunga; Katahare; Phurke; Bhutiya. Rupatar is the headoffice of the ward.

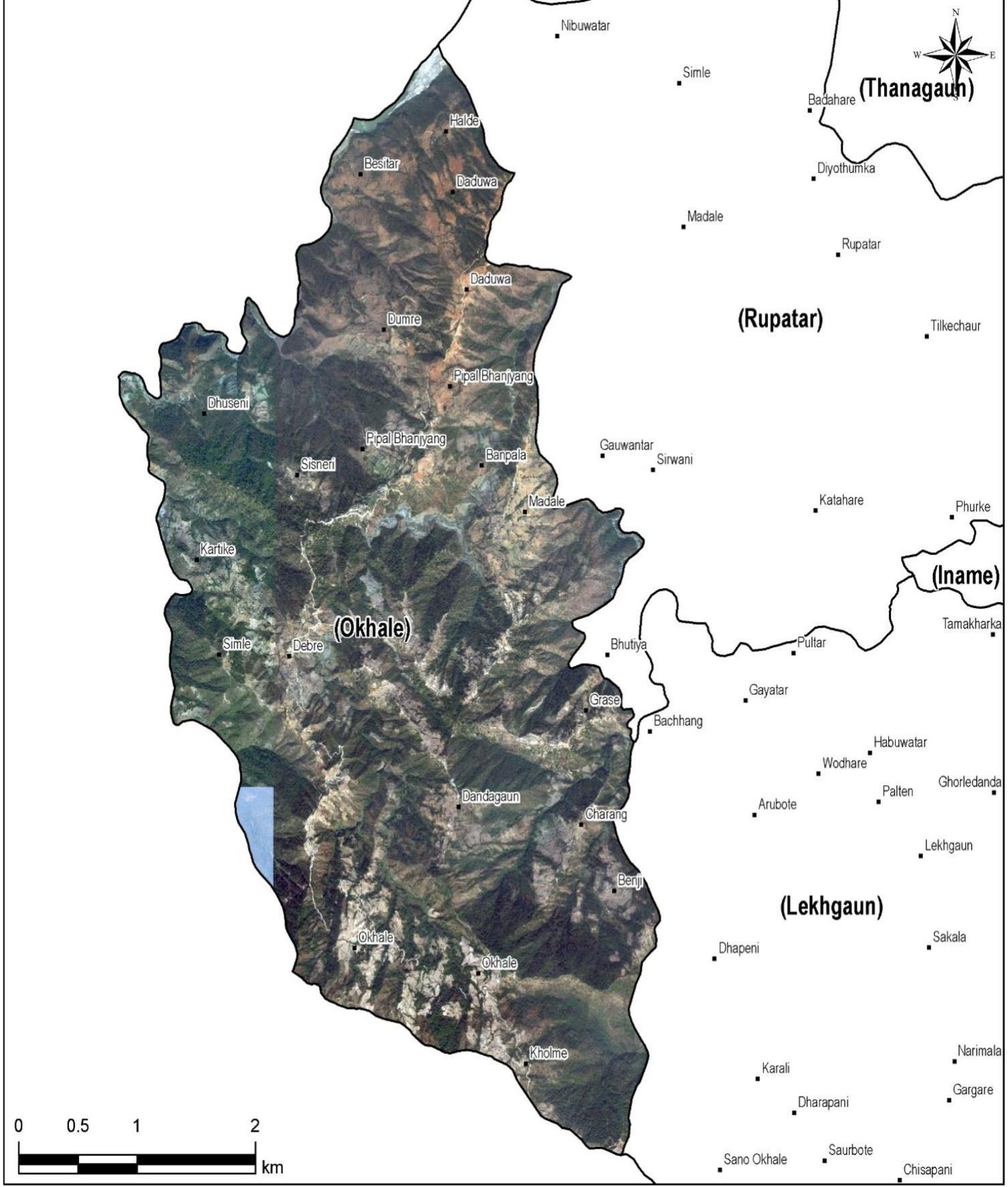


Figure 17. Major settlements in ward-1 (Okhale) of Tapli RM, 2019

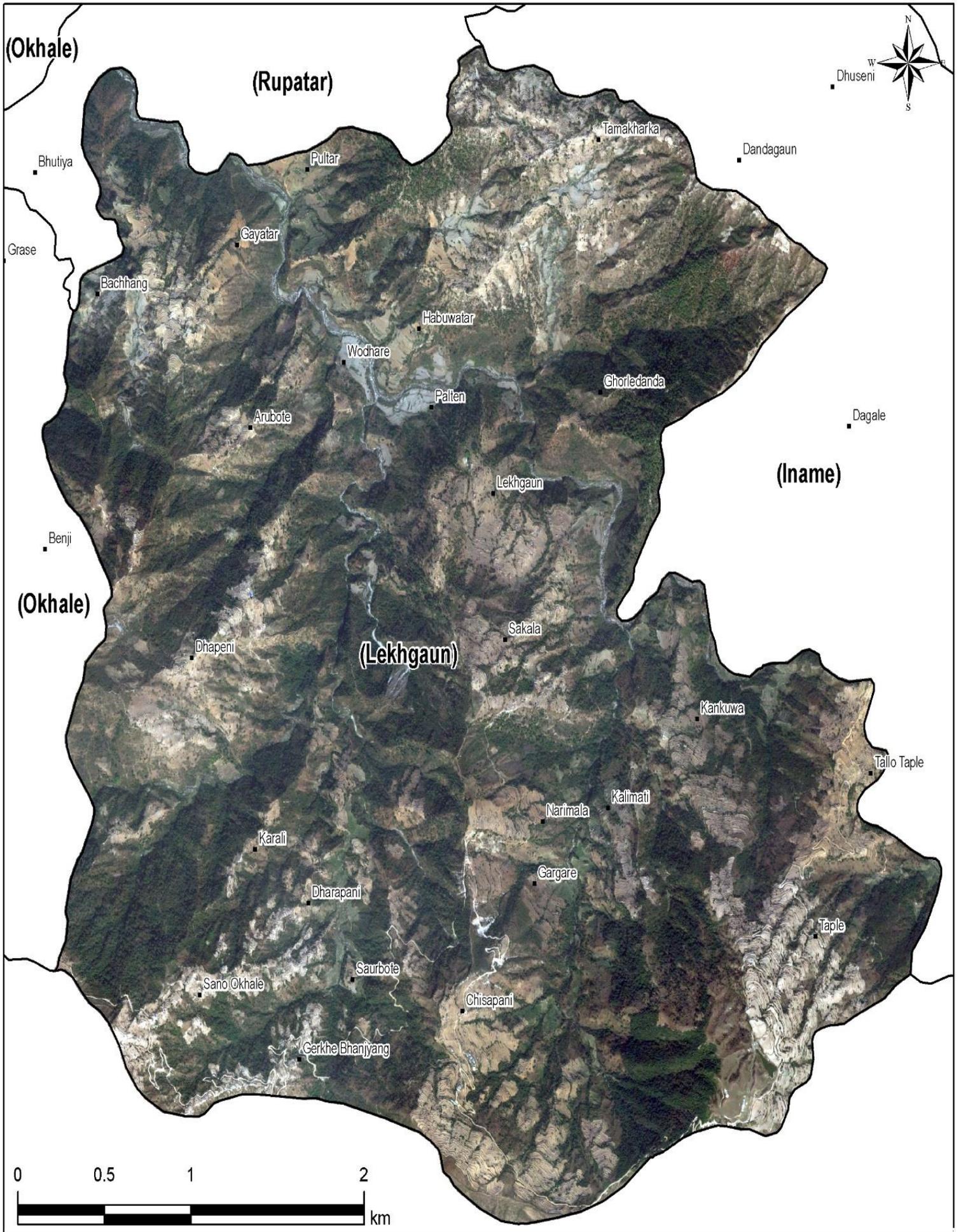


Figure 18. Major settlements in ward-2 (Lekhgaun) of Tapli RM, 2019

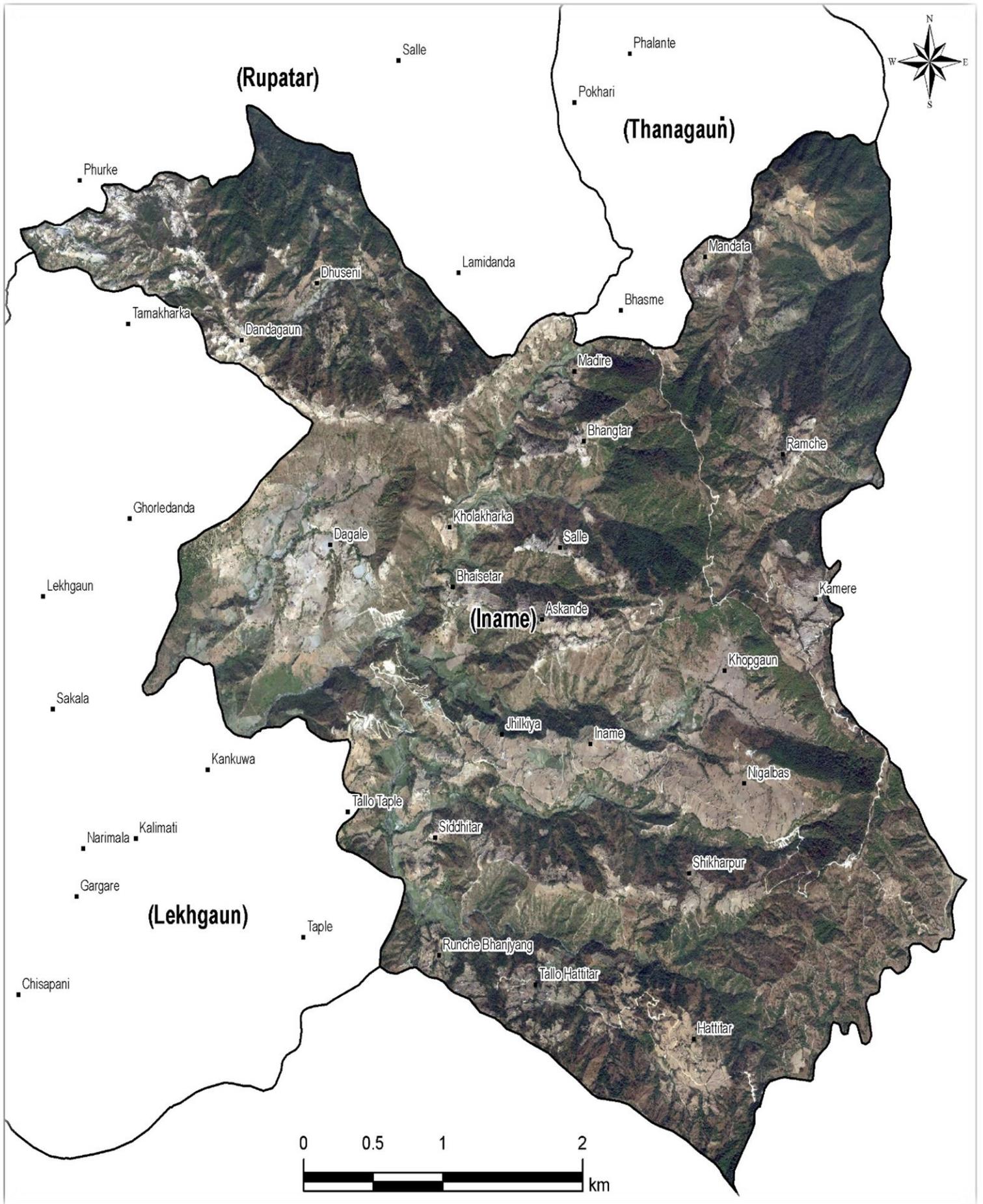


Figure 19. Major settlements in ward-3 (Iname) of Tapli RM, 2019

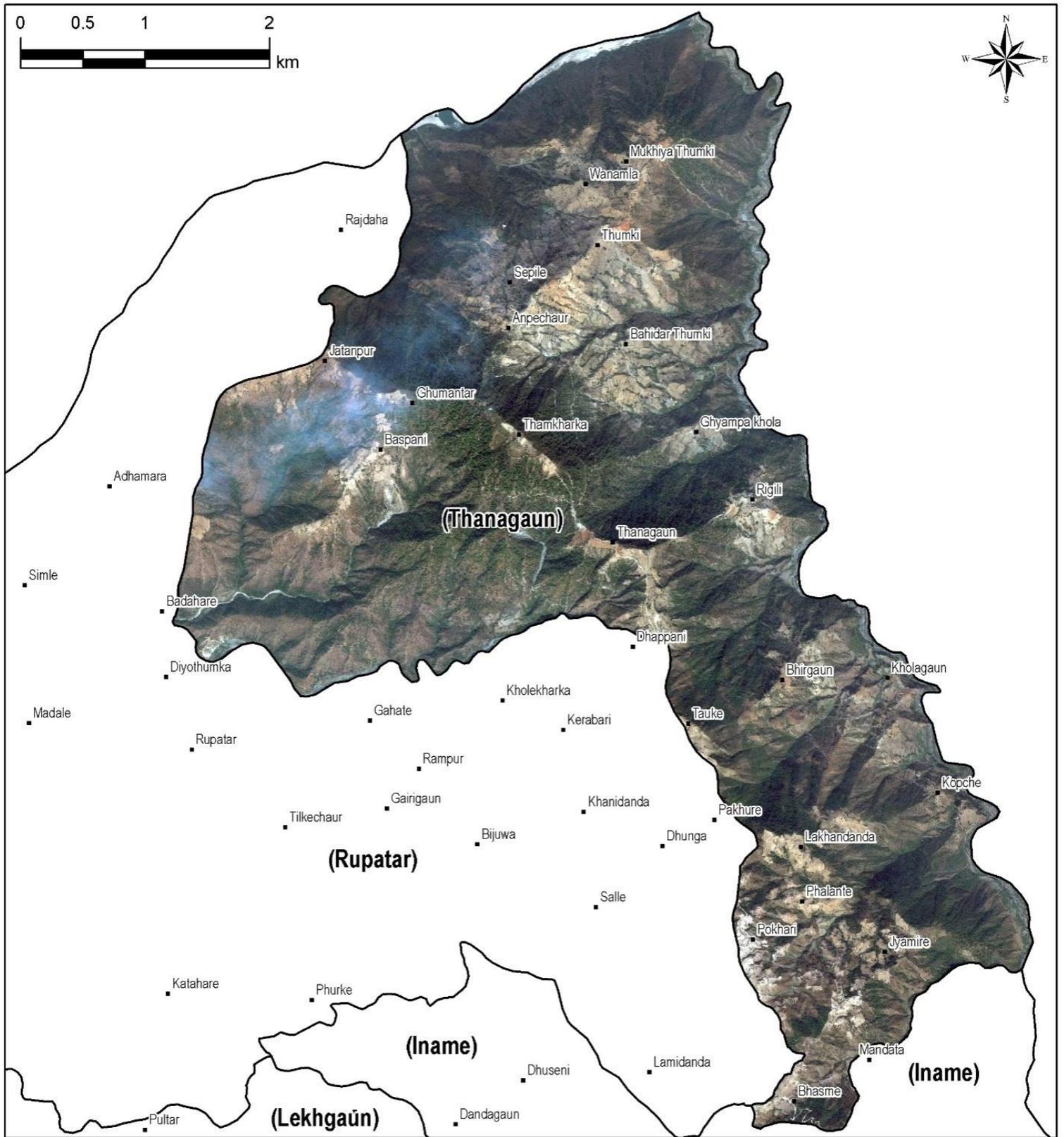


Figure 20. Major settlements in ward-4 (Thanagaun) of Tapli RM, 2019



Figure 21. Major settlements in ward-5 (Rupatar) of Tapli RM, 2019

4.1.2 Population Size and Density

The total population of the municipality is 14,989 (7,713 male and 7,266 female) living in 2,528 households. The average household size in the municipality is 5.82, which is higher than the national average of 4.7 (Table 29). The average population density is 124.16 per km² that is less than the national average of 181 per km².

The population densities range from the highest in ward 3 (Iname) with more than 137 to the lowest in ward 1 (Okhale) of nearly 109. The average sex ratio in the municipality is 105.7⁴ with the highest in Rupatar at nearly 111 and lowest in Lekhgaun at 101.

Table 29. Households size, genderwise population, population ratio and population density in each ward of Tapli RM

Wards	Area (Km ²)	No of HH	HH size	Population			Sex ratio	Pop density
				Male	Female	Total		
Ward 1 (Okhale)	23.2	456	5.54	1275	1250	2525	102.0	108.84
Ward-2 (Lekhgaun)	19.77	457	5.57	1280	1265	2545	101.2	128.73
Ward-3 (Iname)	23.02	547	5.78	1620	1540	3160	105.2	137.27
Ward-4 (Thanagaun)	24.32	453	6.23	1473	1348	2831	109.3	116.41
Ward-5 (Rupatar)	30.41	668	5.88	2065	1863	3928	110.8	129.17
Total	120.72	2581	5.8	7713	7266	14979	105.7	124.1

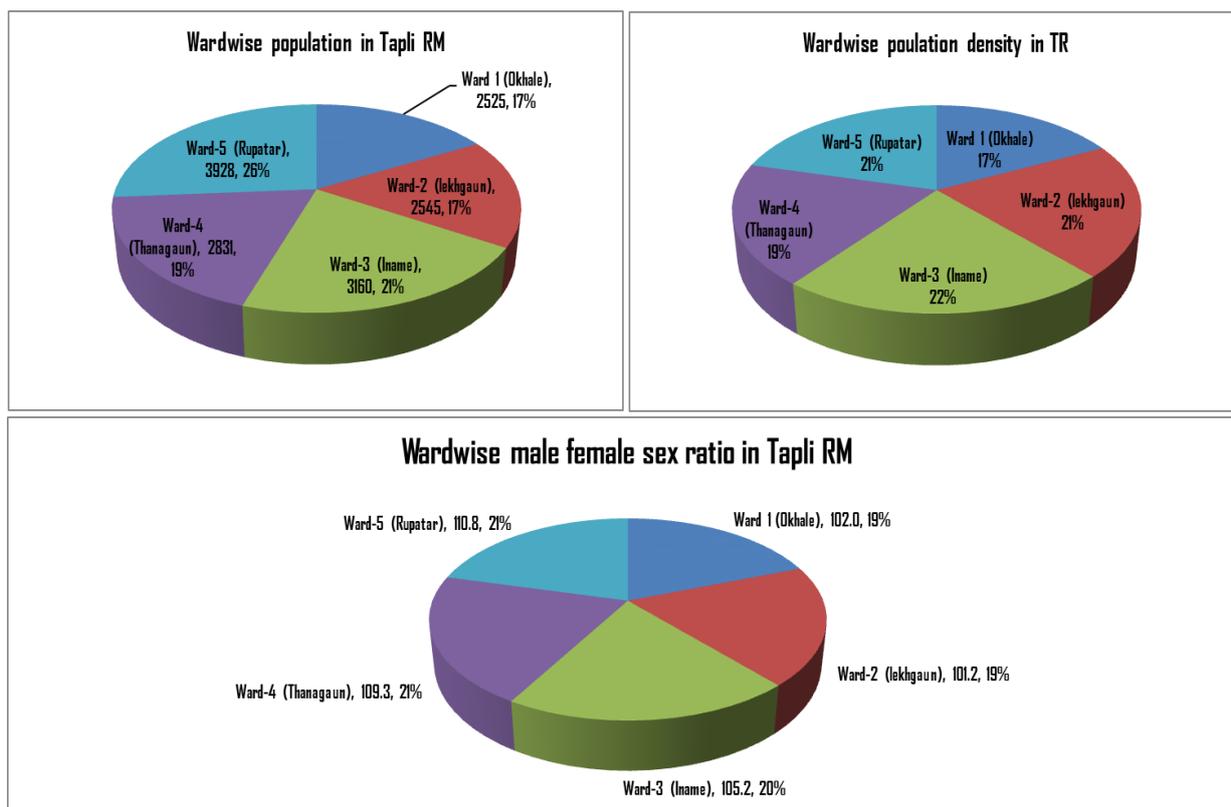


Figure 19. Percentage of population in each ward of Tapli RM, 2019

⁴ The sex ratio here is not comparable with the national average, because the national census conducted by the Central Bureau of Statistics does not include the absent population (which is mostly the male) during the census process. In the preparation of this profile, the data collection process included the absent population.

4.1.3 Demography Changes

The demographic changes in the earlier Village Development Committees (VDCs) now corresponding as wards from the Censuses of 2001 and 2011 are also listed here. These censuses show that population growth rate from 2001 to 2011 in the earlier five VDCs now the Tapli RM was already low at 0.28 percent with the negative growth rate in Thanagaun and Rupatar. The comparison of the result of the current census by the municipality with the national census of 2011 reveals that there is a decline in the number of households by 211 and a decline in population by 53. This is the trend of the high level of population migration by 0.35 percent and HH migration by 8.2 percent from the municipality from 2011 to 2018.

4.1.4 Population Growth

Table 30 shows the population and growth pattern based on average of the national census of previous VDCs in 2001 and 2011 as the proxy annual population growth rate in Tapli RM. The average annual population growth of the municipality is 0.28 that is very low than the national average of 1.35%

Table 30. The population and growth pattern in the last two census in the earlier VDC now in wards of Tapli RM (CBS 2011.)

Earlier VDC	2001 Census					2011 Census					Avg. annual growth
	HH	Total pop ⁿ	Male	Female	Sex ratio	HH	Total pop ⁿ	Male	Female	Sex ratio	
Okhle	464	2666	1342	1324	101.36	507	2722	1275	1447	88.11	0.21
Lekhgaun	450	2493	1197	1296	92.36	562	2918	1408	1510	93.25	1.7
Iname	529	3234	1541	1693	91.02	587	3256	1493	1763	84.69	0.07
Thanagaun	429	2558	1291	1267	101.89	446	2490	1237	1253	98.72	-0.27
Rupatar	627	3692	1858	1834	101.31	683	3665	1833	1832	100.05	-0.07
Total	2499	14643	7229	7414	97.5	2785	15051	7246	7805	92.84	0.28



Settlement Area of Jordhunga Area

4.1.5 Age Structure/Active Population

Table 31 and Figure 20 (a) and (b) show population size in age groups and population pyramid. Amongst age groups at 5 years interval, group of 11 to 15 years accounts for the largest group while the smallest group is 71-75 years. Wardwise detail is in Annex..

Of total, economically active population (16-60 years old) account for 59.18 percent. People under 15 years of age constitute 32.54 percent and those above 60 years account for 8.22 percent.

Table 31. The population size in different age groups in the Tapli RM

उमेर समुह	पुरुष		महिला		जम्मा संख्या	जाम्माको प्रतिशत
	संख्या	प्रतिशत	संख्या	प्रतिशत		
००-०५	७३१	५१.६२	६८५	४८.३८	१४१६	९.४५
०६-१०	८०३	५०.५	७८७	४९.५	१५९०	१०.६१
११-१५	९८४	५२.५९	८८७	४७.४१	१८७१	१२.४९
१६-२०	८७७	५१.७७	८१७	४८.२३	१६९४	११.३१
२१-२५	८७७	५१.६२	८२२	४८.३८	१६९९	११.३४
२६-३०	६५७	५१.४१	६२१	४८.५९	१२७८	८.५३
३१-३५	४९९	४९.३१	५१३	५०.६९	१०१२	६.७६
३६-४०	४९१	५२.४	४४६	४७.६	९३७	६.२६
४१-४५	२६३	४९.०७	२७३	५०.९३	५३६	३.५८
४६-५०	३४७	५२.५८	३१३	४७.४२	६६०	४.४१
५१-५५	२९३	५२.६	२६४	४७.४	५५७	३.७२
५६-६०	२६१	५२.५२	२३६	४७.४८	४९७	३.३२
६१-६५	२३०	५१.५७	२१६	४८.४३	४४६	२.९८
६६-७०	१८०	५३.७३	१५५	४६.२७	३३५	२.२४
७१-७५	८२	४९.१	८५	५०.९	१६७	१.११
७५+	१३८	४८.५९	१४६	५१.४१	२८४	१.९
जम्मा	७७१३	५१.४९	७२६६	४८.५१	१४९७९	१००

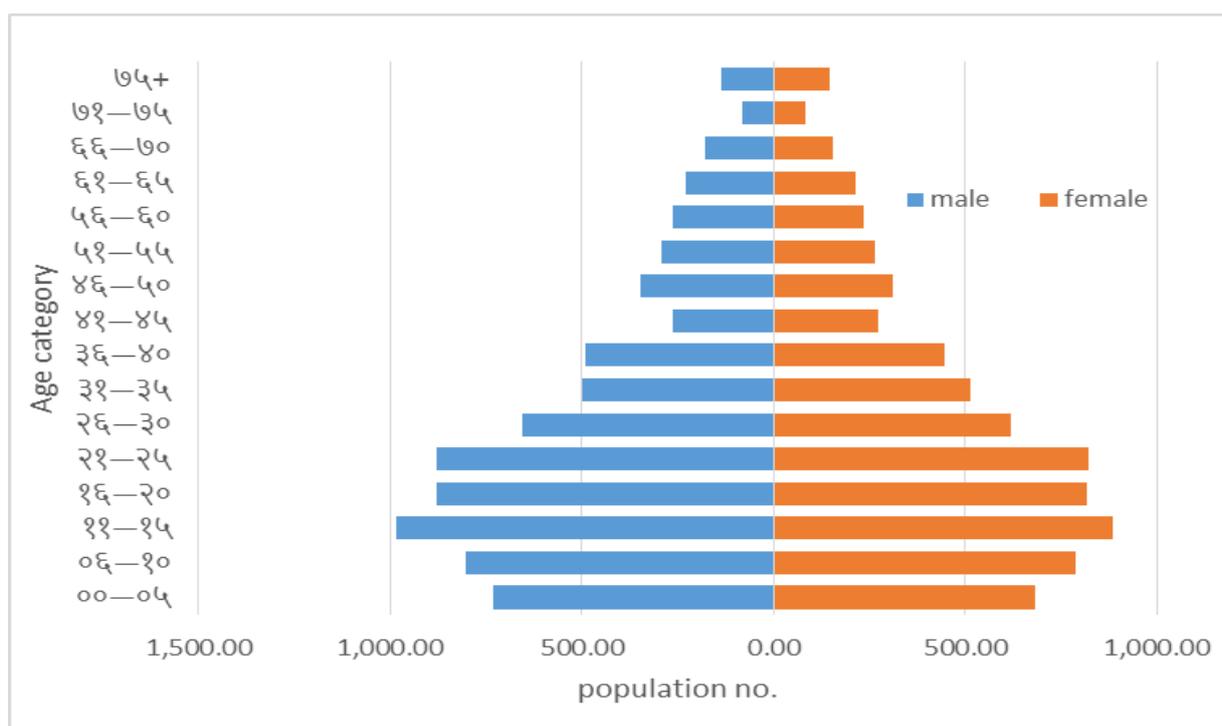
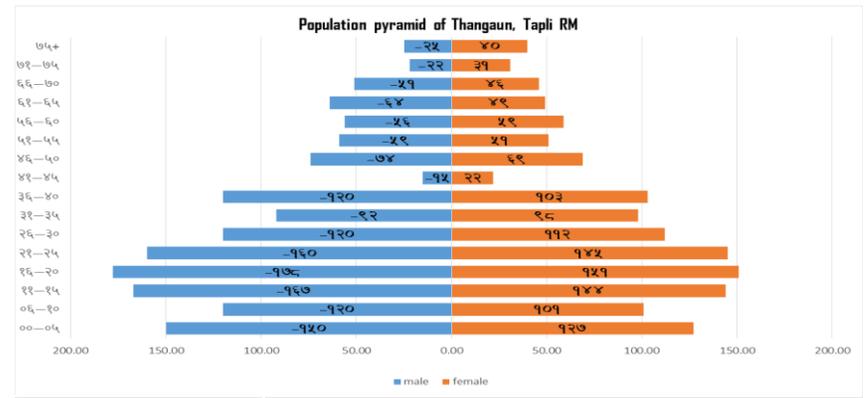
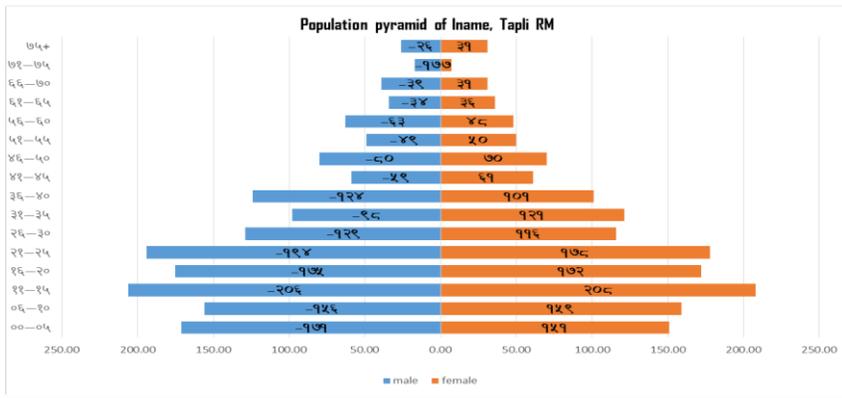
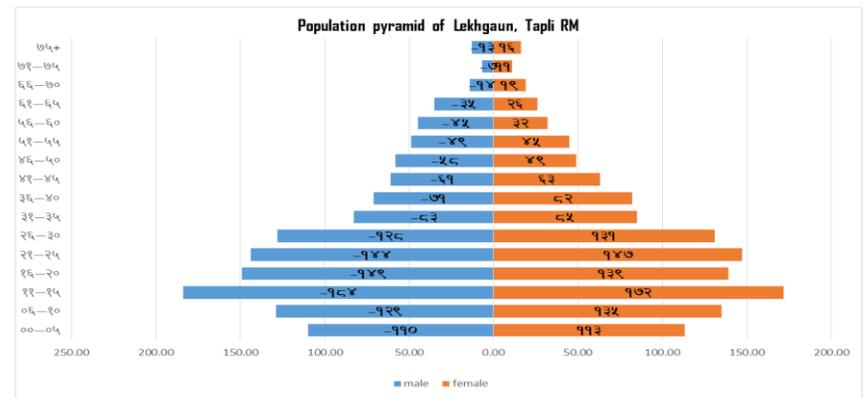
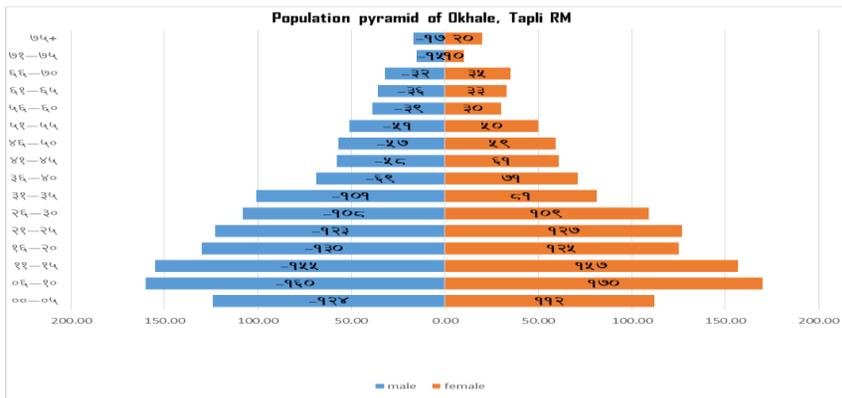
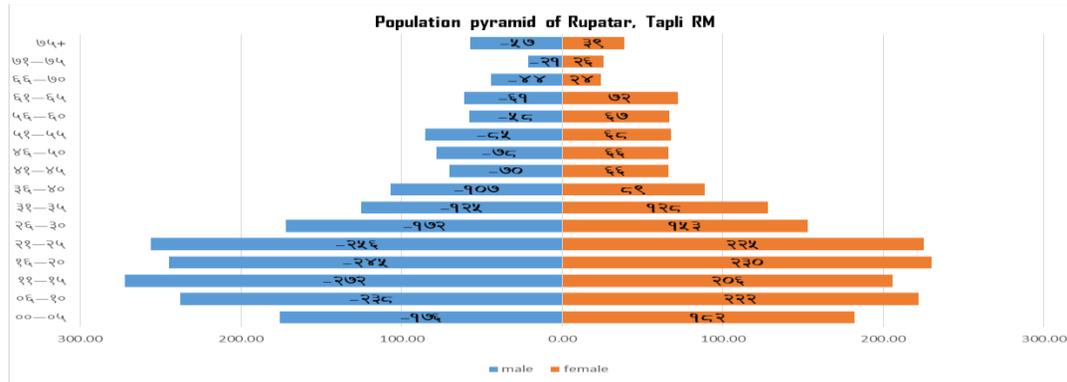


Figure 20 (a). Population pyramid by the age category in Tapli RM, 2019



4.1.6 Ethnicity

The major ethnic groups in Tapli RM are Magar (21.43 percent); Rai (20.66 percent); Tamang (12.03 percent) and Thakuri (10.45 percent). Other groups are Chhetri, Brahman, Sunuwar, kami, Damai, Sarki, Dasnamis, Majhi. The population size of different ethnic groups is in the Table 32. Figure 21 and 22 distribution of ethnic groups. wardwise distribution of ethnic group's population is in Annex

Table 32. Major ethnic groups in the Tapli RM

जातजाति	घरधुरी	जम्मा जनसंख्या	पुरुष	महिला	जम्माको प्रतिसत
ब्राहमण	३५	२१५	१३२	८३	१.४४
क्षेत्री	२१०	१२३३	६६३	५७०	८.२३
ठकुरी	२६५	१५६५	८०२	७६३	१०.४५
दसनामी	१०	४९	२६	२३	०.३३
मगर	५६१	३२०९	१६५४	१५५५	२१.४२
तामांग	३०२	१८०१	९१६	८८५	१२.०२
राई	५१६	३०९३	१५६५	१५२८	२०.६५
सुनुवार	१२८	७७९	३८८	३९१	५.२०
नेवार	१७३	९८४	४८६	४९८	६.५७
माझी	४	२१	१०	११	०.१४
पहरी	११	६१	३४	२७	०.४१
भुजेल	२५	१२८	७०	५८	०.८५
कामी	९५	५८१	२९५	२८६	३.८८
दमाई	९५	४८७	२४९	२३८	३.२५
सार्की	१५१	७७३	४२३	३५०	५.१६
जम्मा	२५८१	१४९७९	७७१३	७२६६	१००

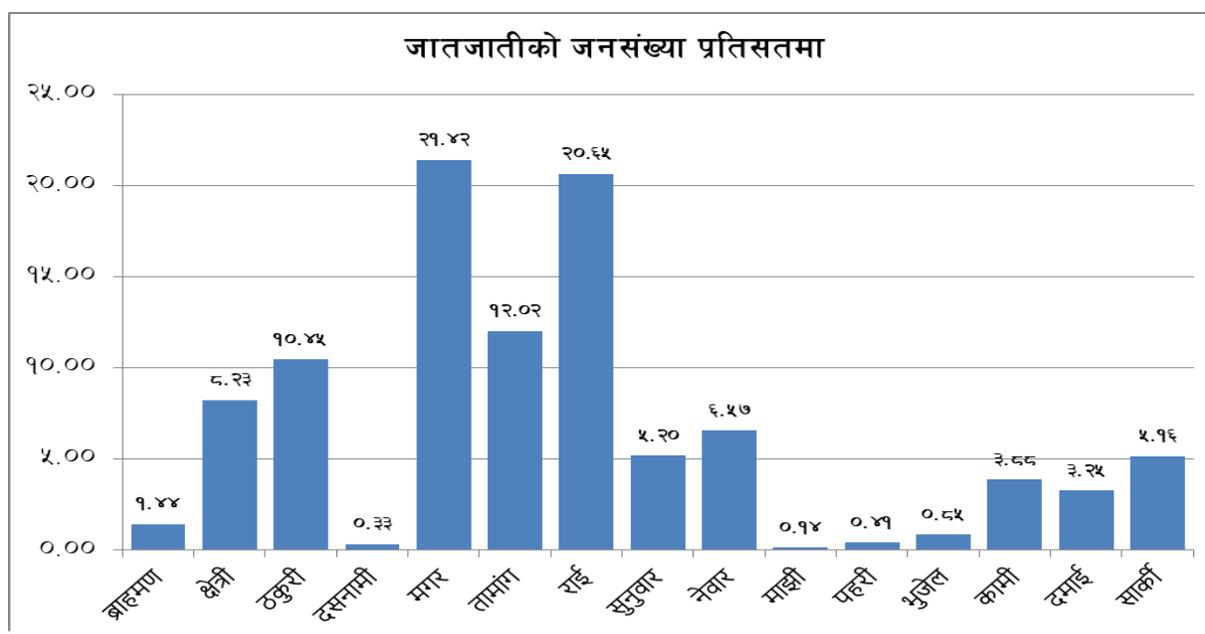


Figure 21. Bar chart showing proportion of the different ethnic groups in the Tapli RM, 2019

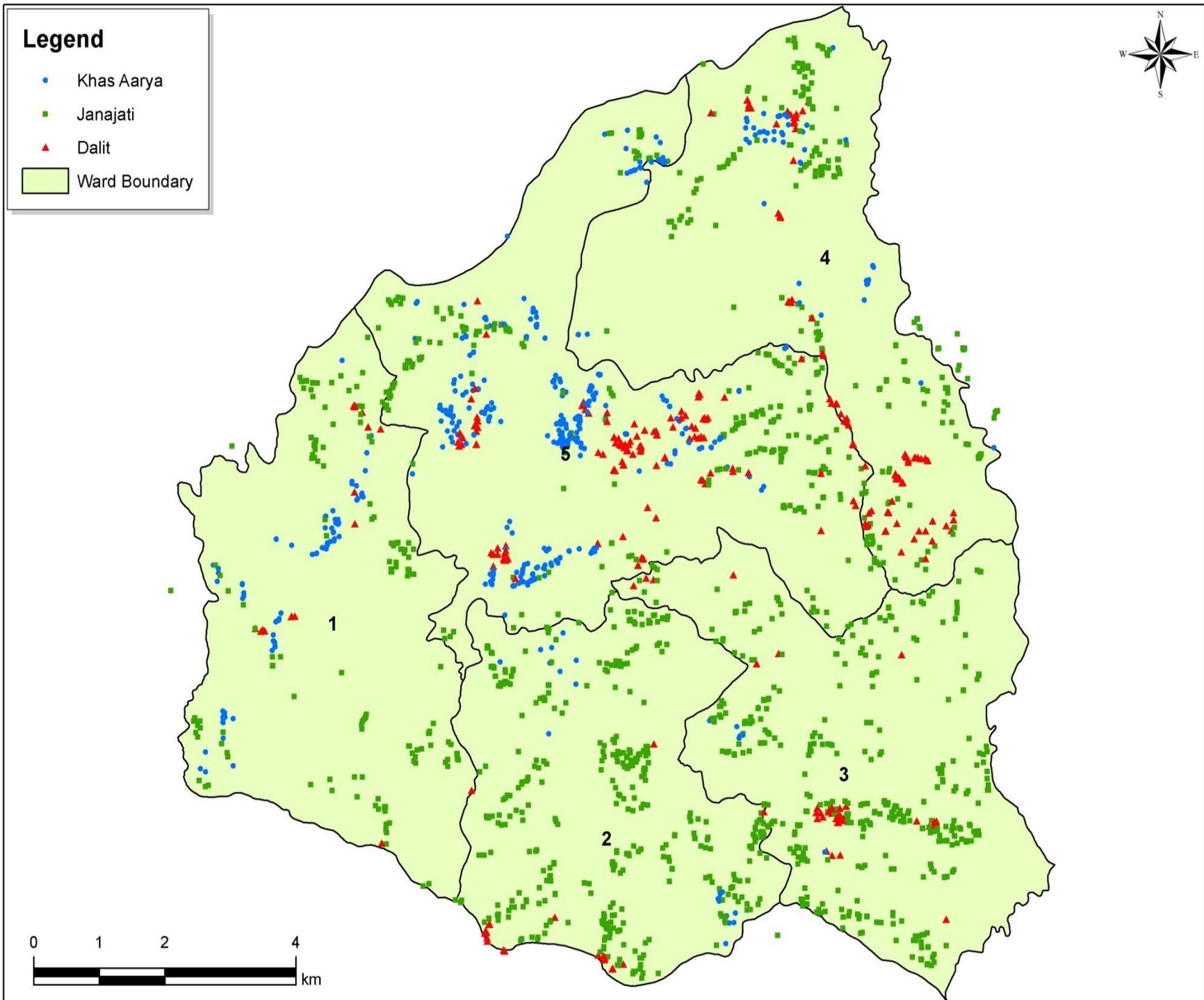


Figure 22. Distribution map of different ethnic groups in different wards of the Tapli RM, 2019

4.1.7 Language

The major languages spoken in the municipality are Nepali, Magar, Tamang, and Rai. The recent study during preparation of this profile revealed that linguistically, Nepali is the mother tongue for overwhelming population (89.8 percent), followed by Magar (5.4 percent), Rai (2.6 percent) and Tamang (2.2 percent). The population of the Sunuwar and Newar account for 5.2 percent and 6.5 percent respectively. They speak their own language, though these languages are not the mother tongue in the Municipality.

4.1.8 Religion

Number of households and people responding to the different religions in Tapli RM and its wards are in Table 33 and Figure 23 (a) and (b). The majority of the population are Hindu followed by Buddhist and Christian.

Table 33. Population and households responding to major religions in Tapli RM, 2019

धर्म	Ward-1 (Okhale)		Ward-2 (Lekhgaun)		Ward-3 (Iname)		Ward-4 (Thanagaun)		Ward-5 (Ruatar)		प्रतिशत घरधुरी	प्रतिशत जनसंख्या
	घरधुरी	जनसंख्या	घरधुरी	जनसंख्या	घरधुरी	जनसंख्या	घरधुरी	जनसंख्या	घरधुरी	जनसंख्या		
हिन्दु	४५०	२४९०	४४७	२४८७	४२७	२३९३	४२३	२६९६	६५७	३८५४	९३	९२
बौद्ध	२	११	६	२९	११८	७५७	१३	८७	६	४०	६	६
क्रिस्चियन	४	२४	४	२९	२	१०	१७	११८	५	३४	१	१.४
जम्मा	४५६	२५२५	४५७	२५४५	५४७	३१६०	४५३	२८२१	६६८	३९२८	१००	१००

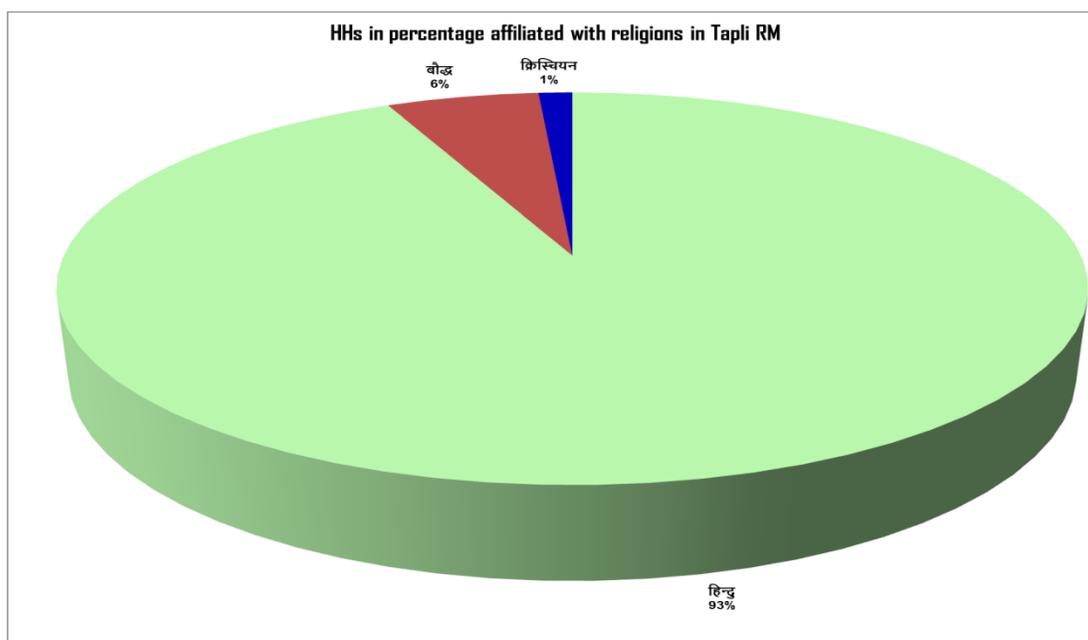


Figure 23 (a). Proportion of households responding to the religion categories in the Tapli RM, 2019

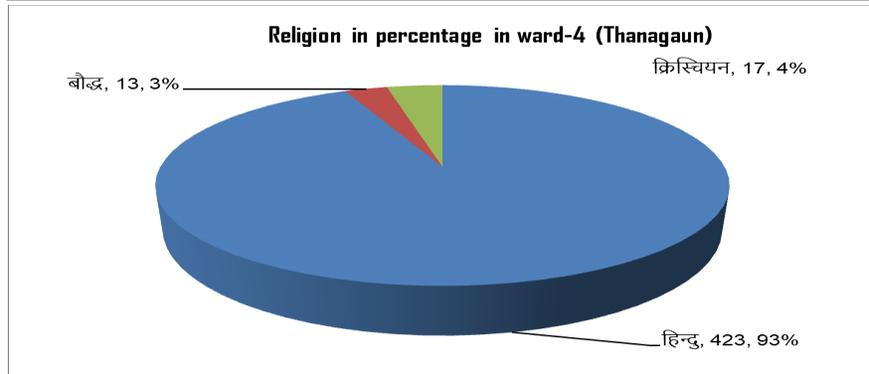
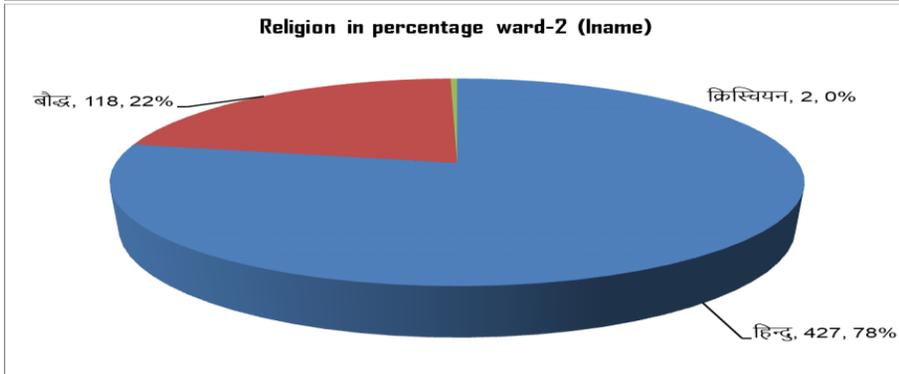
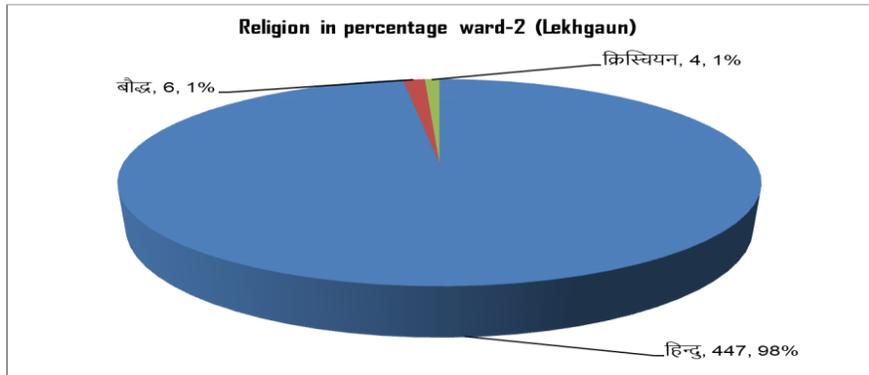
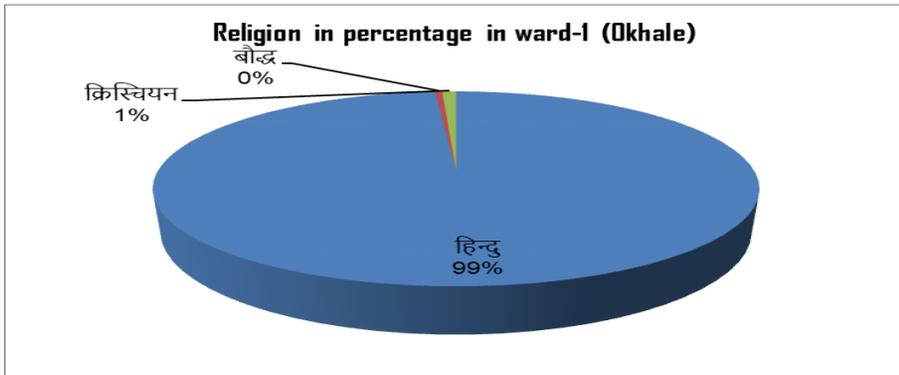
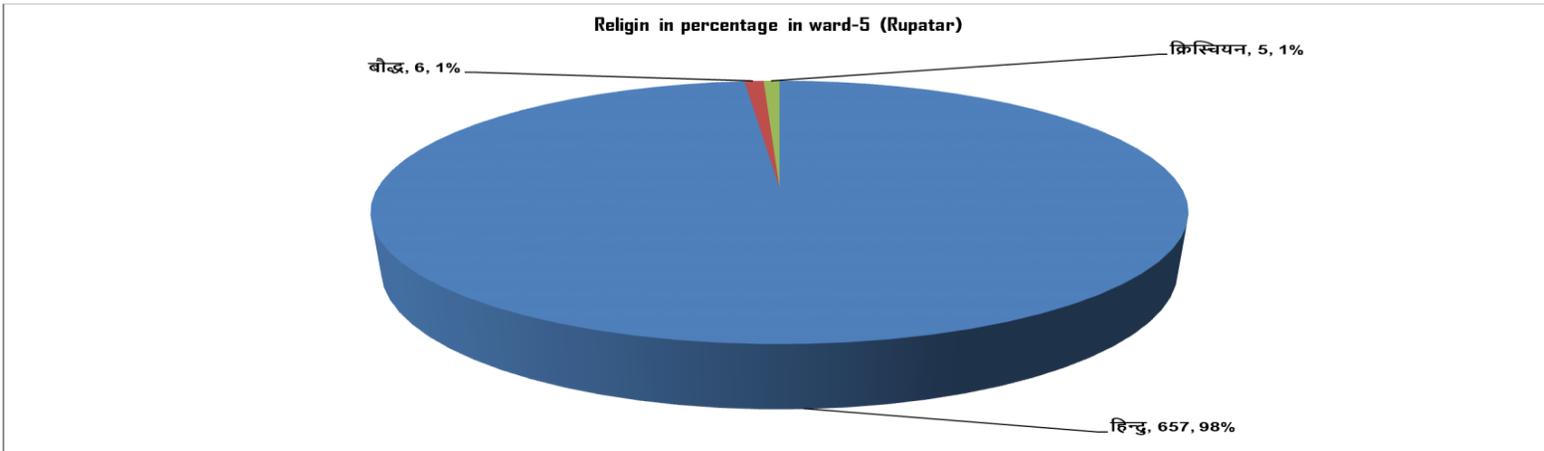


Figure 23 (b). Household responding to religious categories in different wards in the Tapli RM, 2019

4.1.9 Household Head

Figure 24 shows the number of households headed by male or female in the municipality.

Not all households responded to this category of demographic analysis. Of total responding 2,194 HHs, 86 percent of household in the municipality is male-headed household.

Moonsets wards, ward-5 (Rupatar) has greater proportion of female-headed household (4.8 percent) followed by Iname and Lekhgaun (Figure 24).

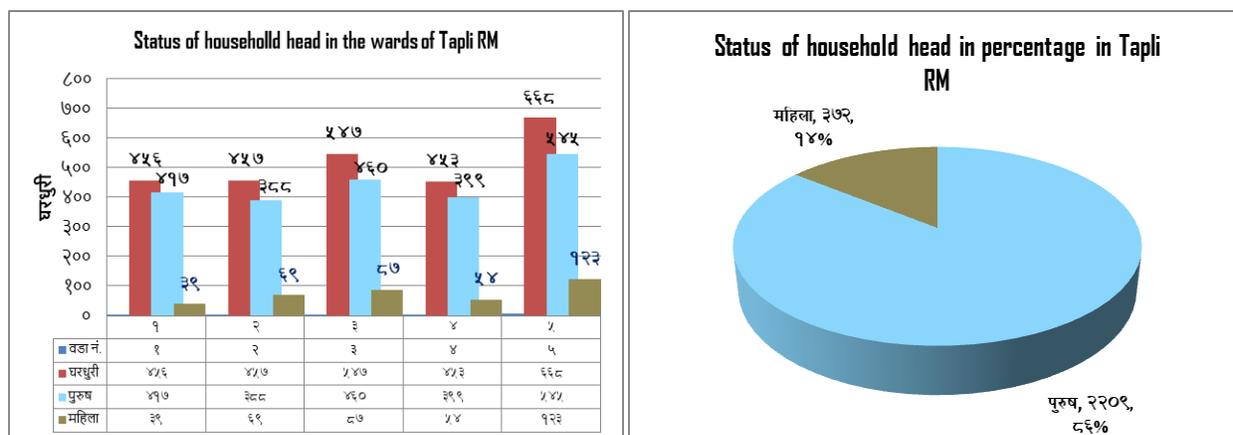


Figure 24. Household in number and percentage responding to the religion in the Tapli RM, 2019

4.1.10 Marital Status

Table 34 shows marital status of the population in the municipality.

The half of the population is married, whereas unmarried people account for 48 percent of the population. There is two percent of population under the *Ekal* category, which includes widow and widower, and divorcees. Of this category, there are more females (63.2 percent) than males (36.8 percent).

Table 34. Marital status of in each households in the Tapli RM, 2019

वार्ड नं.	बिबाहित			अबिबाहित			एकल		
	पुरुष	महिला	जम्मा	पुरुष	महिला	जम्मा	पुरुष	महिला	जम्मा
१	५९४	५७५	११६९	५३४	५१४	१०४८	१८	४७	६५
२	६१४	६६२	१२७६	६४६	५७५	१२२१	८	८	१६
३	७६५	७५७	१५२२	६५६	५६२	१२१८	१७	२०	३७
४	६२४	६०१	१२२५	७१९	५८७	१३०६	२८	३१	५९
५	९१५	९२०	१८३५	१०६९	८४०	१९०९	१८	५२	७०
जम्मा	३५१२	३५१५	७०२७	३६२४	३०७८	६७०२	८९	१५८	२४७

4.2 People with disability

Figure 26 is the distribution map of people with disability in the municipality.

Total 114 disable people lives in the Tapli RM. Of this, Thanagaun has the highest proportion of disable members (38 percent) followed by Okhale (27 percent) and Rupatar (15 percent). Iname and Lekhgaun have low number of people with disability.

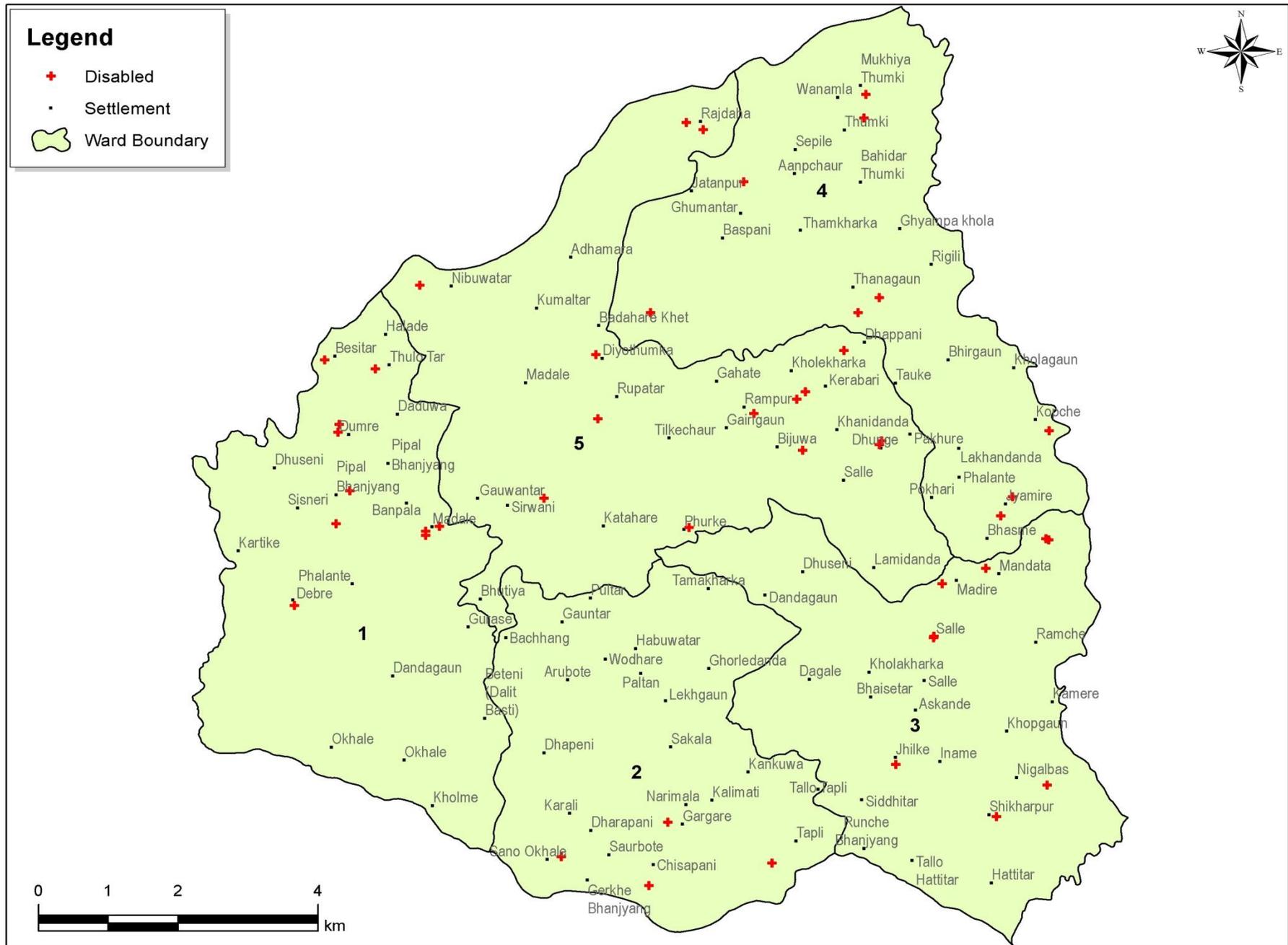


Figure 25. Distribution map of disabled population in different wards of the Taoli RM, 2019

4.3 Education

4.3.1 Literacy

Table 35 and Figure 2 (a) (b) show education pattern in the Tapli RM and wardwise education scenario.

More than 24 percent of population in Tapli RM is still illiterate. Such illiteracy is the highest in ward-1 (Okhale) at nearly 36 percent followed by Thanagaun (more than 29 percent) and Rupatar (nearly 22 percent). Literacy rate in Tapli (75.7%) RM is higher than the national average of 59.57% (GoN/UNDP 2014). Amongst the wards, Iname (ward -3) has the highest literacy rate (87.3%) and ward - 1 (Okhale) has the lowest literacy rate of little over 66%.

Table 35. Wardwise education status in percentage in the Tapli RM, 2019

Education levels	Ward-1 (Okhale)	Ward-2 (Lekhgaun)	Ward-3 (Iname)	Ward-4 (Thanagaun)	Ward-5 (Rupatar)	Total in RM
University level	3.19	0.73	1.59	4.25	4.44	2.8
Secondary level	17.08	8.31	8.56	15.29	27.59	15.4
Basic level	33.33	49.48	27.66	22.21	23.06	31.1
Literate	12.84	28.77	38.2	28.85	23.54	26.4
Illiterate	33.55	12.7	24	29.4	21.77	24.3
Total	100	100	100	100	100	100

4.3.2 School Education

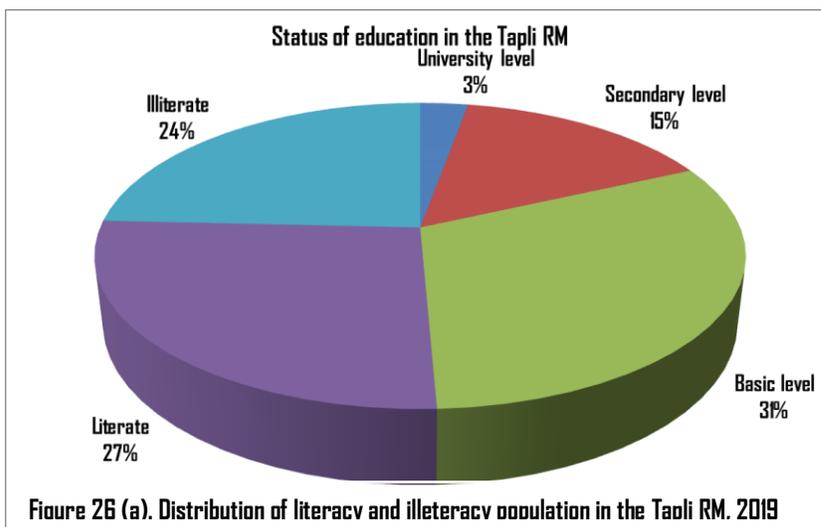
Schooling is limited to the basic and secondary levels education. In this context, basic level education in the municipality is more than 31 percent, which is the highest in ward-1 (Lekhgaun) by nearly 50 percent but lowest in ward-5 (Rupatar). The secondary level education in the municipality is lower by more than 15 percent, and this status is the highest in ward-5 (Rupatar) and lowest in ward-3 (Iname).

Basic and school level education trend in Tapli RM is ... than the national standard.

4.3.3 University Education

The higher education of the university level is less than 3 percent in the municipality. Of this ratio, Thanagaun and Rupatar are comparatively better off whereas ward-2 (Lekhgaun) has this population below one percent.

The status of the higher education in Tapli RM is ... than the national standard.



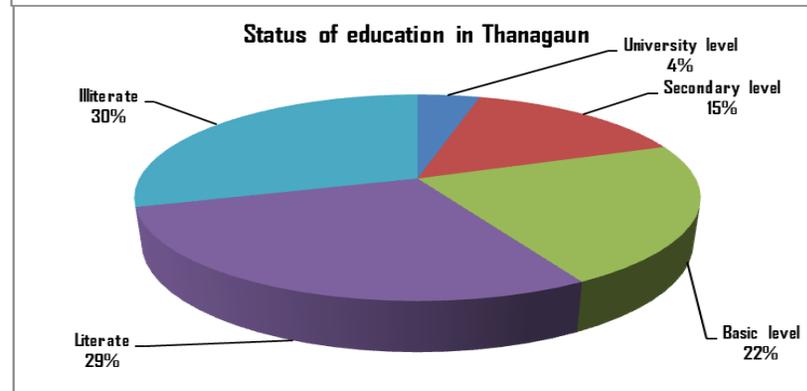
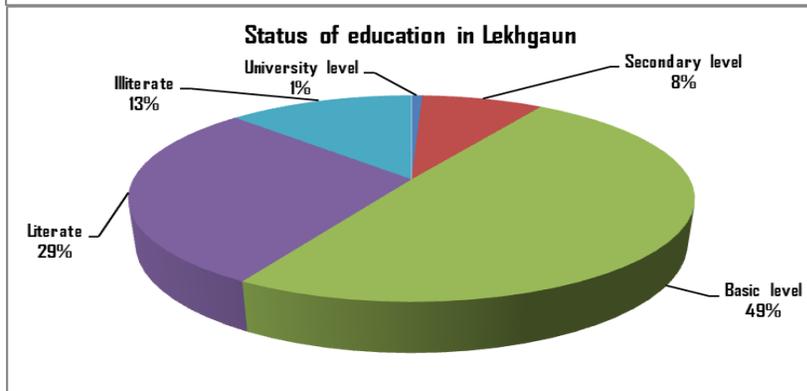
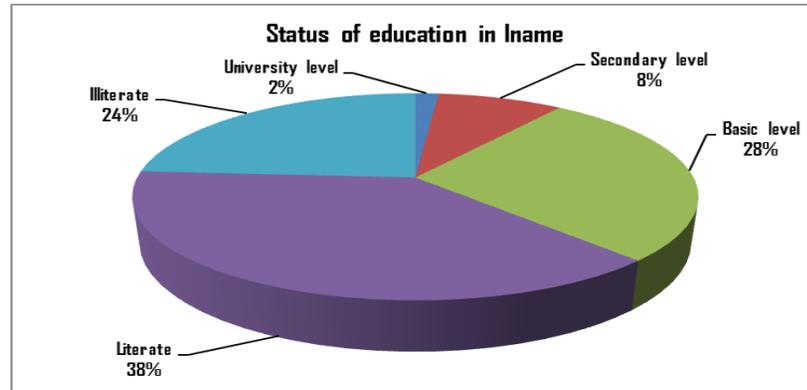
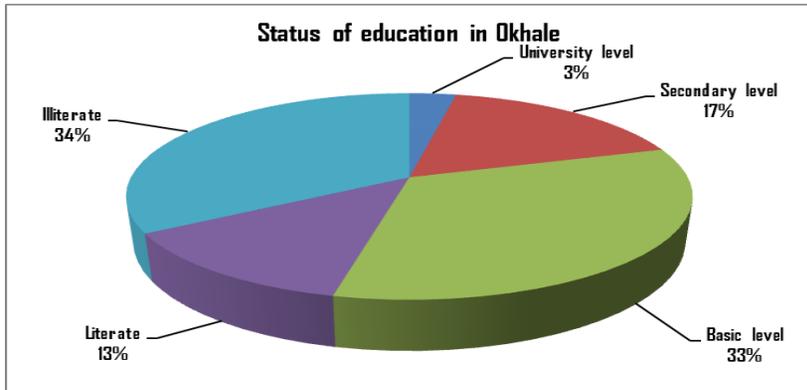
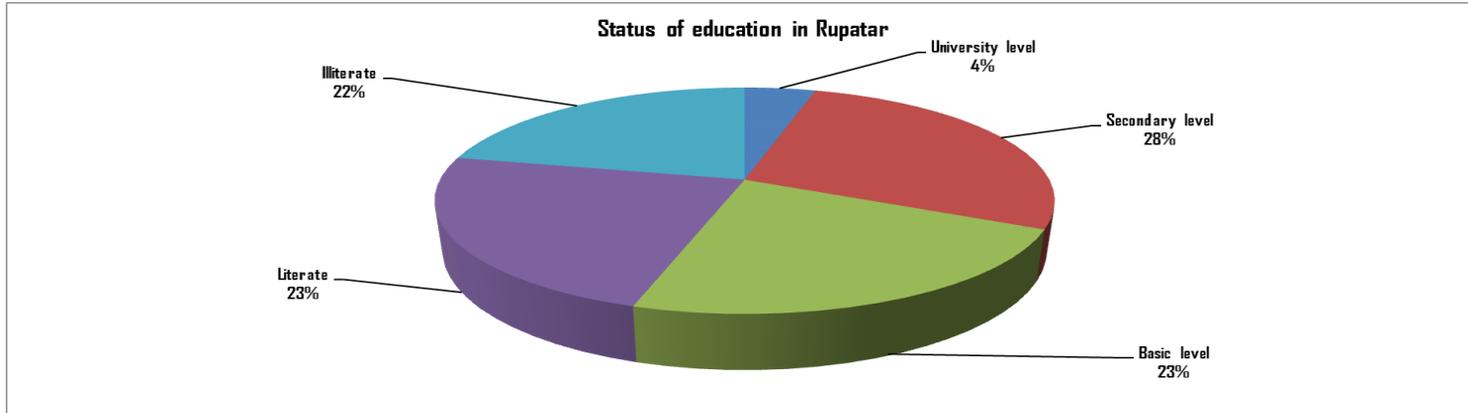


Figure 26 (b). Overall status of literacy, school and higher-level education in different wards of the Tapli RM, 2019

4.4 Occupation

Table 36 and Figure 27 (a) and (b) show mode of different occupations of the people in the municipality.

The majority (58%) of people have agriculture as the primary mode of occupation. Students comprise the second largest group accounting for 34%. The government and corporate job is very nominal with 2.4 percent. People are gradually inclined to the operation of small business, which engages 1.5 percent of population.

People in Iname has the largest stake in agriculture (>66 percent) followed by Thanagaun and Okhale, whereas in Lekhgaun agriculture practice is comparatively lower. More than two percent of people of the municipality from Iname and nearly 2 percent from Rupatar are engaged in the small teashops and other businesses. The foreign employment is becoming visible by about 2 percent of population mostly from Thanagaun; Okhale; Lekhgaun and Rupatar. Percentage of Students is higher in Lekhgaun followed by Okhale and Rupatar.

Table 36. Proportion of population engaged in different occupation in wards of the Tapli RM, 2019

Occupation	Ward-1 (Okhale)	Ward-2 (Lekhgaun)	Ward-3 (Iname)	Ward-4 (Thanagaun)	Ward-5 (Rupatar)	Total in RM
Agriculture	56.11	48.4	66.59	63.12	54.1	57.7
Business	0.87	1.22	2.5	0.76	1.96	1.5
Job	2.7	1.26	1.34	3.31	3.14	2.4
Foreign employment	2.33	2.06	0.67	2.62	1.47	1.8
Student	35.47	44.37	28.89	28.59	32.75	34.0
Other	2.52	2.69	0	1.59	6.57	2.7
Total	100	100	100	100	100	100

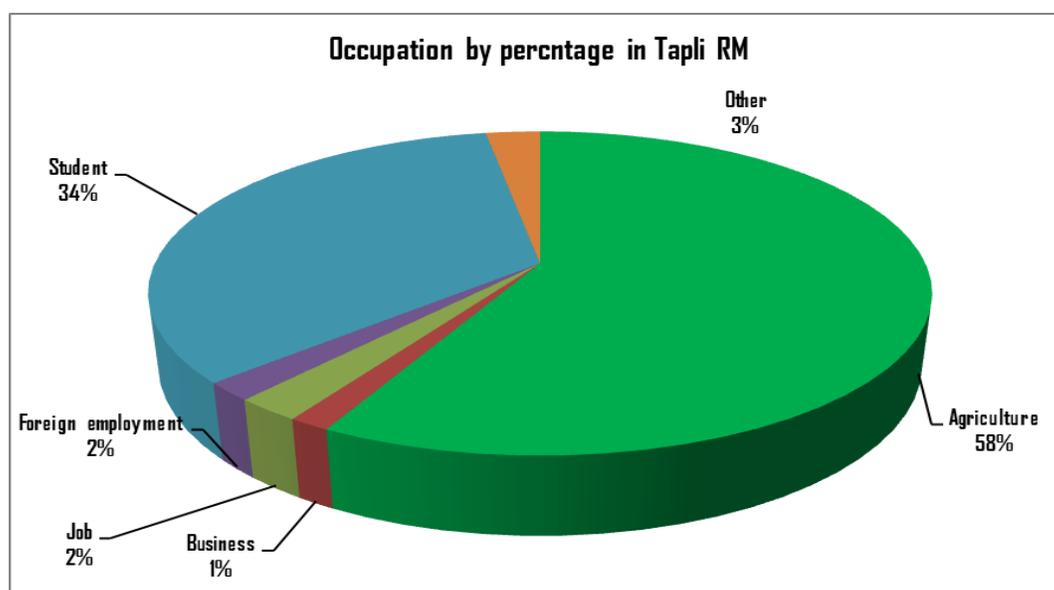


Figure 27 (a). Proportion of major occupation in the Tapli RM

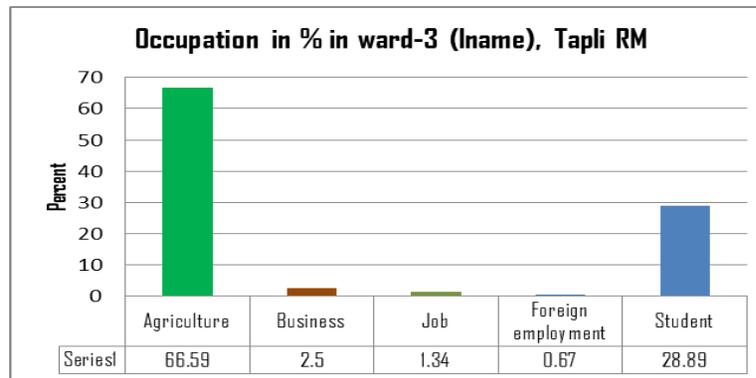
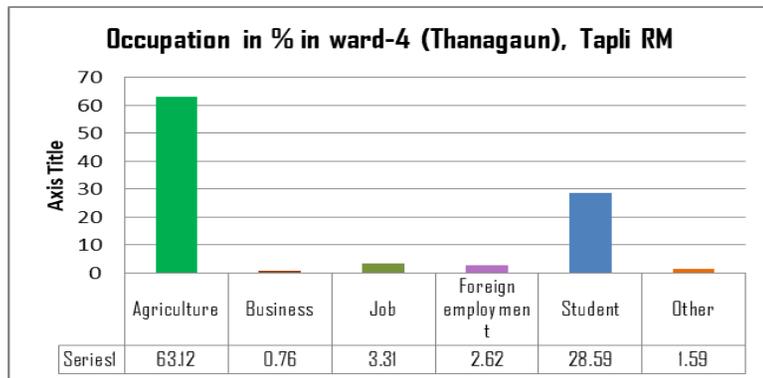
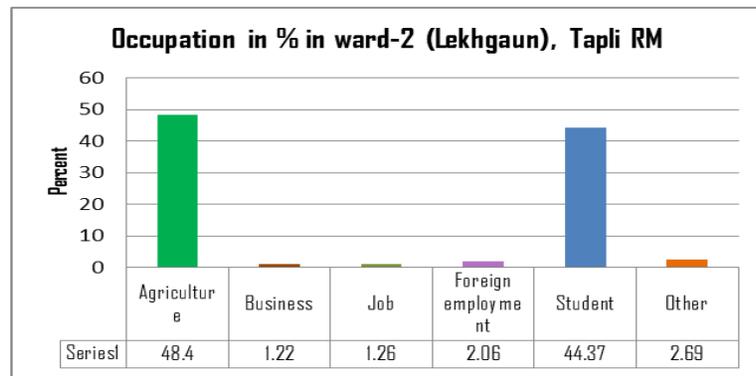
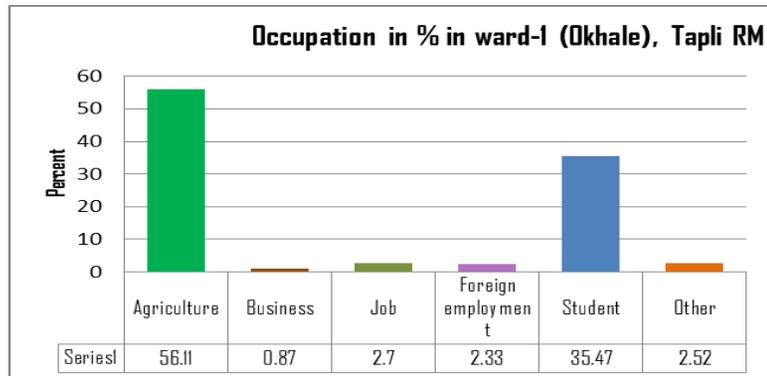
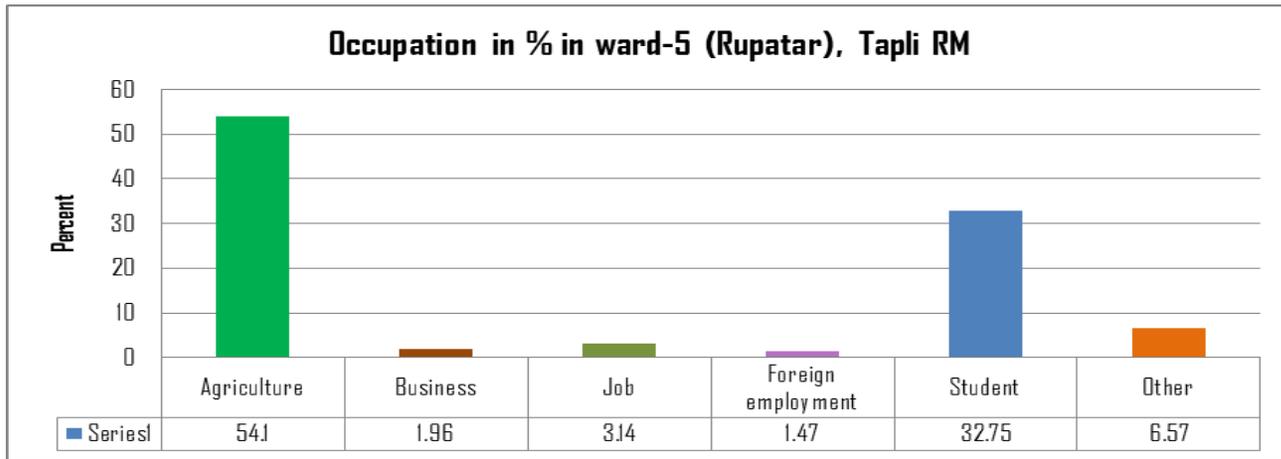


Figure 27 (a). Proportion of major occupation in the Tapli RM

4.5 Physical Amenities

4.5.1 Housing Pattern

Housing pattern in the municipality is gradually shifting from the traditional stone-mud house to brick houses. In terms of types of wall, majority of households have the stone/clay wall houses that accounts for nearly 95 percent followed by the wooden wall houses (2.8 percent). Over the years, improvement in transport facility and access to the market, brick-houses are gradually replacing traditional stone-mud wall houses

Table 36 shows different wardwise house structure. Rupatar has comparatively more brick-cement wall structure followed by Iname, and the Thanagaun has only one such structure.

Similarly, thatched roofs are the major roof type accounting for 79 percent followed by Zinc sheets which accounts for 19 percent, both higher in Rupatar and Iname (Table 37)

Table 36. Distribution of house type based on wall structure in different wards of the Tapli RM, 2019

वडा	इट्टा/सिमेन्ट	ढुङगा /माटो	काठ	टहरो	अन्य	इट्टा/सिमेन्ट र ढुङगा /माटो	ढुङगा /माटो र काठ	जम्मा
१	९	४३९	५	१	२	०	०	४५६
२	२	४५१	०	३	०	०	१	४५७
३	५	५३७	४	१	०	०	०	५४७
४	१	४१८	२७	०	१	२	४	४५३
५	१४	६०३	३७	२	४	३	५	६६८
जम्मा	३१	२४४८	७३	७	७	५	१०	२५८१
प्रतिसत	१.२	९४.८	२.८	०.३	०.३	०.२	०.४	१००

Table 37. Distribution of house type based on roof structure in different wards of the Tapli RM, 2019

वडा	खर	टिन	टायल	ढुङगा	ढलान	जम्मा
१	३९६	५३	५	०	२	४५६
२	३६६	९१	०	०	०	४५७
३	४२०	११०	१४	१	२	५४७
४	३५९	८७	६	१	०	४५३
५	४९६	१४८	२४	०	०	६६८
जम्मा	२०३७	४८९	४९	२	४	२५८१
प्रतिसत	७८.९	१८.९	१.९	०.१	०.२	१००

4.5.2 Drinking Water and Sanitation

i. Access to drinking water

Table 38 shows the status of drinking water supply in the Tapli RM.

Of total households, over 91 percent of population has access to piped water with the highest proportion of households having such facilities from Rupatar and Iname. The municipality has to make efforts to extend such facilities by nearly nine percent (i.e., 225 households) so that all household will have access to piped-water.

There are 132 households still having access to water from water coup (i.e., *Pandhero, Kuwa*) in Rupatar and Iname. Further, twenty households mainly in Rupatar and ten households mainly from Okhale are dependent to open streams and other non-defined sources respectively for the drinking water.

It reported that Rupatar and Thanagaun are water scarcity wards for drinking water. The drinking water systems in Thanagaun draw water from sources in Iname. Over the years, the discharge at water sources has been declining.

Table 38. Households in different wards responding to the access to drinking water supply in the Tapli RM, 2019

वडा	धारा		कुवा		ढुङ्गे धारा		नदी		अन्य		जम्मा	प्रतिसत
	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत		
१	४३१	१६.७०	१२	०.४६	८	०.३१	०	०	५	०.१९	४५६	१८
२	३७७	१४.६१	७६	२.९४	२	०.०८	१	०.०३९	१	०.०४	४५७	१८
३	५३१	२०.५७	६	०.२३	१०	०.३९	०	०	०	०.००	५४७	२१
४	४२५	१६.४७	१५	०.५८	१२	०.४६	०	०	१	०.०४	४५३	१८
५	५९२	२२.९४	२३	०.८९	३१	१.२०	१९	०.७३६	३	०.१२	६६८	२६
जम्मा	२३५६	९१.२८	१३२	५.११	६३	२.४४	२०	०.७७	१०	०.३९	२५८१	१००

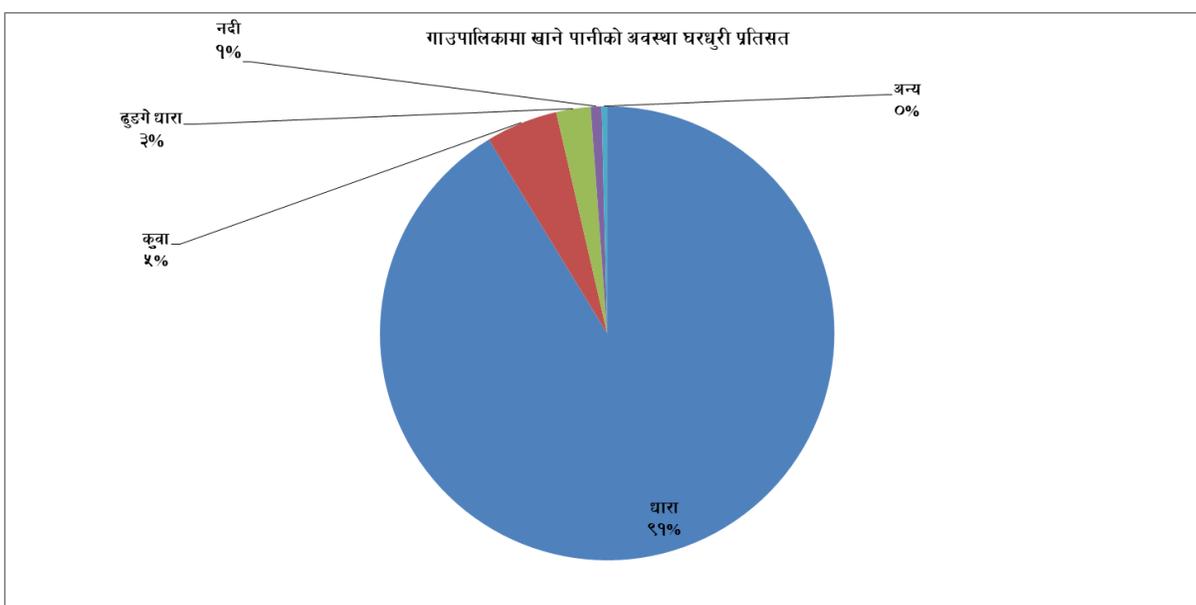


Figure 28. Percentage households having access to drinking water supply in water supply in the Tapli RM, 2019

ii. Ownership upon the drinking water facilities

Table 39 and Figure 29 show the ownership upon the drinking water facilities available in the municipality.

About sixty percent of households rely on community tap water supply, which is the highest in ward-5 (Rupatar) by more than 20 percent followed by ward-3 (Iname) and ward-4 (Thanagaun). Lekhgaun has the lowest number of communities owning tap water stand. The private tap water facilities are very limited to about 4 percent of households.

Following this, about 36% of the population access drinking water from the public taps. In terms of ward-wise data, Lekhgaun (ward 2) accounts for largest number of households accessing water from public taps followed by Okhale. Rupatar, Iname and Thanagaun have many households owning community tap-water stand, so these wards have lower stake in the public tap-water stand. Thirteen households mainly from Rupatar and one household from Iname fetch the drinking water from neighboring houses, which have such facilities.

Table 39. Ownership upon the drinking water supply sources/facilities in wards of the Tapli RM, 2019

वडा	निजि		सार्वजनिक		सामुदायिक		अरुको घर		घरघुरी जम्मा
	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत	
१	२६	१.०१	२७२	१०.५४	१५८	६.१२	०	०.००	४५६
२	१५	०.५८	३६७	१४.२२	७५	२.९१	०	०.००	४५७
३	१२	०.४६	८९	३.४५	४४५	१७.२४	१	०.०४	५४७
४	१९	०.७४	७१	२.७५	३६३	१४.०६	०	०.००	४५३
५	१९	०.७४	१४०	५.४२	४९७	१९.२६	१२	०.४६	६६८
जम्मा	९१	३.५३	९३९	३६.३८	१५३८	५९.५९	१३	०.५०	२५८१
प्रतिसत	३.५३		३६.३८		५९.५९		०.५०		१००

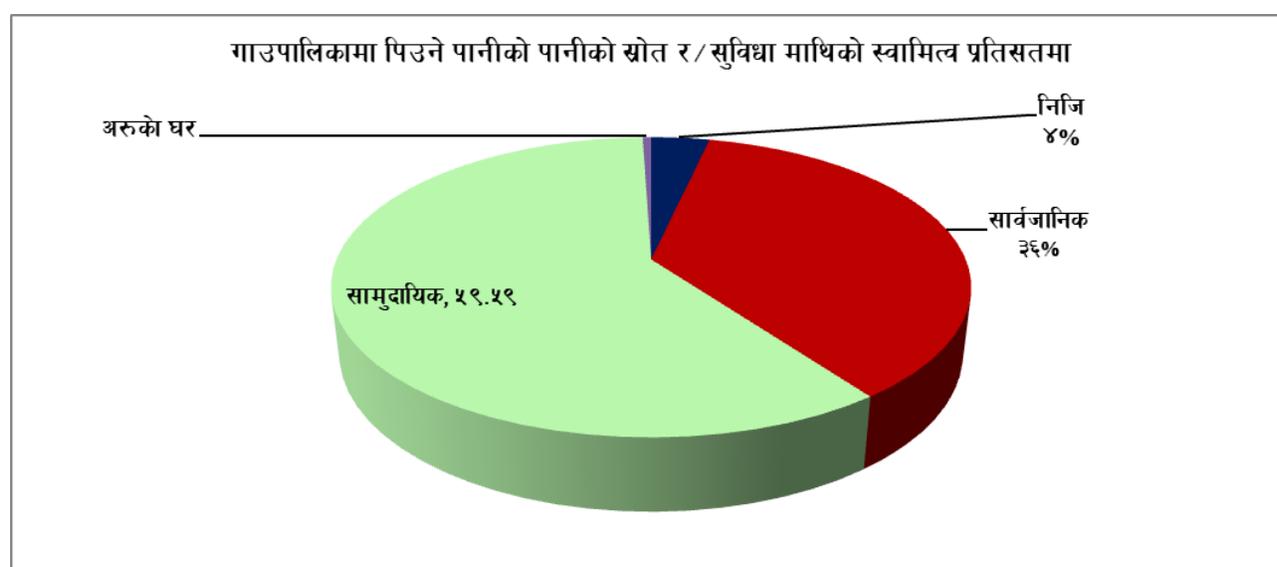


Figure 29. Ownership upon the drinking water supply sources/facilities in wards of the Tapli RM, 2019

iii. Toilet facilities

Table 40 and Figure 30 show the status of toilet and sanitary facilities in the municipality. Over the years, the water and sanitation campaign has contributed in construction of toilets by overwhelming majority of households. The present study revealed that that 98.3% of households have access to the different types of toilet facilities in the municipality. About two percent of households still practicing open defecation in all wards except Iname. Open defecation is higher in ward-5.

Of toilet and sanitation facilities, all season ordinary toilets are in operation by about 63 percent of HH population followed by *Kachhi* toilet by more than 30 percent. Public toilet is limited to one percent household population mainly in ward-5 (Rupatar). Only four percent of households have permanent toilet with water facilities managed inside in bucket or pot, which is the highest use in ward-5 (Rupatar) followed by Lekhgaun and Thanagaun respectively. The ordinary but all seasons toilet are used by the largest percentage of households population i.e. nearly 63 percent, which accounts for the highest in Iname (>20 percent) followed by Rupatar (nearly 19 percent) and Okhale (about 13 percent).

Table 40. Number of households owing toilet and sanitation facilities in wards of the Tapli RM, 2019

वडा	पक्क		साधारण		कच्ची		सार्वजनिक		खुल्ला		घरघुरी जम्मा	सौचालय प्रतिशत
	संख्या	प्रतिशत	संख्या	प्रतिशत	संख्या	प्रतिशत	संख्या	प्रतिशत	संख्या	प्रतिशत		
१	१५	०.५८	३३४	१२.९४	९१	३.५३	३	०.१२	१३	०.५०	४५६	१७.१६
२	२२	०.८५	१४५	५.६२	२७८	१०.७७	०	०.००	१२	०.४६	४५७	१७.२४
३	१६	०.६२	५२७	२०.४२	४	०.१५	०	०.००	०	०.००	५४७	२१.१९
४	२०	०.७७	१२९	५.००	२९६	११.४७	२	०.०८	६	०.२३	४५३	१७.३२
५	२९	१.१२	४८१	१८.६४	११६	४.४९	३०	१.१६	१२	०.४६	६६८	२५.४२
जम्मा	१०२	३.९५	१६१६	६२.६१	७८५	३०.४१	३५	१.३६	४३	१.६७	२५८१	९८.३३

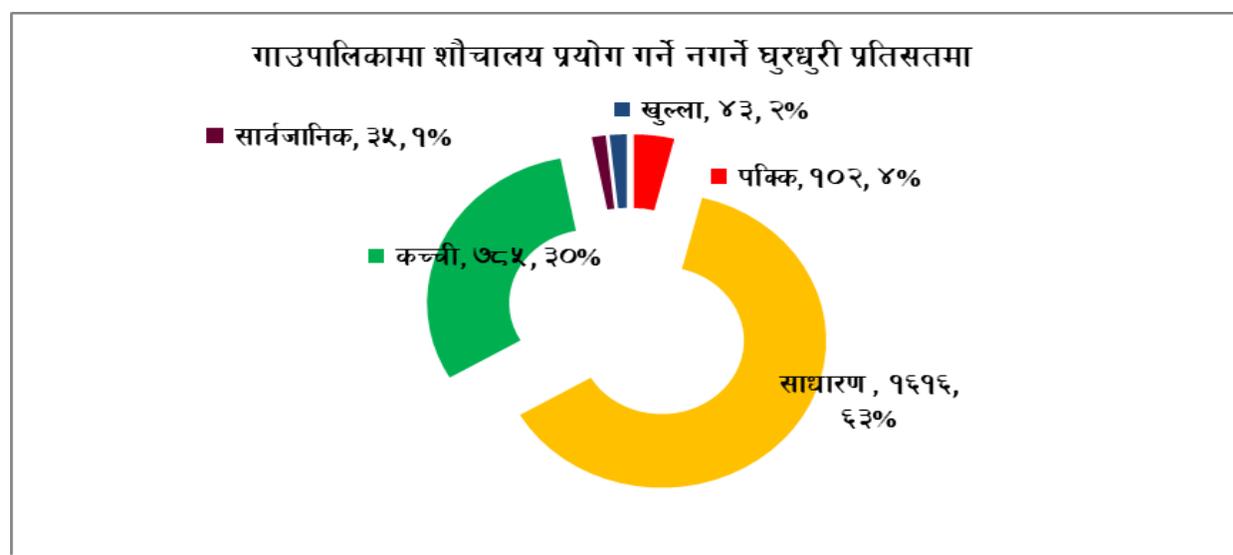


Figure 30. Proportion of households using toilet and sanitary facilities in the Tapli RM, 2019

4.5.3 Energy Use

i. Cooking fuel

About 99 percent of households use fuelwood as the main source of cooking energy in the municipality. In the recent past use of Liquefied Petroleum Gas (LPG) has been gaining momentum. Over the years, better access to the nearby market (Katari), households have started using LPG gas for cooking. Use of the electricity, kerosene and other sources for cooking accounts for less than one percent.

The wardwise use of fuelwood is almost similar pattern except in Rupatar and Iname, which use fuelwood by nearly 26 and 21 percent respectively. Kerosene and electricity dependency for cooking is virtually non-existing. Some households in Rupatar, Okhale and Iname use LPG gas for cooking.

Table 41 and Figure 31 below show the wardwise use of different sources of energy for cooking.

Table 41. Number of households using different types of fuel for cooking in wards of the Tapli RM, 2019

वार्ड	दाउरा		मट्टीतेल		ग्यास		बिजुली		अन्य		घरघुरी जम्मा
	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत	
१	४४६	१७.२८	१	०.०४	६	०.२३	२	०.०८	१	०.०४	४५६
२	४५४	१७.५९	२	०.०८	१	०.०४	०	०.००	०	०.००	४५७
३	५४०	२०.९२	२	०.०८	५	०.१९	०	०.००	०	०.००	५४७
४	४५१	१७.४७	१	०.०४	०	०.००	०	०.००	१	०.०४	४५३
५	६६०	२५.५७	०	०.००	७	०.२७	१	०.०४	०	०.००	६६८
जम्मा	२५५१	९८.८	६	०.२	१९	०.७	३	०.१	२	०.१	२५८१

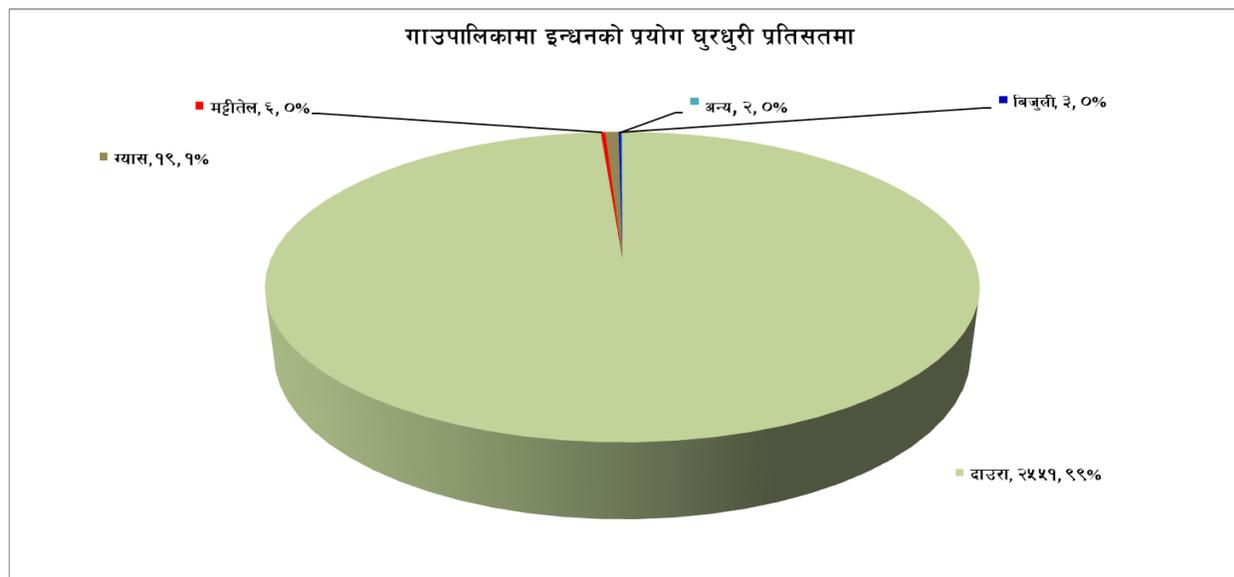


Figure 31. Proportion of households using toilet and sanitary facilities in the Tapli RM, 2019

ii. Lighting

Table 42 and Figure 32 show the status of the energy use for the source of lighting in each ward and the municipality in general.

The main source of lighting is solar power accounting for 73 percent followed by electricity accounting for 22 percent. The biogas and kerosene are used in very low proportion. However, installation of biogas plants is likely to increase in the coming days.

Table 42. Status of the sources of lighting in each ward of the Tapli RM, 2019

वार्ड	बिजुली		मट्टीतेल		सोलार		गोबर ग्यास		अन्य		घरघुरी जम्मा	प्रतिसत
	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत	संख्या	प्रतिसत		
१	१३९	५.३९	१	०.०४	३०९	११.९७	५	०.१९	२	०.०८	४५६	१७.६७
२	०	०.००	२	०.०८	४१३	१६.००	२	०.०८	४०	१.५५	४५७	१७.७१
३	३	०.१२	४	०.१५	५२८	२०.४६	२	०.०८	१०	०.३९	५४७	२१.१९
४	२१३	८.२५	१	०.०४	२३२	८.९९	०	०.००	७	०.२७	४५३	१७.५५
५	२०२	७.८३	९	०.३५	४१२	१५.९६	०	०.००	४५	१.७४	६६८	२५.८८
जम्मा	५५७	२२	१७	१	१८९४	७३	९	०	१०४	४	२५८१	१००

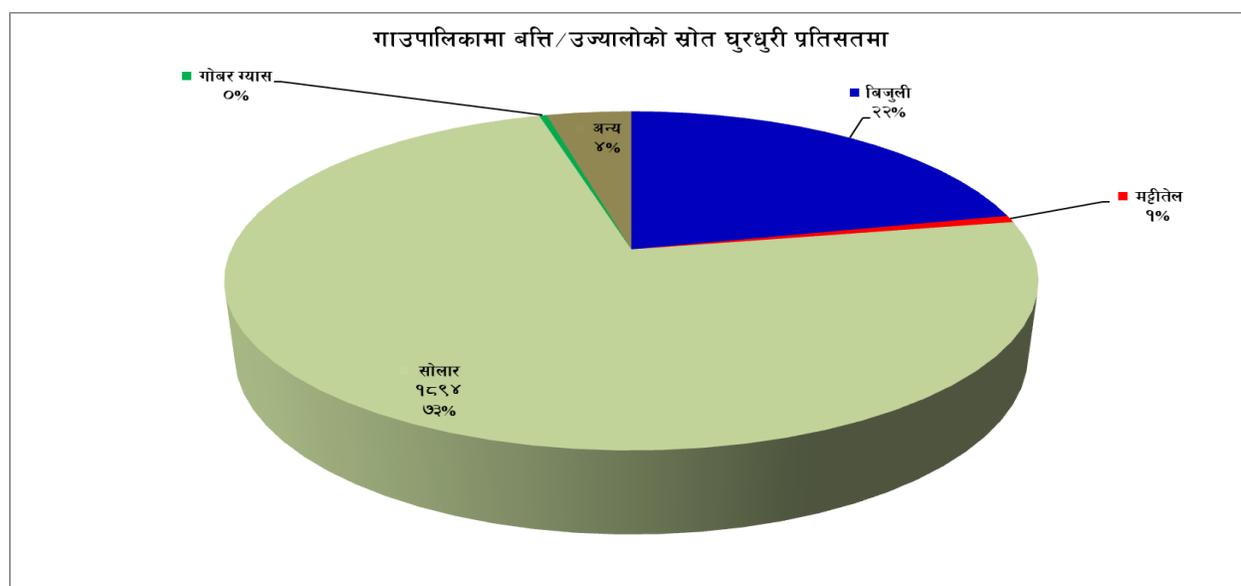


Figure 32. Sources of lighting in the Tapli RM, 2019

Energy efficient devices

4.5.4 Locomotives

All the wards are linked with the rural dirt roads, which sometime gets blocked in the monsoon season. The municipality has privately owned bus, jeep, van, motor cycle, and tractor. Publicly own vehicles for commuters are not available. Motorcycle is a popular means of transport. The regular jeep service operates between all the ward headquarters, and the nearby market the Katari. The major wards owing different types of vehicle are Rupatar and Lekhgaun. The number of motorcycle is the highest in Rupatar followed by Okhale and Thanagaun. Katari is the only node market that provides the nationwide vehicle connectivity.

Table 43 shows transportation means in each ward of the Tapli RM.

Table 43. Status of the means of transportation in the Tapli RM, 2019

Means of transport	Wards					Total
	1	2	3	4	5	
Bus, Jeep, van	1	1	0	1	2	5
Cycle	2	0	0	0	6	8
Motorcycle	14	0	3	11	24	52
Tractor	0	4	0	0	1	5
Public vehicle	0	0	0	0	0	0
Horse	0	1	0	1	0	2

4.5.5 Access to Road

Figure 33 shows the general pattern of the household access to different types of road structures in the rural municipality. Annex 5 shows the wardwise detail.

The municipality does not have blacktopped road. However, the dirt roads link many settlements. About eight percent of households have direct access to the main road but the secondary road links over 21 percent of households (i.e., 555 number HHs). About 70 percent of households still rely on trail for movements.

Detail of the main and secondary roads are in Annex...

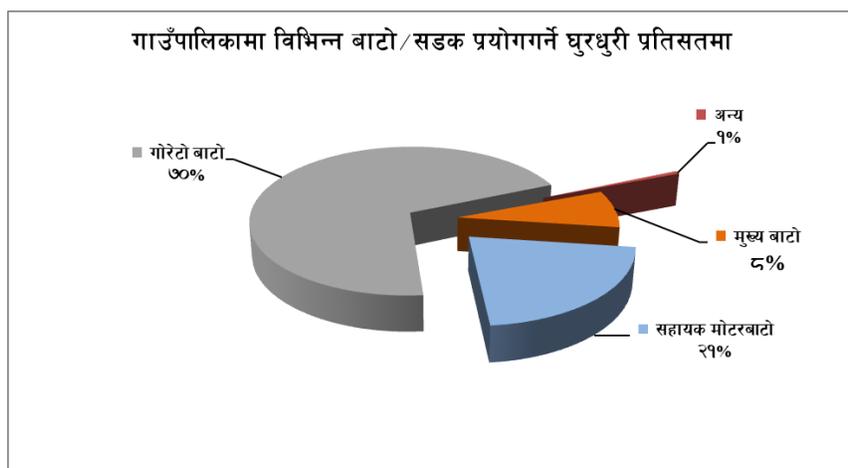


Figure 35. Proportion of landless households in the Tapli RM, 2019
Figure 33. Status of household's access to roads and trails in the Tapli RM, 2019

4.5.6 Communication

Landlines and mobiles are two means of communication in the municipality, and the mobile phones are the most common means. A total of 3,781 individuals were found owning and using mobile phone. The mobile network is not easily available in some parts of the municipality in Lekhgaun and Iname.

The headquarters, Rupatar now has access to internet.

Table 44 shows ownership of other means of communication.

Table 44. Status of communication in the Tapli RM, 2019

Communicaiton devices	Wards					Total
	1	2	3	4	5	
Landline					3	7
Mobile telephone						378
Radio						742
Television						156
Total						

4.6 Economy

4.6.1 Agriculture

Agriculture is the mainstay of livelihoods in Tapli RM. People generally follow mixed farming systems comprising crop production and animal husbandry. More than 40 percent of economically active population has the agriculture as the primary occupation, and about 58 percent of population is engaged in this sector (Figure 27 (a) and (b)).

i. Key crops and cropping pattern

Crop production is primarily of the subsistence type producing mainly for the household consumption. The major crops produced are rice, maize, and finger millet. Rice is grown mostly in the leveled terraces in the lower elevation area. Generally, two crops - rice in monsoon and maize in Spring *in khet* are grown, and maize in Spring and finger millets in rainy season are grown in *Bari*. Fields along the banks of Yari, Ghari, Bijuwa and Kuvinde, Rakula, and Gahate streams are major rice producing area. In the lower elevation area of Yari khola, rice is grown in two seasons (Spring and Monsoon). Usually three crops are grown in in these lowlands. In the higher elevation, maize and finger millet are the major crops. Over the years, production of wheat is declining.

The vegetables are grown mostly for home consumption. However, in the recent past , people have started growing vegetables for export in local and nearby markets. Vegetable produced in the higher reaches are sold within the municipality. Palatar and Katahare of Rupatar, Iname and Lekhgaun produce vegetable for market sell. A vegetable collection center has been established recently in Narimala of Ward 2 (Lekhgaun) to collect the vegetables grown in the village and sell in Katari.

ii. Production zone

There are certain pockets for growing specific crops such as potatoes in Iname, black gram in Rupatar, soybean in Thanagaun, and orange and cardamom in Lekhgaun and Okhale. Farmers grow cash crops like large cardamom in Lekhgaun and Iname. Ginger is widely cultivated in Okhale, Lekhgaun, and Iname for market in and outside the municipality.

Fruits like lime and mandarin orange are grown in all the wards. The markets in proximity to the Terai such as Katari, Dharan, Biratnagar offer opportunity to scale up the production of vegetable and fruits, and branding of the niche products.

iii. Agri-income

Table 45 and Figure 34 show an average annual agricultural production and total share of income generated by crop production.

Of major produce, cereals and vegetables make very nominal surplus, whereas the cash crop including fruits have a good annual surplus of 33 and 23 percent respectively. In general, NPR 3.3 million worth agriculture commodities are sold annually after the consumption in the municipality. However, this figure of income estimation from agriculture produce is considered underestimated because assessment study noticed that respondents were skeptical to provide income data, for example, researchers learnt that the Rachane village of ward-3 (Iname) alone has been annually selling the potato worth NPR 10 million every year.

गाउपालिकामा कृषिका विभिन्न क्षेत्रबाट हुने वार्षिक आय रु.मा

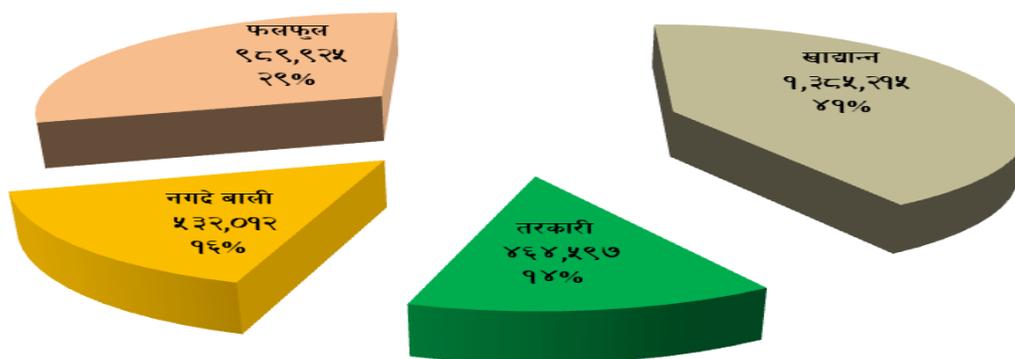


Figure 34. Cereal, cash and other crops producing annual income of the households in the Tapli RM, 2019

Table 45. Production and consumption of agriculture produces in the Tapli RM, 2019

बाली / फसल	उत्पादन	उपभोग	बिक्री	वचत प्रतिसत	बिक्री रकम (नेरु)
खाद्यान्न (मूरी)	४३,५६२	४१,९४८	१,६१४	४	१,३८५,२१५
धान	१६,०९३	१५,१४९	९४४	६	९४९,४०३
मकै	१८,५३२	१८,०३६	४९६	३	३३९,५०२
गहुँ	५६६	५३४	३२	६	१३,८१०
कोदो	८,३७२	८,२३०	१४२	२	८२,५००
तरकारी (के.जी.)	२५०,७८६	२३१,११९	१९,६६७	८	४६४,५९७
बन्दा, काउली	२१,३२९	१९,१२१	२,२०८	१०	६२,९५७
टमाटर	८,९५१	७,८०६	१,१४५	१३	५०,७१०
लहरे तरकारी (लौका, करेला,काँका)	१११,३८९	१०९,५९७	१,७९२	२	५५,६००
आलू	८३,४९६	६८,९६३	१४,५३३	१७	२९४,५५०
मुला, गाँजर	२५,७०१	२५,६३२	६९	०	७८०
नगदे बाली (पार्थी)	३८,२२८	२५,६७५	१२,५५३	३३	५३२,०१२
तोरी	१,७१५	१,५२९	१८६	११	४०,०००
दाल	११,३९४	१०,३९३	१,००१	९	२३५,००२
अदुवा	२५,११९	१३,७५३	११,३६६	४५	२५७,०१०
फलफुल (के.जी.)	१००,७९७	७७,१७३	२३,६२४	२३	९८९,९२५
केरा	२४,०५०	२२,८९०	१,१६०	५	७,०००
सुन्तला	४२,३२५	२२,९००	१९,४२५	४६	९१२,९५०
अन्य	३४,४२२	३१,३८३	३,०३९	९	६९,९७५
जम्मा					३,३७१,७४९

4.6.2 Land Ownership

The major types of cultivable lands in the municipality are *Khet* (leveled terrace) and *Bari* (un-leveled terraces). The lower elevation area along the banks of streams has *Khet*, whereas upper reaches have mostly the *Bari*. Over the years, certain tract of cultivable land has been abandoned.

Figure 35 and table 46 below show the ownership on land based on land size in different wards of the municipality.

In terms of plot size, more than 71 percent of the households in the municipality have ownership of land of 10 Ropani or less, which is predominantly higher in high elevation wards such as Iname, Lekhgaun and Okhale. Households holding land more than 40 Ropani are very nominal, which is visible in Thanagaun and Rupatar.

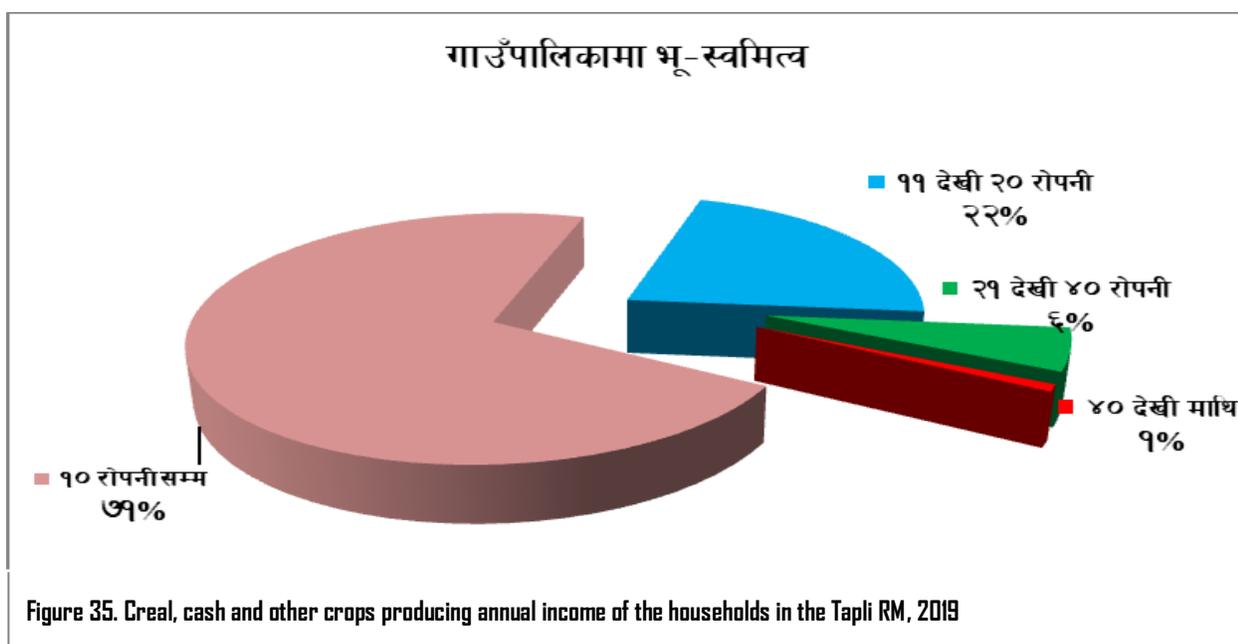


Table 46. Land ownership in different wards in the Tapli RM, 2019

जग्गाको क्षेत्रफल (रोपनी)	वार्ड										औसत प्रतिशत
	ओखले		लेखगाँउ		इनामे		ठानागाँउ		रुपाटार		
	घरधुरी संख्या	प्रतिशत									
१० रोपनी सम्म		७२.३		७६.२		८२.८		६९.८		६४.३	७९.५
११ - २० रोपनी		२२.३		२०.४		१३.२		२७.४		२६.८	२२.०
,२१ देखी ४० रोपनी		५.५		२.७		३.७		८.४		७.९	५.६
४० देखी माथि		०.०		०.७		०.४		२.४		१.०	०.९
जम्मा		१००	०	१००	०	१००	०	१००	०	१००	१००

4.6.3 Landless Households

Table 47 and Figure show the status of landless household population in the Tapli RM.

Altogether, 2,557 households responded to the status of landownership. Out of those households, 160 households accounting for 6.3% were found to be landless. The percentage of landless households is highest (12.64%) in ward 4 (Thanagaun) followed by Rupatar (7.49%) and lowest (0.68%) in ward 1 (Okhale).

Table 47. The number of landless households in the Tapli RM,

वार्ड	गा.प.मा जम्मा घरधुरी संख्या	सर्भेक्षण घरधुरी	भू-स्वामित्वका घरधुरी		भूमिहिन घरधुरी	
			संख्या	प्रतिसत	संख्या	प्रतिसत
१	४५६.०	४४१	४३८.००	९९.३	३.००	०.७
२	४५७.०	४५७	४४४.००	९७.२	१३.००	२.८
३	५४७.०	५५६	५१७.००	९३.०	३९.००	७.०
४	४५३	४३५	३८०.००	८७.४	५५.००	१२.६
५	६६८	६६८	६१८.००	९२.५	५०.००	७.५
जम्मा	२५८१.०	२५५७	२३९७.००	९३.७४	१६०.००	६.३

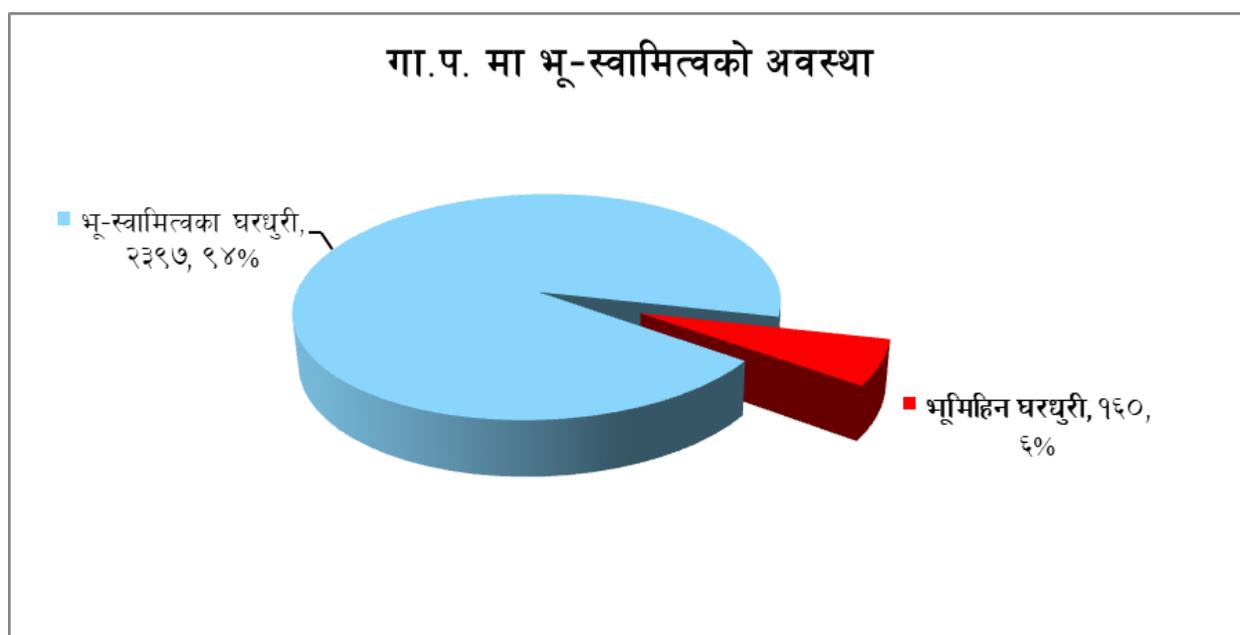


Figure 36. Proportion of landless households in the Tapli RM, 2019

4.6.4 Agriculture Inputs

Table 48 shows the use of chemical fertilizers and pesticides and expenses each household pay for their use in each ward, whereas Figure 37 illustrates per unit use and cost based on household survey (N=2,322) in the municipality.

The households buy agriculture inputs such as urea, DAP, Potash and different types of chemical pesticides and feed for the poultry from Katari. There are not any outlets within the rural municipality to buy agriculture inputs. Many households were found to use urea but a fewer number of households use Phosphorus, potash, and pesticides. Amongst wards, households in Okhale use larger quantity of agriculture inputs followed by Rupatar, whereas Iname uses the lowest amount of agricultural inputs.

The common market for agricultural inputs is Katari.

Table 48. The number of landless households in the Tapli RM, 2019

मल तथा रसायनिक विषाधि	वार्ड ओखले			वार्ड लेखगाँउ			वार्ड इनामे			वार्ड ठानागाँउ			वार्ड रुपाटार			औसत प्रयोगको कूल जम्मा (के.जी.)	औसत खर्चको कूल जम्मा (नेरु)
	घरघुरी संख्या	औसत प्रयोग (के.जी.)	औसत खर्च (नेरु)	घरघुरी संख्या	औसत प्रयोग (के.जी.)	औसत खर्च (नेरु)	घरघुरी संख्या	औसत प्रयोग (के.जी.)	औसत खर्च (नेरु)	घरघुरी संख्या	औसत प्रयोग (के.जी.)	औसत खर्च (नेरु)	घरघुरी संख्या	औसत प्रयोग (के.जी.)	औसत खर्च (नेरु)		
युरीया	३११	४९.७५	३,०२८.६७	३५१	४०.९०	१,४५४.९६	८१	३२.३५	१,०२५.३१	२०७	२५.०१	९९६.७४	४५३	३७.७५	१,३५०.१९	१८५.७२	८,०३५.८७
डिएपी	१४०	४०.७९	२,७४७.८६	३२	३५.७८	२,३०३.१३	१	२५.००	७५०.००	१७	३१.१८	१,९४५.८८	२३५	२८.३२	१,८२८.८१	१६१.०७	९,५८५.६८
पोटास	७	६३.५७	३,५४२.८६	-	-	-	-	-	-	१	६.००	४४०.००	६	१६.८३	१,१६६.६७	८६.४०	५,१४९.५३
रसायनिक विषादी	९	११.६७	१,८३०.००	९४	२.३८	४१४.२६	-	-	-	१४	२.१४	६६९.२९	२६०	१.६३	३३०.३८	१७.८२	३,२४३.९३
बन्य	३	२६.६७	६,८३३.३३	-	-	-	-	-	-	-	-	-	-	-	-	२६.६७	६,८३३.३३
जम्मा	११२.४५	१७,९८२.७२	७९.०६	४,४३२.३५	५७.३५	१,७७५.३१	६४.३३	३,९९१.९१	८४.४९	४,६७६.०५	४७७.६८	३२,८५८.३४					

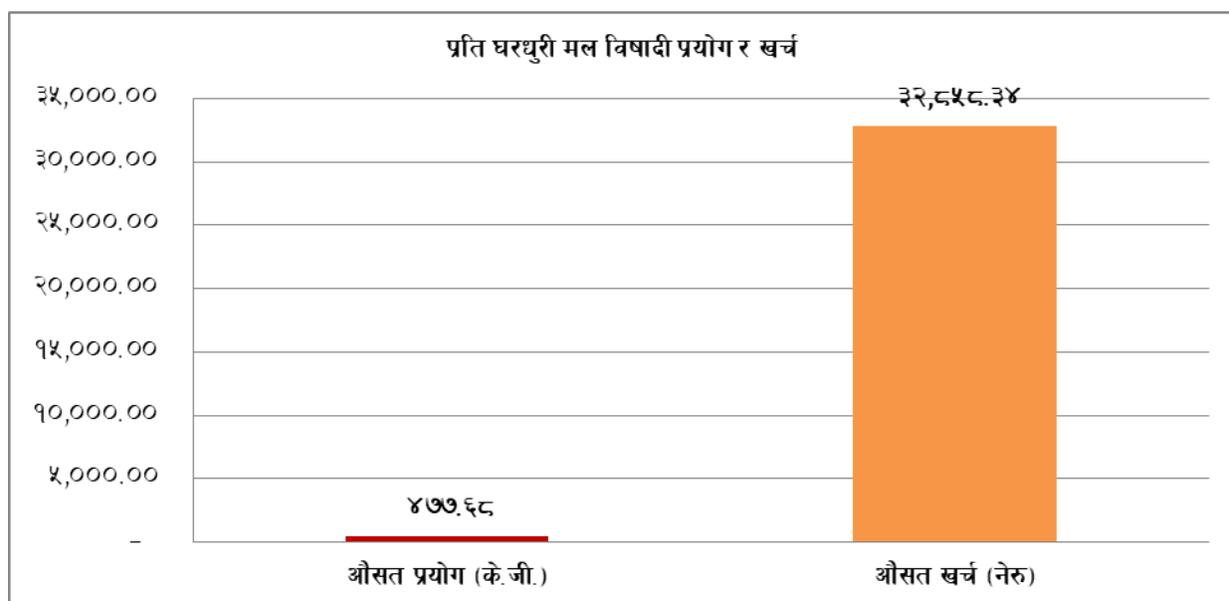


Figure 37. Per unit use of chemical fertilizer & pesticides and expenses, and total expenses by each household in the TRM, 2019

4.7 Food Security

4.7.1 Status of Food Security

In terms of food sufficiency for different duration (3 to 6 months, 6 to 9 months, 9 to 12 months, and surplus), there is a food sufficiency for about 47 percent of households in the municipality for 3 to 6 months. However, this scenario is better in Iname (>70%), Thanagaun (>60%) and Okhale (>52%) but worst in Rupatar. Rupatar has almost 63 percent of food insecure households for half year around.

There is food sufficiency for six to nine months to the 33.6 percent of households, with the highest in Lekhgaun (nearly 53%) and lowest in Iname (21%). Nearly 16 percent of households have food sufficiency for the entire year. Year-round food sufficient households are high in Lekhgaun (>30%) and Rupatar (>21 percent).

Over all, since the food sufficiency below six months period prevails higher, the municipality has larger proportion of food insecure households (>53%), thus municipality is food deficit.

Table 49 and Figures 38 (a) and (b) show the detail of the food security situation.

Table 49. Household food security at different time period in the wards of the Rural Municipality 2019

खाद्यान्नबाट सुरक्षित महिना	वाङ										गा.प.मा औसत प्रतिशत
	ओखले		लेखगाँउ		इनामे		ठानागाँउ		रुपाटार		
	घरधुरी संख्या	प्रतिसत									
३ देखी ६ महिना		५०.२५	१५.७९	७०.५८	६०.७२	३६.९	४६.८				
६ देखी ९ महिना		३४.३३	५२.८६	२१.०७	३३.५९	२६.०२	३३.६				
९ देखी १२ महिना		१५.१७	३०.४३	७.९५	४.९१	२१.०९	१५.९				
फसल वचत		०.२५	०.९२	०.४	०.७८	१५.९९	३.७				
जम्मा		१००	०	१००	०	१००	०	१००	१००		

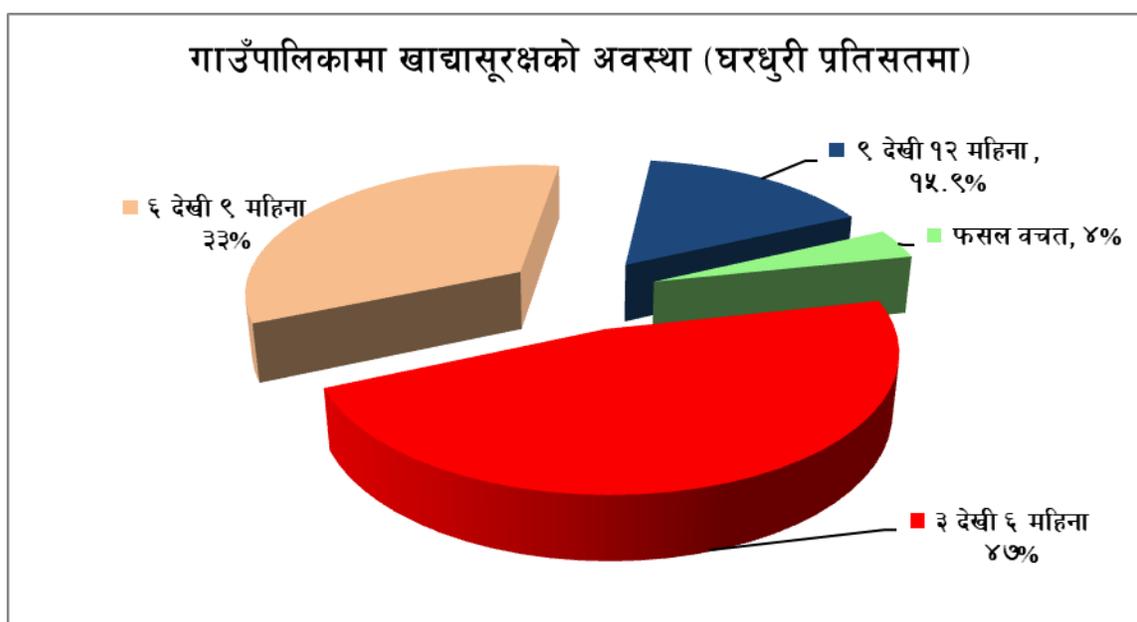


Figure 38(a). Households food security for periodical months and surplus food percentage in the TRM, 2019

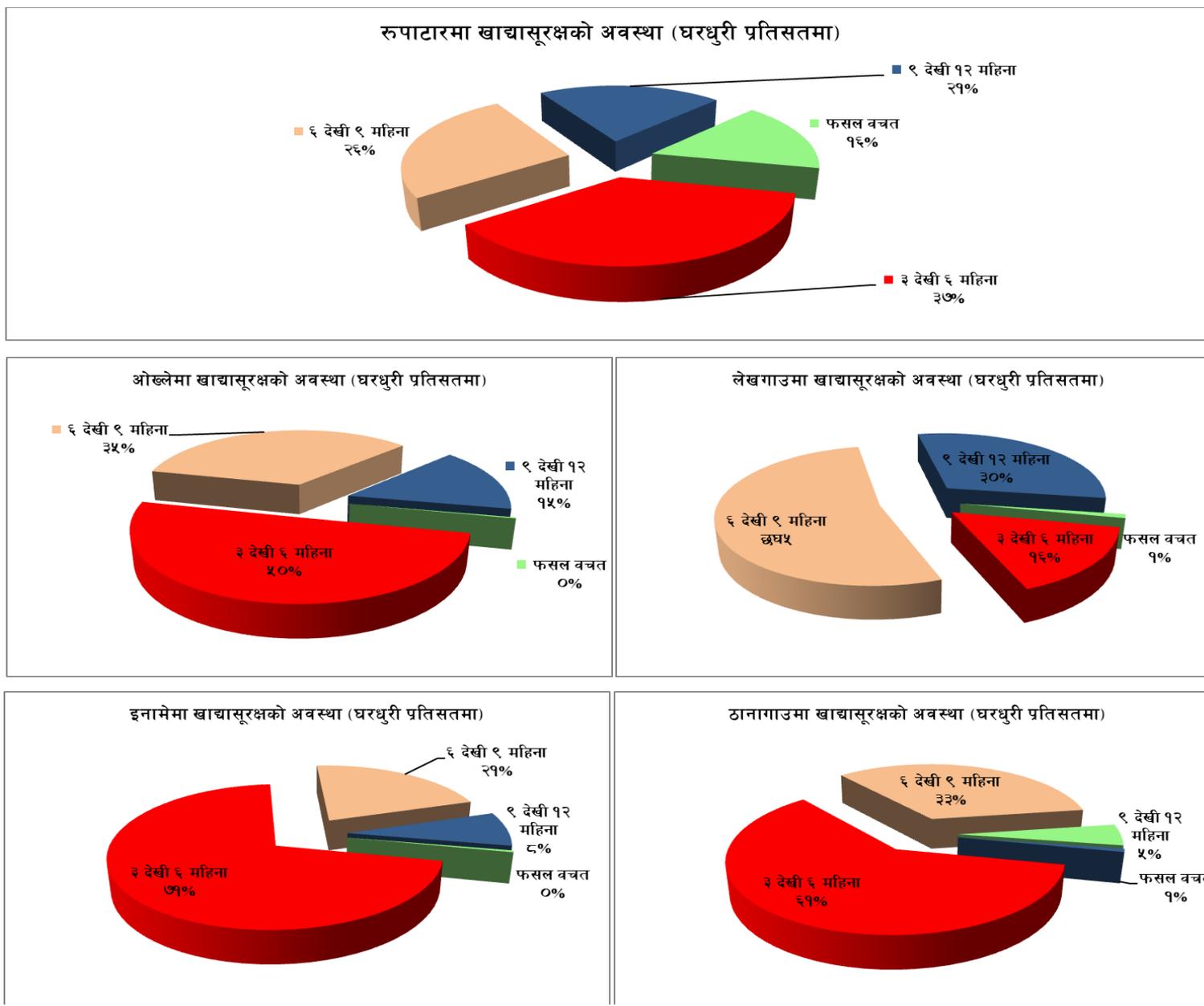


Figure 38(b). Households food security for periodical months and surplus food percentage in each wards of the TRM, 2019

4.7.2 Cereal Production

Figure 39 shows the key cereals contributing to the cereal-based economy of the municipality. Table 50 shows total cereal production in each wards and of the municipality in general.

In 2017/18, Tapli produced a total cereal of 3,082 metric ton with the percentage highest from maize (>48 percent) followed by rice (>28 percent) and millet (>21 percent). Households cultivate wheat but its contribution to cereal production is virtually not significant. Amongst wards, ward-5 (Rupatar) produced highest quantity of cereal of more than 1007 MT (32.7 %) of total production. The cereal production is lowest in ward-4 (Thanagaun). Ward-1 is recognized for the rice, maize and millet production.

Table 50. Total cereal production and per capita creal production in the Tapli RM in 2017/18

खाद्यान्न	वार्डमा खाद्यान्न उत्पादन (मेट्रीक टन)					गाउँपालिका औसत	
	१	२	३	४	५	जम्मा	प्रतिसत
धान	१३४.४	१४५.७	४६.८	९६.५	४६१.८	८८५.२	२८.७
मकै	२८३.२	३११.५	२९९.१	२३९.८	३४८.८	१४८२.४	४८.१
गहुँ	७.१	३.८	१०.५	५.४	१८.६	४५.४	१.५
कोदो	९४.२	१२७.२	१३९.९	१३०.२	१७८.३	६६९.८	२१.७
जम्मा	५१८.८	५८८.२	४९६.३	४७१.९	१००७.५	३०८२.७	१००.०
प्रतिसत	१६.८	१९.१	१६.१	१५.३	३२.७	१००.०	

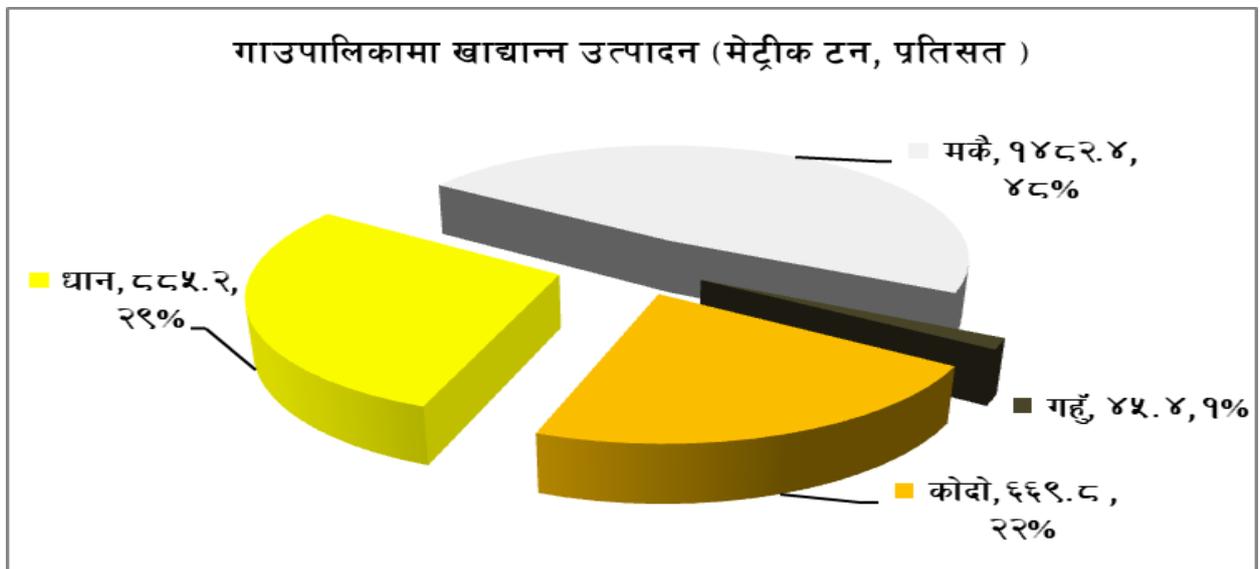


Figure 39. Major cereals contributing to the total cereal production system in the TRM, 2019

4.7.3 Per capita Cereal Production

Table 51 shows the *per capita* production of the cereals in the municipality. The overall *per capita* cereal production in the municipality is 203.5 kg, which falls short of the national average *per capita* target of 250 kg (GoN 2017).

Figure 40 shows the *per capita* production of major cereals in the municipality. Among the different crops, maize has the highest *per capita* production (100.64 kg) followed by rice (55.4 kg) and finger millet 44.62 kg. For all the wards except Rupatar, maize is more important crop in terms of *per capita* production than rice. Ward 2 (Lekhgaun) has the highest *per capita* maize production and Ward 5 (Rupatar) has the highest *per capita* rice production. Amongst the wards, Ward 4 (Thanagaun) has the lowest *per capita* cereal production and Rupatar has the highest *per capita* production (256.5 kg). Amongst these wards, only the ward 5 (Rupatar) exceeds the national target in *per capita* food production and rest of the wards fall short.

Table 51. Per capita cereal production in wards of the Tapli RM in 2017/18

खाद्यान्न	वार्डमा प्रति व्यक्ति खाद्यान्न उत्पादन (के. जी.)					गा.प.मा औसत
	१	२	३	४	५	
धान	५३.२	५७.२	१४.८	३४.२	११७.६	५५.४
मकै	११२.२	१२२.४	९४.७	८५.१	८८.८	१००.६४
गहुँ	२.८	१.५	३.३	१.९	४.७	२.८४
कोदो	३७.३	४९.९	४४.३	४६.२	४५.४	४४.६२
जम्मा	२०५.५	२३१	१५७.१	१६७.४	२५६.५	२०३.५

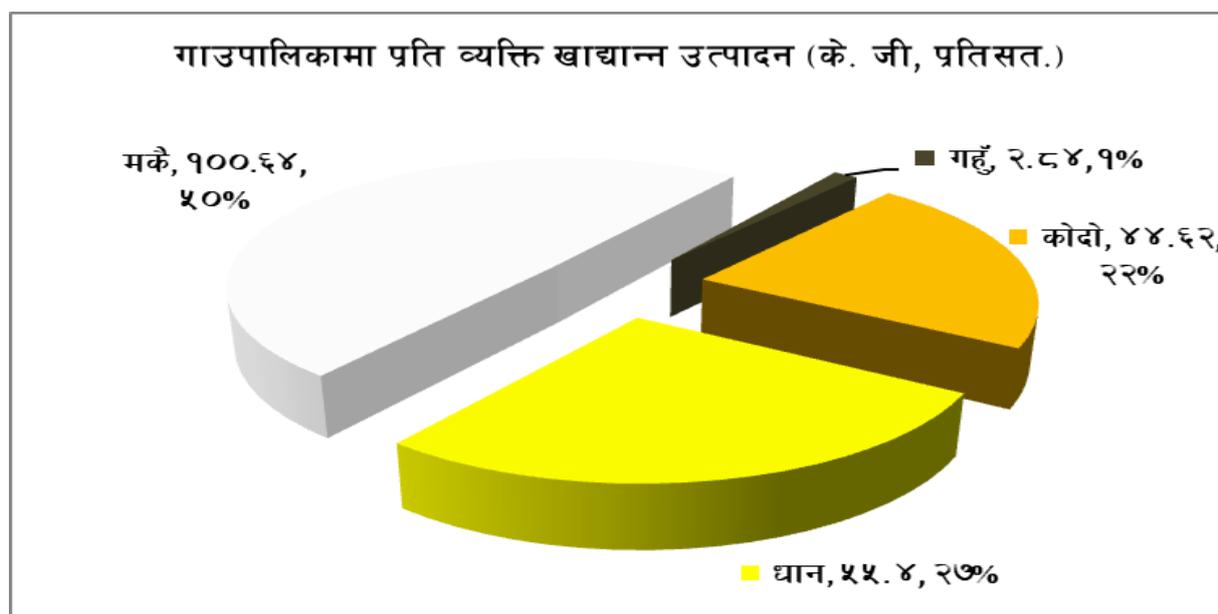


Figure 40. Key cereals contributing of per capita cereal production in the TRM, 2019

4.7.4 Animal husbandry

i. General scenario

Animal husbandry is the integral part of farming system in the economy of the Tapli RM. The major livestock kept are goats, cows, buffalo, and pigs. A total 47, 376 livestock including house raised chicken and ducks were found to be kept. Table 52 shows the wardwise detail of livestock and birds in each ward.

Of total, 48 percent were bovines and ruminants that account for 48 percent of total livestock population. Birds accounted for 17 percent, which does not include chicken as the commercial poultry. Of livestock, goat alone accounts for 31 percent of total livestock. Sheep are kept but their contribution in economy is nominal. A total 2,093 households have been engaged in goat keeping, 1,341 households for cows and 926 households for buffaloes. In terms of total number of livestock raised, Ward 5 (Rupatar) ranks first with a total number of livestock at 6458, followed by ward 1 with the number of livestock at 5236. Ward 4 (Lekhgaun) has the least number of livestock.

The goats, pigs and chicken are kept for meat for local consumption and sell in weekly *Hat Bazar* in some wards. Oxen are kept for ploughing land so accounts for 7 percent of livestock population, evenly distributed in all wards.

Cows and buffaloes are kept for milk production. There are not any dairy cooperatives in the municipality. The milk is consumed locally, and for churning butter and ghee which fetch good price in the local and nearby markets. The observation assessed that the municipality holds high potential for the commercialization milk product especially in Lekhgaun and Okhale. In the recent past, commercial production of chicken and goat has begun.

Table 52. Number of livestock keeping in wards of the Tapli RM in 2017/18

बस्तु भाउ तथा पंक्षि	वार्ड					गा. प. मा जम्मा	प्रतिसत
	१	२	३	४	५		
बाखा	३६७४	२७६७	२२०१	२०७२	४०२१	१४७३५	३१
भेंडा	८	२	६	०	९	२५	०
गाई	६८७	५३७	३४०	३८९	७३१	२६८४	६
गोरु	५८५	५५१	५२४	४९३	१००६	३१५९	७
राँगा	१०	१४	१५	२२	५१	११२	०
भैसी	१२५	१०१	४३९	१८६	३८१	१२३२	३
बंगुर	१४७	२८९	१०२	२१४	२५९	१०११	२
जम्मा	५२३६	४२६१	३६२७	३३७६	६४५८	२२९५८	४८
पंक्षि	१०६२	२१६३	१२४०	९४३	२६७३	८०८१	१७
जम्मा	१०६२	२१६३	१२४०	९४३	२६७३	८०८१	१७
अन्य	१३	१५	१७	४३	८७	१७५	०
जम्मा	२१३७	४३४१	२४९७	१९२९	५४३३	१६३३७	३४
कुल जम्मा	८४३५	१०७६५	७३६४	६२४८	१४५६४	४७३७६	१००.०
प्रतिसत	१८	२३	१६	१३	३१	१००	

ii. Key livestock farming and distribution

A. Goat farming

Table 53 shows the general pattern of household level goat farming against different size of the herds.

Goat farming is evenly distributed in all wards but higher in Rupatar and Iname. The range of herds varies from 1 to more than 30. Of total household surveyed (N=2,093 HHs), the majority of households (52 percent) keep goats in a herd of 1 to 5. However, equally important is the growing trend of keeping goats in the larger herds range from 6 to 15 more evidently in all wards but higher in ward-5 (Rupatar). The larger herds of goats have been visible possibly as commercial practice in high altitude wards like Okhale, Iname and Thanagaun.

Table 53. Number of households keeping goats in different herd size in eachward of the Tapli RM, 2019

बाखाको संख्या	वार्ड					गा. प. मा जम्मा	प्रतिसत
	१	२	३	४	५		
१ देखी ५ वटा सम्म	१४४	२०२	२९८	१९४	२४५	१०८३	५२
६ देखी १५ वटा सम्म	१९२	१५२	१३१	१३९	२६२	८७६	४२
१६ देखी ३० वटा सम्म	४२	२५	६	१२	३१	११६	६
३० भन्दा माथी	९	५	१	०	३	१८	१
जम्मा	३८७	३८४	४३६	३४५	५४१	२०९३	१००
प्रतिसत	१८	१८	२१	१६	२६	१००	

B. Cows farming

Cow farming is a common practice evenly distributed in all wards. The survey (N=1,341 HHs) revealed that households keeping larger herd size is in ward-1 (Okhale). However, 88 percent of households have herd size of 1 to 3 cows, which is a very common practice in all wards. Further, herd size of 4 to 7 cows was reported from 11 percent of households. One percent households are engaged in keeping herd size of 8 to 12 cows in all wards except in Iname.

Table 54 shows herd size of cows under household level farming in all wards.

Table 54. Number of households engaged in cow farming in different herd size in each ward of the Tapli RM, 2019

गाईको संख्या	वार्ड					गा. प. मा जम्मा	प्रतिसत
	१	२	३	४	५		
१ देखी ३ वटा सम्म	२११	२८६	१५४	१७९	३५३	११८३	८८
४ देखी ७ वटा सम्म	४९	२३	२१	२५	३१	१४९	११
८ देखी १२ वटा सम्म	५	१	०	१	१	८	१
१३ भन्दा माथी	१	०	०	०	०	१	०
जम्मा	२६६	३१०	१७५	२०५	३८५	१३४१	१००
प्रतिसत	२०	२३	१३	१५	२९	१००	

C. Buffalo farming

Keeping of buffaloes for milk production is a common practice in the municipality. A total of 926 heads of buffalo were raised. Usually the farming households keep one to two buffaloes. Table 55 shows the number of households keeping different herd size of buffaloes in different wards in the municipality. A herd size of one to two buffaloes is the most common type as reported by 95 percent of households in all wards (N=926 HHs). Only five percent of households keep buffalo of herd size ranging from 3 to 5.

Table 55. Number of households engaged for buffalo farming in different herd size in each ward of the Tapli RM, 2019

भैंसीको संख्या	वार्ड					गा. प. मा जम्मा	प्रतिसत
	१	२	३	४	५		
१ देखी २ वटा सम्म	८१	७७	२६८	१५४	२९८	८७८	९५
३ देखी ५ वटा सम्म	७	५	२२	२	१०	४६	५
६ भन्दा माथी	०	१	१	०	०	२	०
जम्मा	८८	८३	२९१	१५६	३०८	९२६	१००
प्रतिसत	१०	९	३१	१७	३३	१००	

D. Pig farming

Table 56 shows wardwise distribution of pig farming households in the municipality. A herd size of large herd commercial pig farming was not observed, though herd size of more than 7 pigs are reported in in Lekhgaun, Thanagaun, and Rupatar.

Table 56. Number of households engaged in farming of different herd size in different wards of the Tapli RM, 2019

सुँगुरको संख्या	वार्ड					गा. प. मा जम्मा	प्रतिसत
	१	२	३	४	५		
१ देखी ३ वटा सम्म	९२	१९४	८०	१४८	१५२	६६६	९५
४ देखी ६ वटा सम्म	५	८	१	३	८	२५	४
७ भन्दा माथी	०	३	०	२	२	७	१
जम्मा	९७	२०५	८१	१५३	१६२	६९८	१००
प्रतिसत	१४	२९	१२	२२	२३	१००	

4.8 Foreign Employment

4.8.1 Employment Areas

Foreign employment has become one of the important economic activities in the municipality. Table 57 and Figure 41 (upper) show status of foreign employment in different wards of the municipality respectively. More than 17 percent of household of the municipality have at least one person engaged in the foreign employment (15 percent in manual labor and 2 percent in unspecified job). Within the job category, 90 percent of employee goes for ordinary job such as labor. Amongst wards, higher numbers of people from Iname are engaged in foreign employment followed by Thanagaun and Rupatar.

Table 57. Status of foreign employment in different wards of the Tapli RM, 2019

रोजगारीको किसिम	वार्ड						गा.प. को रोजगारी भित्रको प्रतिशत	गा.प. को घरधुरसंगको प्रतिशत
	ओख्ले	लेखगाँउ	इनामे	ठानागाँउ	रुपाटार	जम्मा		
जागिर	५६	५९	११५	८४	७४	३८८	९०	१५
अध्यन	-	-	-	-	५	५	१	०
तालिम	-	-	-	-	-	-	-	-
अन्य	-	-	-	-	३९	३९	९	२
जम्मा	५६	५९	११५	८४	११८	४३२	१००	१७
वार्डको घरधुरी	४५६	४५७	५४७	४५३	६६८	२,५८१	१७	१००
वार्ड घरधुरीसंगका प्रतिशत	१२	१३	२१	१९	१८			-

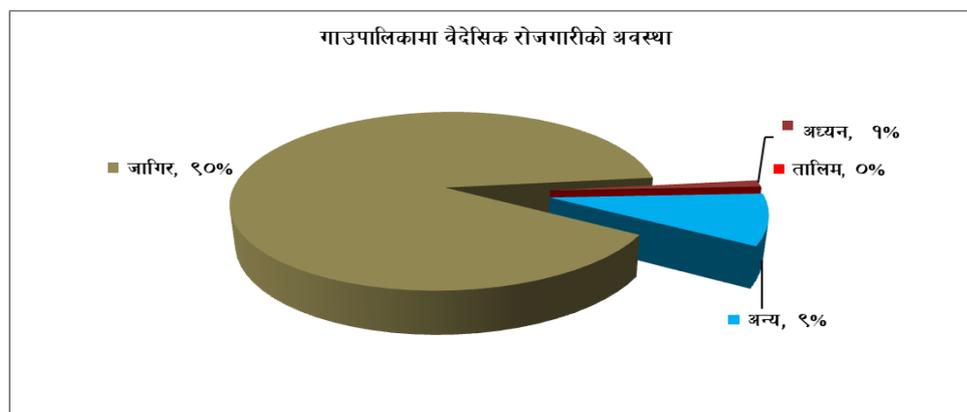
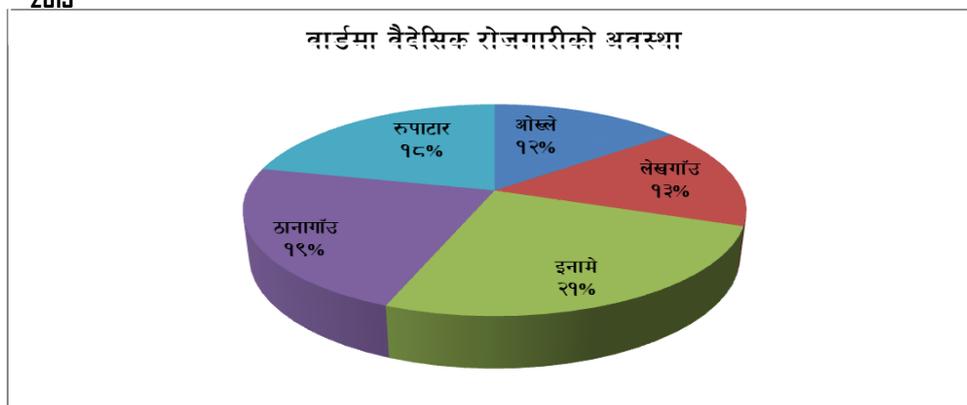


Figure 41. Percent of HH population of the municipality and wards of Tapli RM in foreign employment, 2019



4.8.2 Preferred Nations

Of visiting countries, majority of people from Tapli RM go to the Gulf countries (348 numbers out of 432). Table 58 shows the list of destination countries. Amongst the different destination countries, majority (348) of them are based in the Gulf countries. The table shows the number of people living in different countries.

Table 58. Preferred countries for the foreign engagement by the citizen of the Tapli RM, 2019

वार्ड	भारत	गल्फ मुलुक	युराप	अमेरीका	अष्टेलिया	अन्य	जम्मा	प्रतिसत
१		४	३५	-	३	-	१४	५६
२		३	५१	१	-	-	४	५९
३		-	११४	-	-	-	१	११५
४		-	७९	-	२	-	३	८४
५		७	६९	-	१	१	४०	११८
जम्मा	१४	३४८	१	६	१	६२	४३२	१००
प्रतिसत	३	८१	०	१	०	१४	१००	

4.8.3 Remittance

Foreign employment provided NPR 81 million in the municipality in 2018. Of this, ward-3 (Iname) received 32 percent of total remittance (>25.8 million) followed by Rupatar and Okhale. Lekhgaun and Thanagaun are low remittance receiving wards. Table 59 and Figure 42 show the remittance from the foreign employment in the Tapli RM.

Table 59. Wardwise income received from the foreign employment in wards of the Tapli RM, 2019

वार्ड	वार्षिक वैदेशिक आय (नेरु)	प्रतिसत	औसत घरधुरी आय (नेरु)
१	१३,४६४,०००	१७	३०,५३१
२	११,०५५,०००	१४	२४,१९०
३	२५,८५३,००३	३२	४६,४९८
४	११,२८१,०००	१४	२४,९५८
५	१९,२४०,०००	२४	२८,८०२
जम्मा	८०,८९३,००३	१००	

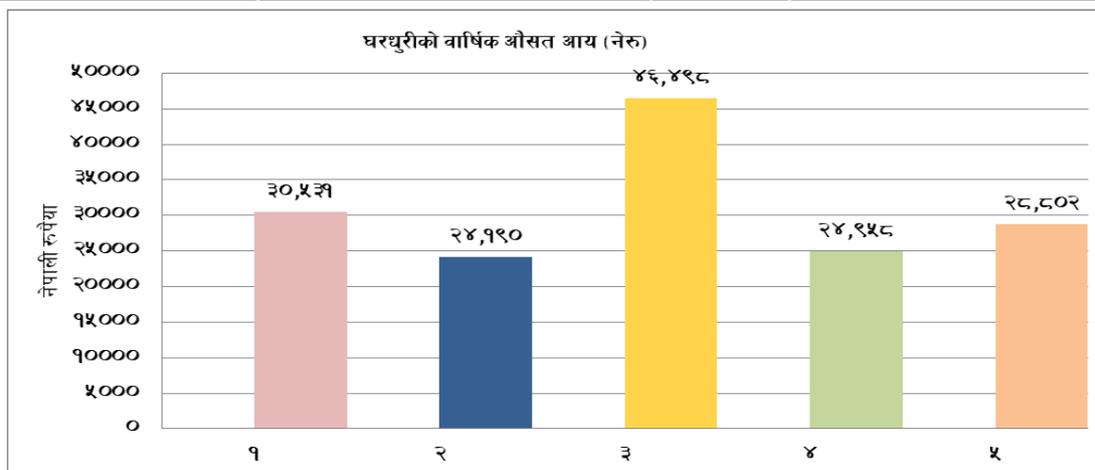


Figure 42. Average household remittance income in wards of Tapli RM.

4.9 Household Income and Distribution

4.9.1 Annual Household Income

Table 60 and Figure 43 show the average annual household income from different employment sectors in the municipality.

The households' income varies among the employment sectors. Such sectors include agriculture; government job; private jobs; pension and foreign employment. The majority of HHs has agriculture as the primary mode of livelihood means. However, the farming communities do not maintain proper record of income and expenses in this sector making it difficult to analyze economically. The highest income is generated from the undefined informal sources of income followed by the foreign employment sector. More than 30 percent of HHs income (>NPR. 18,498) is generated by foreign employment sector

Overall, HHs income in the Tapli RM is less than the national percapita income of 127,600 (GoN/NPC 2014).

Table 60. Different employment sectors contributing to the wardwise HHS income in the Tapli RM, 2019

रोजगारीको क्षेत्र	वार्डका घरधुरीस्तरीय वार्षिक आय (नेरु)					जम्मा	प्रतिसत
	१	२	३	४	५		
कृषि क्षेत्र	895.18	4,601.09	105.28	1,130.65	4,077.62	10,809.82	१७.६८
सरकारी कार्यालय	1,143.44	775.76	263.01	3,554.89	8,287.87	14,024.97	२२.९३
निजि क्षेत्र	281.66	363.24	862.47	474.74	2,423.74	4,405.85	७.२०
पेन्सन	7.77	-	-	77.70	945.99	1,031.46	१.६९
वैदेशिक रोजगार	1,344.79	2,275.52	648.79	2,544.67	5,567.21	12,380.98	२०.२५
अन्य	12,171.79	697.75	217.28	383.29	5,028.71	18,498.82	३०.२५
कूल जम्मा	15,844.63	8,713.36	2,096.83	8,165.94	26,331.14	61,151.90	१००
प्रतिसत	२५.९९	१४.२५	३.४३	१३.३५	४३.०६	१००	

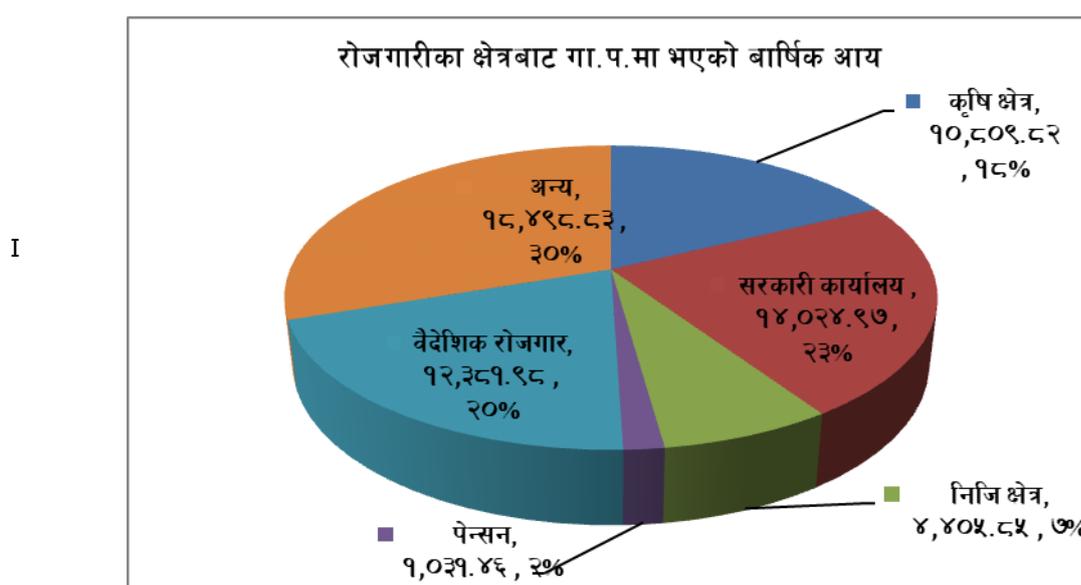


Table 43. Key employment sectors contributing to the HH income in the Tapli RM, 2019

4.9.2 Income Distribution

Degree of inequality among the households in terms of household income and landholding size was assessed. It was calculated by drawing the Lorenz curve of cumulative income and cumulative landholding against the cumulative population at quintile interval (20%) and calculating of Gini coefficient. The Gini coefficient is the measure of inequality and higher the value the more inequality exists. The analysis revealed that there is higher inequality in all the wards in terms of annual household income than landholding. The average Gini coefficient for the Rural Municipality household income is 0.659 and for the landholding size is 0.556.

Table 61 shows the distribution of G-value (Gini Coefficient) in each ward. The average G-value for the Tapli RM for household income is 0.659 and for the landholding size is 0.556.

Figure 44 shows the Lorenze curve for HH income and landholding in the municipality. Figure 44 and 45 are wardwise variations in the HH income and landholding respectively.

Overall, degree of inequality in view of HHs income and landholding in the municipality is **...** than the average national HHs income and landholding in Nepal

Table 61. Wardwise income from the different employment sectors in the Tapli RM, 2019

वार्ड	गीनी कोअफीसीन्ट (असमानता सचाडक)	
	घरधुरी आय	घरधुरी भू-स्वमिन्त्व
१	०.६२३	०.५६
२	०.५९९	०.५३२
३	०.६९३	०.५५९
४	०.६९७	०.५८१
५	०.६६६	०.५५८
जम्मा	०.६५९	०.५५६

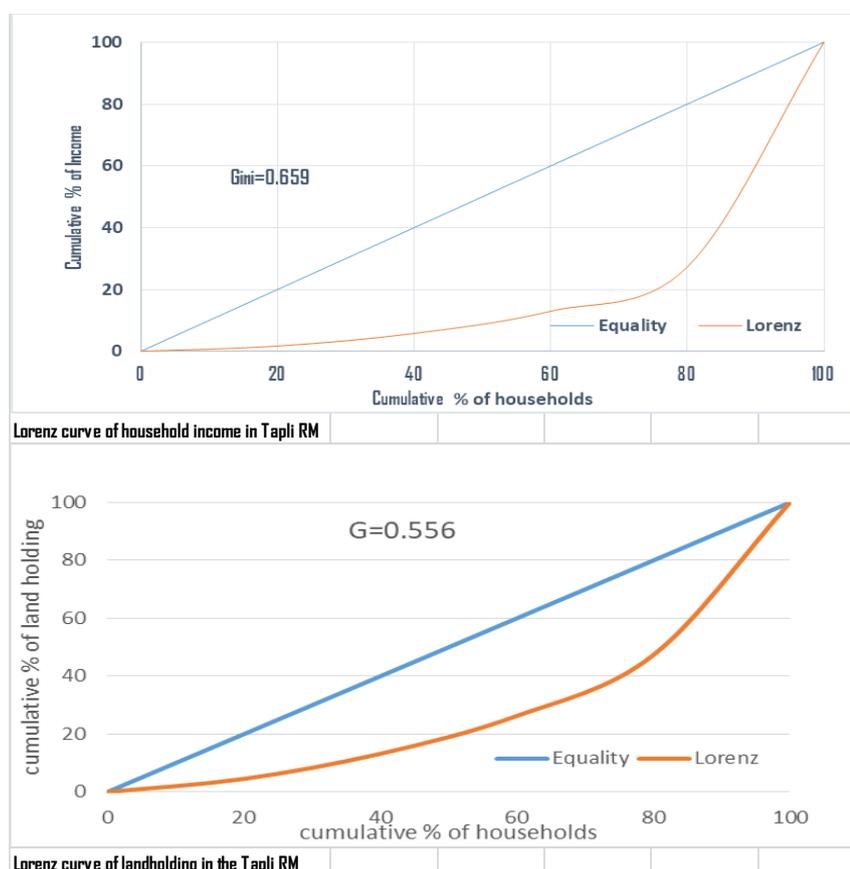


Table 44. Lorenz curve of household income and landholding in the Tapli RM, 2019

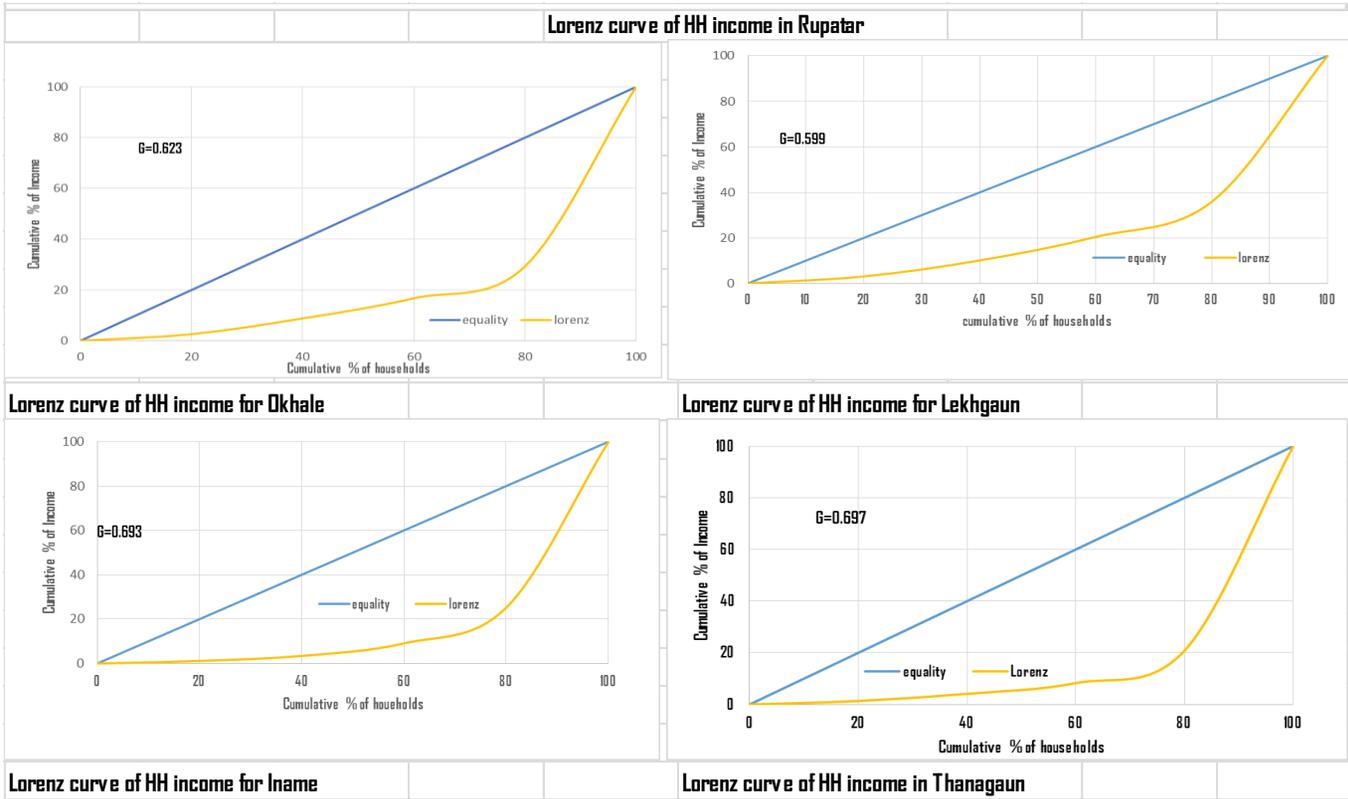
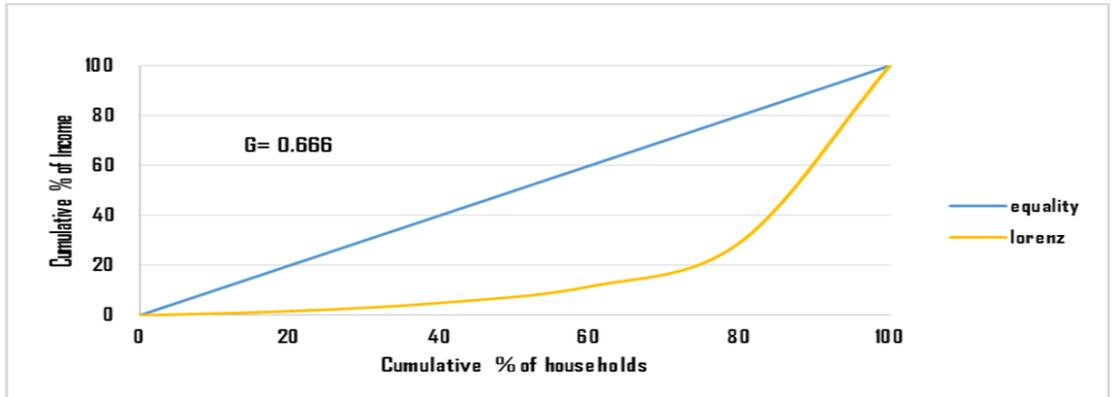


Figure 45(a). Lorenz curve showing income inequality of HHs in each ward of the Tapli RM, 2019

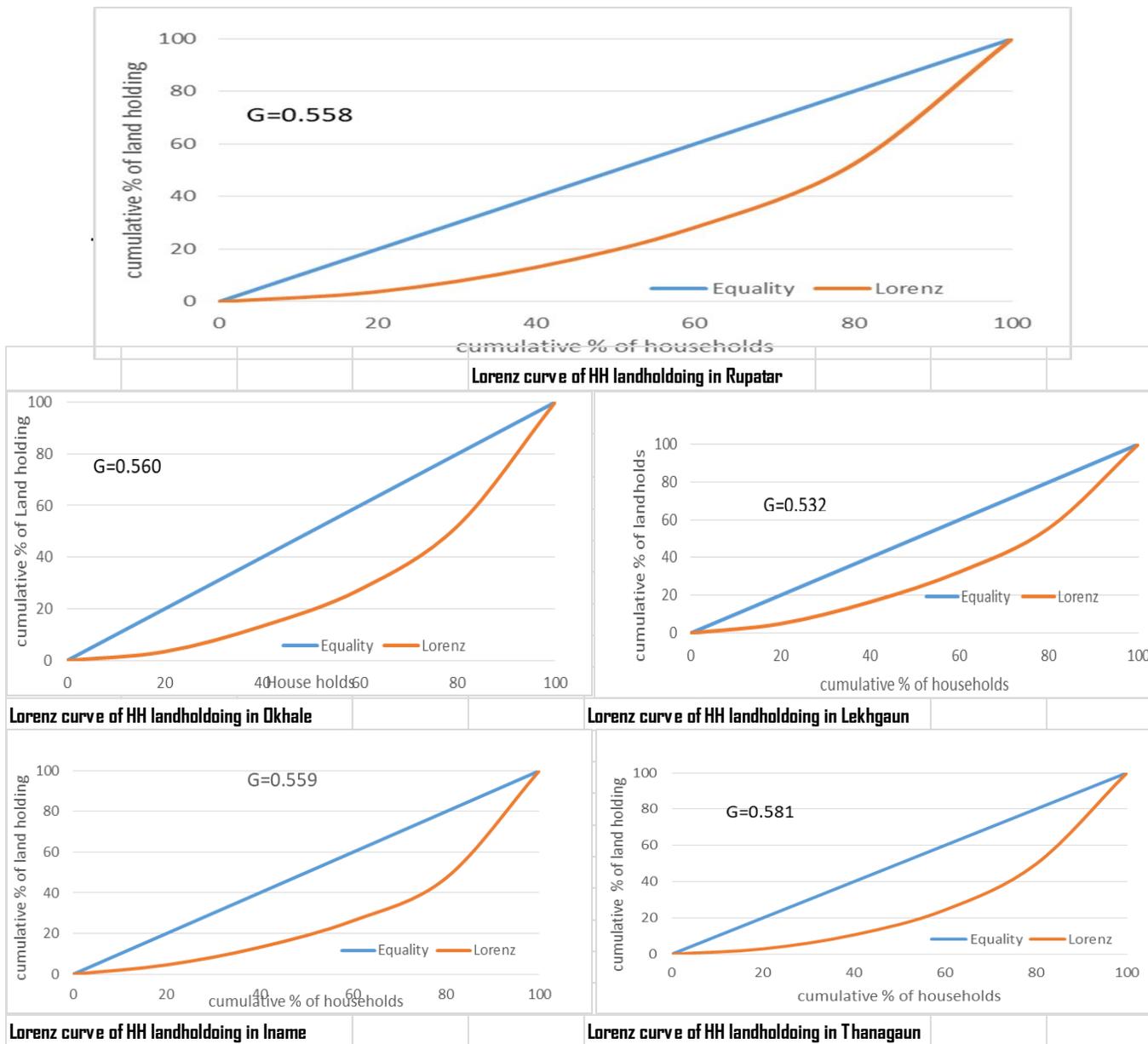


Figure 45 (b). Lorenz curve showing inequality in landholding in each ward of the Tapli RM, 2019

4.11 Tourism

Currently, there are virtually no tourism activities taking place in the municipality though there are a few places that have attraction for the local commuters. One of such attractions is the Tapli pond in ward-2 (Lekhgaun) which is an open meadow with Tapli Pokhari at the west of meadow. A temple of Devi is in the shoreline of modified pond. A local fair is organized every year on the New Year (Baisakh Sankranti). Over, 10,000 visitors is reported to visit annually to this area.

There are almost non-existent tourism facilities such as lodges, restaurants, museum, parks and visitor centers in the municipality. However, a local level small hotel is in operation in the headquarters of the municipality. Locally managed lodges have been initiated in Narimala of Lekhgaun and Jordhunga of Okhale.

Tapli RM may hold some visitors if Tapli pond is upgraded and conserved through value addition and extensive tourism promotional activities at its comparative advantage of linking the visitors' interest to the historical Udayapur Gadhi in the Udayapur Gadhi RM in its southern boundary, and the popular religious site Halesi in Khotang district in the north. Both the sites are in 3-4 hours of travel distance by vehicle from the Tapli RM.

Table 62. Some vantage sites of tourism importance in the Tapli RM

Vantage sites	Ward name	Nearest settlement	Key features	Facilities
Sangechheling Monastery	Iname	Madire	Renowned monastery of Ningmapa sect	
Shiva Temple	Iname	Siddhetar		
Tapli Pokhari	Lekhgaun	Tapli Bazar	Pond; Devi Temple; Open medow; Local fair on New Year's day	View tower under construction; Rest house; Small tea shops
Barkhola Kakani Pokhari	Lekhgaun			
Observation place	Okhale	Jordhung	Temple	4-5 shops in Jordhunga; Local accomodation/fooding facilities
Shiva Temple	Okhale	Nunthala	Temple	
Kankai Mai	Rupatar	Dumre	Temple; Cave	
Maiyabari	Rupatar	Budhthoki Tole	Devi Temple	
Aaptar	Rupatar	Rupatar	Devi Than	
Yari Khola Daha, Kharsane	Rupatar	Khorsane	Water fountain; <i>Daha</i>	
Devi Temple	Thanagaun	Thamkharka	Temple, Bell	
Bhimsenthan	Thanagaun	Thulo Thumki	Temple	
	Thangaun	Jyamire	Foot print of Shiva jee	
Paguri Khola			Madesthan, Cave	

4.10 Trade

4.10.1 Market Centers

Tapli RM does not have any suburb and recognized market centers. However, there is a trend of increasing number of grocery stores called *Kirana pasal* in different settlements.

Katari Bazar is the nearest trading center located at 52 km distance from the municipality headquarters. People of the municipality rely on the this market for different supplies such as food items, agricultural inputs (seeds, chemical fertilizers, fertilizers, feeds), construction materials, grocery items, and medical supplies.

Table 63 enlists some growing market centers in the municipality .

Local Bazar	Ward name	Hotel	Grocery	Medicine	Tailoring	Electronics	Others	Total	Turnover (NPR)
Jamintar	Rupatar	3	2		1			7	20,000
Kumaltar	Rupatar	7	4	1	2	1		20	200,000
Thanagaun	Thanagaun								25,000
Nunthala	Okhale								3,000
Jordhunga	Okhale	2	2					4	15,000
Iname	Iname								
Narimala	Lekhgaun	1						1	
Tapli Bazar	Lekhgaun	1	1					2	
Total		14	9	1	3	1		34	263,000

4.10.2 Hat/Bazar

Table 64 shows some local fairs and traded commodities in the municipality.

A few weekly markets called *Hat* and annual festivals/markets called *Mela* are organized in Tapli RM. These Mela are organized to mark/celebrate the special events such as *Maghe Sankranti, Basanta Panchami, Ekadashi, and New Year*. People get the opportunities to trade their produce and buy items from the market. However, the weekly markets are not large enough to be effective for providing marketing outlets for improving rural economy. In the Mela, communities also observe sports and cultural performances.

Ward Name	Ward Name	Ward Name	Ward Name
Okhale	Okhale	Okhale	Okhale
Lekhgaun	Lekhgaun	Lekhgaun	Lekhgaun
Iname	Iname	Iname	Iname
Thanagaun	Thanagaun	Thanagaun	Thanagaun
Rupatar	Rupatar	Rupatar	Rupatar
Total	Total	Total	Total

4.10.3 Trade

The major traded items from the municipality are agriculture products such as vegetables, fruits, potato, blackgram, soyabean, bayleaf, large cardamom, ginger, broom grass and goats. Trading of milk products (especially the Ghee) also has been reported. However, fresh milk and milk products are not sold outside the municipality. Although a few cases of

commercial production of vegetable, fruits, cash crops, poultry, goat and pig are happening in the municipality, by and large agriculture is subsistence type and commercialization is not organized. There are no cooperatives or trade promoting institutions focusing exclusively for agricultural products, and tools and equipment's related to the agriculture. However, vegetable collection center has been initiated in Narimala of Lekhgaun. Some products from the municipality can be promoted as niche products such as blackgram, soyabean, potatoes etc.

4.11 Mines

Tapli Rural Municipality has both metallic and industrial mineral deposits. The metallic minerals are Pyrite [FeS_2] which is an ore of Sulphur deposits in small quantity near Gahate Khola and Gideri Gaun and Malachite [$\text{Cu}_2\text{CO}_3(\text{OH})_2$] a green colored copper is present in Khani Danda and Iname.

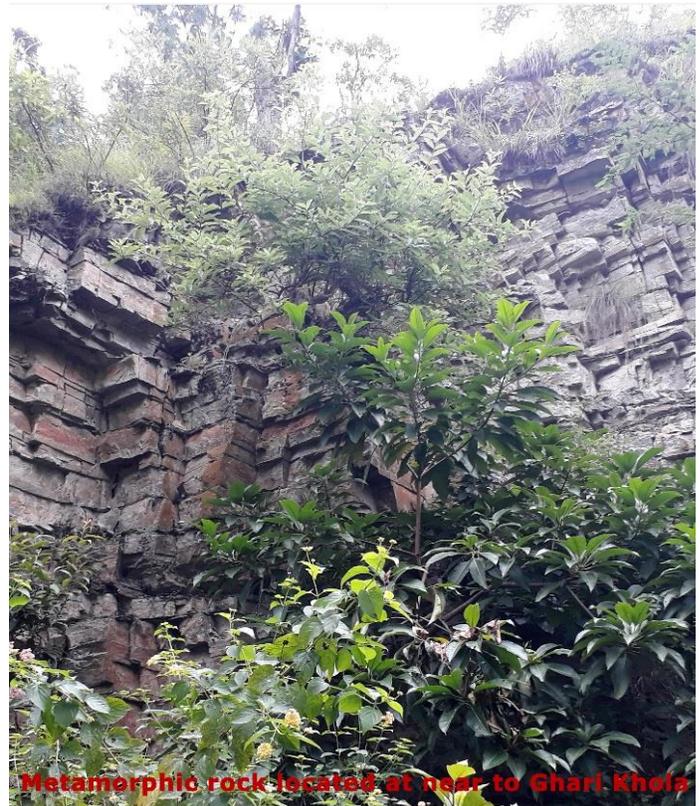
As industrial minerals, Limestone is present in the Thanagaun and Tare Vir area. It is grayish white to grey, found in thin to medium beds slightly weathered usable as a cement grade limestone.

Quartzite and Granite are good source of construction material present in lower and middle parts of Tapli Rural municipality.

Further, a detail geological assessment survey is required to determine both the quality and quantity content CaO , MgO and SiO_2 , and commercial exploration of these mines are next step to go forward.

In addition to these mineral resources, the municipality is rich in sand mines.

Sustainable extraction of sand mines located along the bank of Yari khola, Sorung khola, and Sunkoshi river can contribute in generating resources for the municipality. In these areas, there is reserve of $4,09,422 \text{ m}^3$ river oriented common construction materials such as sand, gravel, boulder etc. Of this $81,151 \text{ m}^3$ currently extractable without very minimum negative impact in local environment (TRM 2075) The rural municipality has infect conducted IEE for the sustainable management of these sand mines.



4.12 Social Infrastructures

4.12.1 Education Centers

i. Distribution of schools

All grades school level education is available in the municipality. There is altogether 38 number of schools in the municipality (Table 65). Okhale and Lekhgaun have the highest number of schools. Among categories, basic grade schools are higher in numbers in Okhale and Rupatar. Lekhgaun and Iname have separate primary education facilities, whereas such facilities in other wards are nested within the higher grade school structures.

Amongst schools structures, 45 percent are schools for basic education followed by the secondary schools.

The higher secondary education facilities are available in Okhale, Iname and Rupatar.

Annex. for the detail about school education data.

Table 65. Number and percentage distribution of school level education in the Tapli RM, 2019

Ward	Basic (1-3 grade)	%	Primary (1-5 grade)	%	Low er Secondary (1-8 grade)	%	Secondary (1-10 grade)	%	Higher secondary (1-12 grade)	%	Total	% of total education
Okhale	5	29	0	0	2	25	1	17	1	33	9	24
Lekhgaun	3	18	2	50	2	25	2	33	0	0	9	24
Iname	3	18	2	50	0	0	1	17	1	33	7	18
Thanagaun	2	12	0	0	3	37.5	1	17	0	0	6	16
Rupatar	4	24	0	0	1	12.5	1	17	1	33	7	18
Total	17	100	4	100	8	100	6	100	3	100	38	100
%	45		11		21		16		8			

ii. Students and teachers in schools

Table 66 and Figure 46 shows status of number of students and teachers in the different educations of the TRM.

Total 3,588 students are studying at the different levels of education centers, which accounts for 23.95 percent of municipality population. Of this, students in the secondary grade proportionate the highest about 10 percent followed by the students in basic education (more than 6 percent). Of students, 51 percent are female. Similarly, a total of 157 number of teachers comprised by 57 percent of male and 43 percent of female have direct involvement in the schools.

Teacher-student ration in the municipality ranges from 1:18 in basic schools to 1:31 in high secondary schools.

Table 66. Number and oercentage distribution of school level education in the Taoli RM. 2019

Category of education centers	Teacher			Student			% against TRM population	Teacher/ student ratio	
	Male	Female	Total	Male	Female	Total			
Basic		27	26	53	485	461	946	6.32	18
Low er secondary		25	15	40	348	393	741	4.95	19
Secondary		28	22	50	742	729	1471	9.82	29
Higher secondary		10	4	14	195	235	430	2.87	31
Total		90	67	157	1770	1818	3588	23.95	

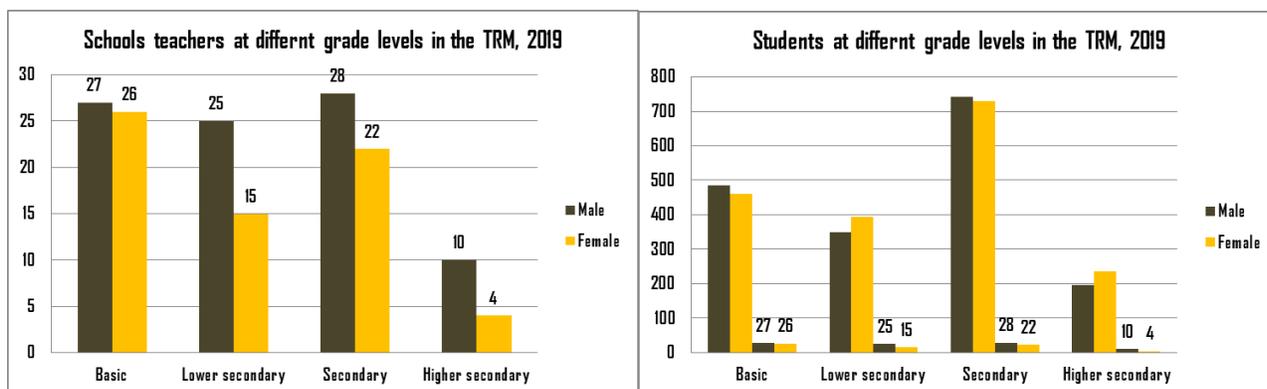


Figure 46. Bar diagram showing number of students and teachers in different grade education centers in the Tapli RM, 2019

iii. Basic education scenario

Basic education implies for 1 to 3 grades level education. A total of 17 schools in different wards are evidenced. In this level, 964 students with 51 percent of male and 49 percent of female students obtain basic education, and a total of 53 teachers are involved in this level. Within this level, a greater proportion of wards population of the Okhale (more than 15 percent) are getting education.

Teacher-student ratio varies wardwise from 14 in Rupatar to 42 in Thanagaun. Basic schools in Thanagaun has much pressure of students in terms of teacher-student ration.

Table 66 and Figure 47 show the status of teachers and students in different wards of the municipality.

Table 66. Number and percentage teachers-students in wardwise basic education in the Tapli RM, 2019

Wards	Basic school level education						Ward population	% against ward population	Teacher/student ratio
	Teacher			Student					
	Male	Female	Total	Male	Female	Total			
Okhale	9	13	22	191	192	383	2525	15.17	17.41
Lekhgaun							2545	0.00	
Iname	6	7	13	124	109	233	3160	7.37	17.92
Thanagaun	2	1	3	66	60	126	2831	4.45	42.00
Rupatar	10	5	15	104	100	204	3928	5.19	13.60
Total number within levels	27	26	53	485	461	946	14989		
% number within level	50.94	49.06	100	51.27	48.73	100			

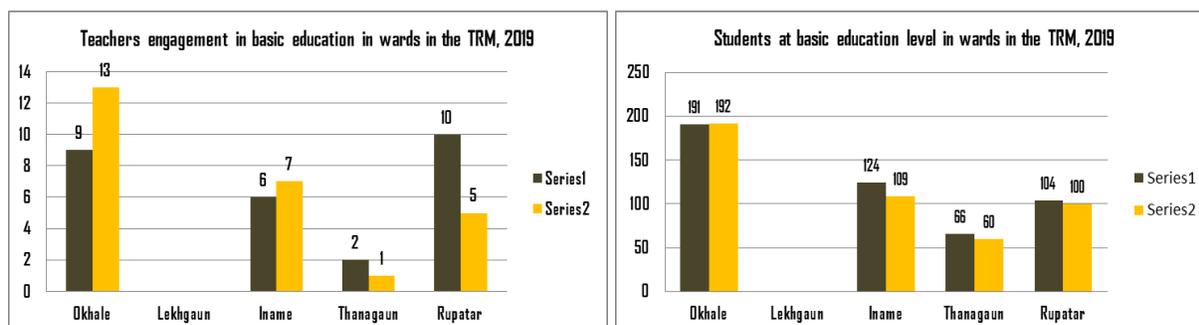


Figure 47. Bar chart showing number of students and teachers in basic education in wards of the Tapli RM, 2019

iv. Lower secondary education scenario

Table 67 and Figure 48 show the status of the lower secondary level education in the TRM.

The lower secondary education is entertained by about 5 percent (741 numbers) of the total population of the municipality. Of this, male and students includes 47 percent and 53 percent respectively. Amongst the wards, more than 9 percent of wards population of Okhale has been studying in this grade. Similarly, there are 40 teachers involved in teaching practice with 25 male and 15 female teachers.

Teacher-student ratio in this grade ranges from 16 in Okhale to 28 in Thanagaun.

Table 67. Number and percentage teachers-students in wardwise lower secondary level education in the Tapli RM, 2019

Wards	Lower secondary level education									
	Teacher			Student			Ward population	%against ward population	Teacher/student ratio	
	Male	Female	Total	Male	Female	Total				
Okhale	9	6	15	112	124	236	2525	9.35	15.73	
Lekhgaun							2545	0.00		
Iname	4	5	9	63	89	152	3160	4.81	16.89	
Thanagaun	5	3	8	105	116	221	2831	7.81	27.63	
Rupatar	7	1	8	68	64	132	3928	3.36	16.50	
Total number within levels	25	15	40	348	393	741	14989			
%number within level	62.5	37.5	100	46.96	53.04	100				

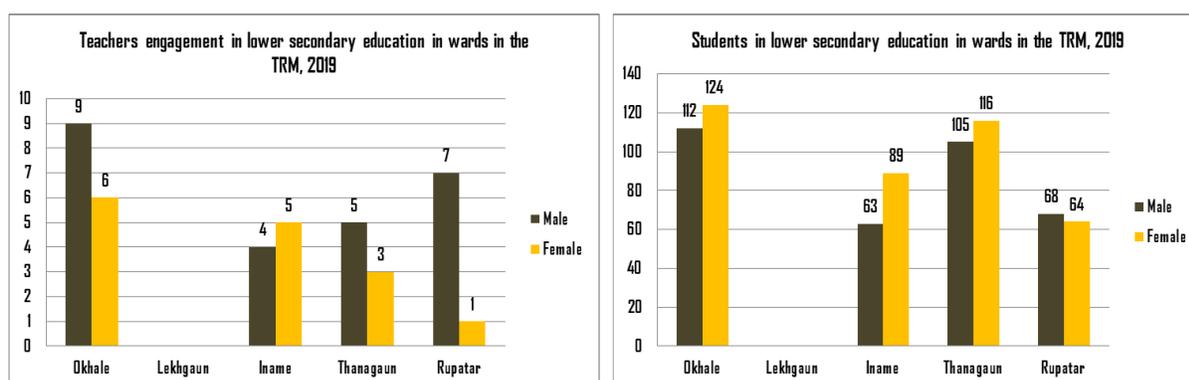


Figure 48. Bar chart showing number of teacher-students in the lower secondary level education in wards of the Tapli RM, 2019

v. Higher secondary education scenario

About 10 percent of population of the municipality has been engaged in the higher secondary education. Total 1,471 numbers of the students are under this grade almost with equal proportion of the male and female students. Amongst wards, nearly 21 percent of wards population of Rupatar has the higher secondary level education followed by Okhale and Thanagaun.

A total of 50 teachers are engaged in the higher secondary education, which includes 56 percent of male population.

Teacher-student ratio in this grade education system ranges from 19 in Thanagaun to 37 in Rupatar.

Table 68 and Figure 49 show the status of the higher secondary level education in the TRM

Table 68. Number and percentage teachers-students in wardwise higher secondary level education in the Tapli RM, 2019

Wards	Secondary level education							Ward population	%against ward population	Teacher/student ratio
	Teacher			Student						
	Male	Female	Total	Male	Female	Total				
Okhale	7	5	12	196	167	363	2525	14.38	30.25	
Lekhgaun							2545	0.00	0.00	
Iname							3160	0.00	0.00	
Thanagaun	9	7	16	134	166	300	2831	10.60	18.75	
Rupatar	12	10	22	412	396	808	3928	20.57	36.73	
Total number within levels	28	22	50	742	729	1471	14989			
%number within level	56.00	44.00	100	50.44	49.56	100				

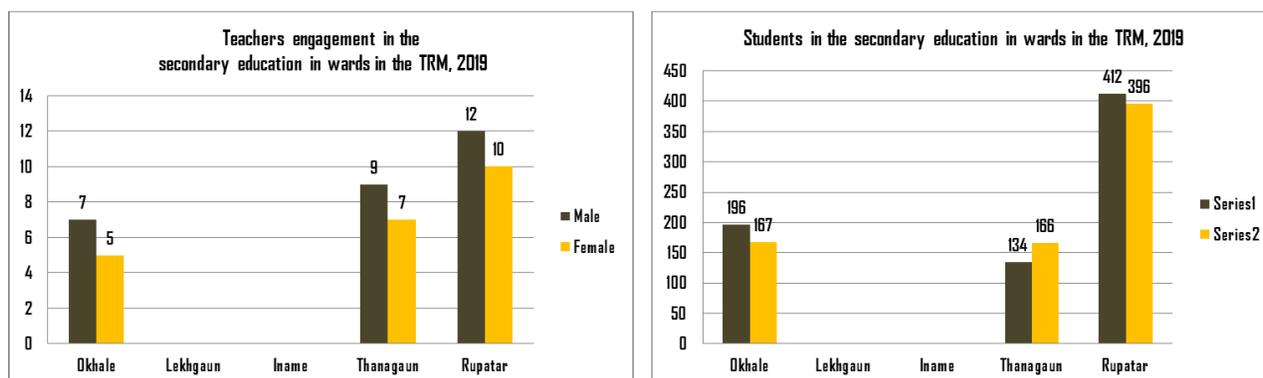


Figure 49. Bar chart showing number of teacher-students in the higherr secondary level education in wards of the Tapli RM,

vi. Higher education scenario

Table 69 shows the status of higher level education in the municipality. This table does not cover the information from 10+2 level from the Mehendra Ratna Bidhya Mandir of Rupatar because of unavailability of data during data processing.

Nearly three percent of municipality population has been studying to this grade of education from Iname. More girl students (55 percent) are enrolled. Similarly, there are 14 teachers in total including 10 male and 4 female.

Teacher-student ratio in this grade equation is 14.

Table 69. Number and percentage teachers-students in wardwise higher higher educaiton in the Tapli RM, 2019

Wards	Higher secondary level education						Ward population	%against ward population	Teacher/student ratio
	Teacher			Student					
	Male	Female	Total	Male	Female	Total			
Okhale							2525	0.00	0.00
Lekhgaun							2545	0.00	0.00
Iname	10	4	14	195	235	430	3160	13.61	30.71
Thanagaun							2831	0.00	0.00
Rupatar							3928	0.00	0.00
Total number within levels	10	4	14	195	235	430	14989		
%number within level	71.43	28.57	100	45.35	54.65	100			

vii. School infrastructure

Iname, Okhale and Rupatar have double-storied stone-cement school building for higher secondary and higher education. All basic level schools are metal roofed.

All schools have San-Toilet system separately for students and teachers.

No schools has specified sport grounds

4.12.2 Health

i. Major health incidences

Survey reported frequent and common health ailment in the municipality as the case of hands and legs fracture; bacterial and viral infections; first aid cases; occurrence of diarrhea and dysentery and so one. Annex 70 enlists the health cases reported in the health posts in wards' health post.

ii. Health service centers

Table 70 shows the status of health services and facilities available in each ward of the municipality.

The government has made efforts for one ward one health post approach in the municipality, so five health post one in each ward are in operation. All wards except in Lekhgaun have facilities for the birth center. None of the post has doctor and nurses, but assistant health workers and auxiliary nurse midwives. Okhale has ambulance services.

Table 70 . Status of health facilities in the Tapli RM, 2019

Wards	Clinical Type	Number	Key service	Human resource availability						Structural facilities			
				Doctor	H.A	Nurse	A.H.W	A.N.M	Lab technician	Building	Bed	Equipment	Other
Okhale	Health post	1	Birth center	0	1	0	2	2	0			General	
Lekhgaun	Health post	1	General services	0	1	0	2	2	0	2	5	General	Ambulance
Iname	Health post	1	Birth center	0	1	0	2	2	0			General	
Thanagaun	Health post	1	Birth center	0		0	1	2	0			General	
Rupatar	Health post	1	Birth center	0	1	0	1	1	0			General	
	Total			0	4	0	8	9	0	2	5		

iii. Major treatment

For major and critical treatments, people generally visit nearby hospital in Katari, Udayapur. In more severe cases, people go either to Dharan and Biratnagar or Kathmandu.

4.12.3 Road Network

Tapli RM is linked with a strategic road the Sunkoshi corridor of almost 5 km distance from the stretch of the Rajdaha area to teh Sorung in the ward-5 (Rupatar), which is under construction. This road greater significance to improve socio-economy of the municipality

The district road linkage to the headquarter of the municipality has direct connection to the Katari Municipality of Udayapur district, which is 52 km from Rupatar. This road links the East-West Highway in Mirchaiya of Siraha district.

The municipality has one the largest road network that encircles Rupatar, and connects all wards, the road often called ring road. Further, there are many agricultural networks of total length of 136.16 km (Table 71 and Figure 50).

Table 71 . Road network in Tapli RM from sources to destinations, 2019

SN	Road network	Length of road networks in wards						Total
		Outside TRM	Okhale	Lekhgaun	Iname	Thanagaun	Rupatar	
A.	Roads							
1	Ring road connecting all wards		12.7	15.4	16.3	2.8	17.7	65.01
2	Agriculture and link roads							0.00
	<i>Dhuseni Dandagaun</i>				1.5			1.54
	<i>Jhilke Iname</i>				0.6			0.64
	<i>Jhilke Pipaldanda</i>				3.8			3.78
	<i>Kamere Dobato</i>				0.1			0.10
	<i>Kumaltar Nibuwatar</i>						1.7	1.73
	<i>Kumaltar Pipal Bhanjyang</i>		2.6				5.6	8.21
	<i>Madire Dagale</i>			0.8	3.2		0.5	4.51
	<i>Madire Mandata</i>				0.3			0.29
	<i>Narimala Lekhgaun</i>			4.7				4.65
	<i>Nibuwatar Besitar</i>		1.4				1.1	2.53
	<i>Nigalbas Khopgaun</i>				2.0			2.02
	<i>Okhale Gauntar</i>		2.3	3.7				6.05
	<i>Okhale Phalante</i>		3.9					3.93
	<i>Pipaldanda Barbhanjyang</i>			2.7	1.0		0.1	3.81
	<i>Rachane Yarikholagaun</i>				0.4			0.36
	<i>Runche Jhilke</i>				2.9			2.91
	<i>Rupatar Barbhanjyang</i>						9.2	9.15
	<i>Tapli Hattitar</i>			0.9	5.7			6.60
	<i>Thanagaun Aanpchaur</i>					1.8		1.81
	<i>Thanagaun Baspani</i>					1.1		1.11
	<i>Thanagaun Bhirgaun</i>					1.3		1.31
	<i>Thanagaun Thumki</i>					2.4		2.44
	<i>Tilkechaur Gahate</i>						1.7	1.67
	Subtotal	0	23.03	28.21	37.86	9.51	37.55	136.16
B.	Rural road							
1	District roads (Rupatar-Betani-Katari)	52	0	0	0	0		52
C.	Strategic road							
1	Sunkoshi corridor		0	0	0	0	5	5

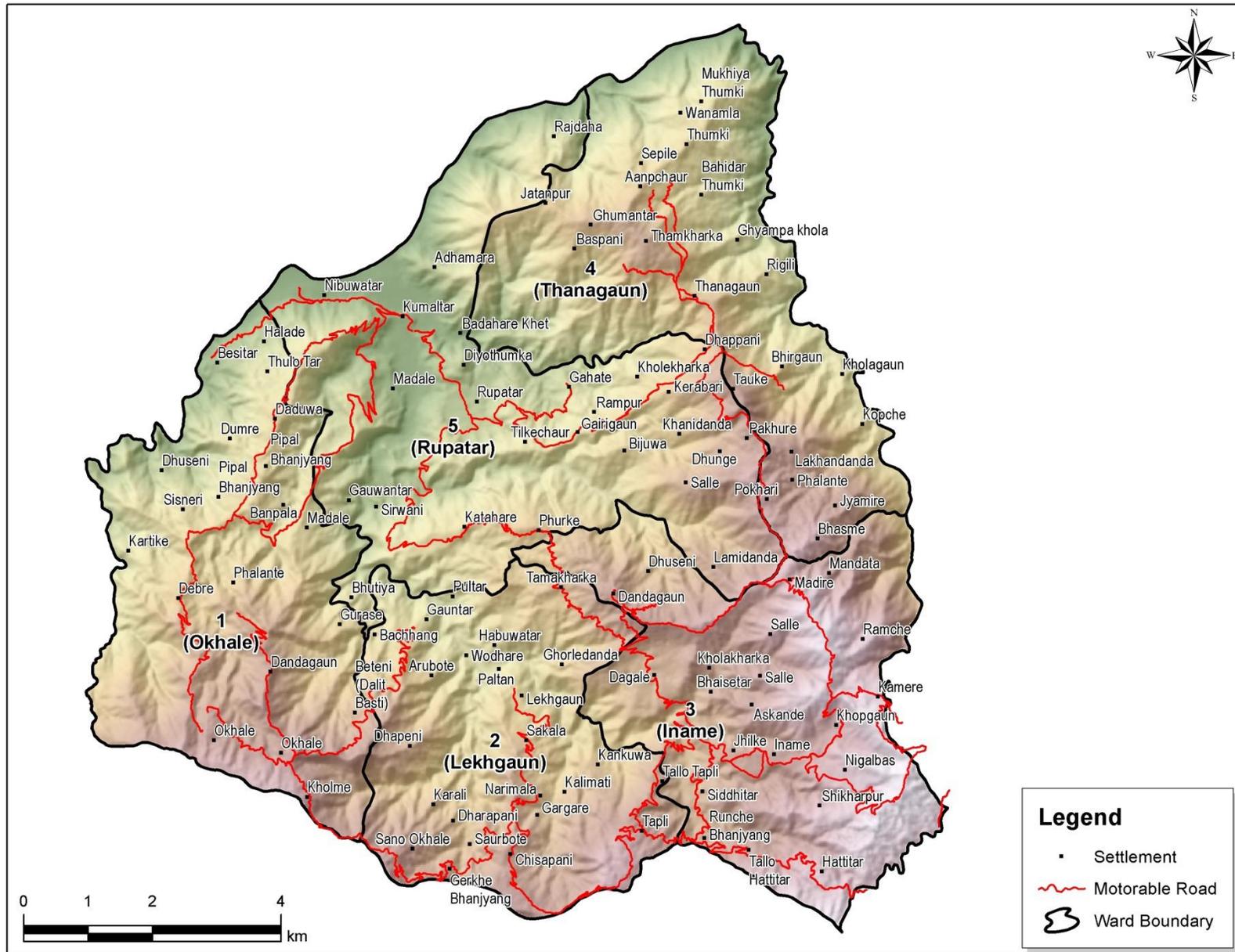


Figure 50. Road networks in the wards of the Tapli RM, 2019

4.12.4 Irrigation

There is no Agency Managed Irrigation System in the Tapli RM. However, there are many Farmers' Managed Irrigation System (FMIS)

4.12.6 Electricity

There are three micro hydro power plants altogether generating power of 63 KW. The power is being generated from Nunekhola (15 KW) providing electricity to ward-1 (Okhale), Rakula khola (25 KW) to ward-4 (Thanagaun) and Yari Khola (23 KW) to Ward 5 (Rupatar).

The municipality is in a good progress of connecting it with the National Grid.

4.12.6 Industry/Enterprises

Tapli RM does not have industries as such like production oriented; export oriented; energy oriented; tourism; construction and mining industries; and information and communication technology industries. However, the municipality holds service industries in all wards like rice and grinding mills within fixed capital assets up to NPR 0.2 million. All mills are in operation. Further, some people has been operating small microenterprise specially poultry in all wards.

4.12.7 Post Office

There is an extension service for postal delivery, which is operated from different satellite centers. For example, Thanagaun and Rupatar have temporary postal service literally called *Atirikta Hulak* administered from the Area Office (*Ilaka Karyalaya*) of the General Post Office of Sorung. Okhale and Lekhgaun have *Atirikta Hulaki* operated from Area Office, Katari. Iname has a full Area office. Each unit office has four government paid staff, so there are 20 staff for postal services in the municipality.

These offices have occasional postal delivery specially the official documents. Increasing uses of internet and social networks have reduced the engagement of postal services.

4.12.8 Sports

There is no sport infrastructure in the municipality. However, schools and clubs occasionally organize some sport event especially the football and Volley Ball.

The municipality annually sponsors the Volley Ball event in the New Year in the Tapli Bazar with a motif to promote tourism in the Tapli Danda.

The municipality is in the process of preparing a sport ground in the Kumale Danda, Rupatar.

GOVERNANCE AND INSTITUTION

5.1 Institution

The Figure 51 shows the locations of the different institution and other prime locations.

5.1.1 Tapli Rural Municipality

i. Municipality office

The Tapli RM has its full time secretariat in the Jamintar of Rupatar. Currently, it does not have its own building complex. The municipality executes programs with a group of staff comprising both administrative and technical subgroups. Currently, there are 46 staffs working in the municipality. Of these 46 staffs, 25 are permanent and 21 are temporary staff on contractual basis. Of these, 17 are administrative and 29 are technical staff categorized under 3 gazetted, 34 non-gazetted officers and 9 helpers. Currently 14 positions are vacant.

Table 72 enlists status of staff engagement in the Tapli RM.

Table 72. Categories of human resources employed and vacant positions in the Tapli RM, 2019

SN	Position	Number	Level		Position	Number	Level	<i>D. Vacant position</i>	Number	Level	
	<i>A. Administration</i>			4	Agriculture Assist	3	NG-I	1	Education Officer	1	G-II
1	Chief Admin Officer	1	Gazetted III		Sub total	25		2	Civil Engineer	1	G-II
2	Administrative Assistant	1	NG-I		<i>C. Contract/temporary staff</i>			3	Admin Assist	4	NG-I
3	Account Officer	1	NG-I	1	Civil Engineer	1	G-III	4	Admin Assist (Law)	1	NG-I
4	Account Asst	1	NG-II	2	IT Officer	1	G-III	5	Account Assist	1	NG-I
5	Admin Asst	3	NG-II	3	Sub Engineer	1	NG-I	6	Sub Engineer (Civil)	1	NG-I
	Sub total	7		4	Miscellaneous	1	NG-I	7	Sub Engineer (Architect)	1	NG-I
	<i>B. Technical</i>			5	Admin Asst	1		8	Environment Monitor	1	NG-I
1	Health Worker	9	NG fourth	6	Agriculture Assist	5	NG-II	9	Ward Secretaries	3	NG-I/II
2	Health Worker	5	NG fifth	7	Health worker	2	NG-II	Sub total	14		
3	Health Worker	1		8	Helper	9	Class less				
4	Agriculture Assist	3	NG-I		Sub total	21					

ii. Ward offices

All wards have their offices. Wards Iname and Rupatar have own building, assets and human resources, but rest of three wards have rental offices.

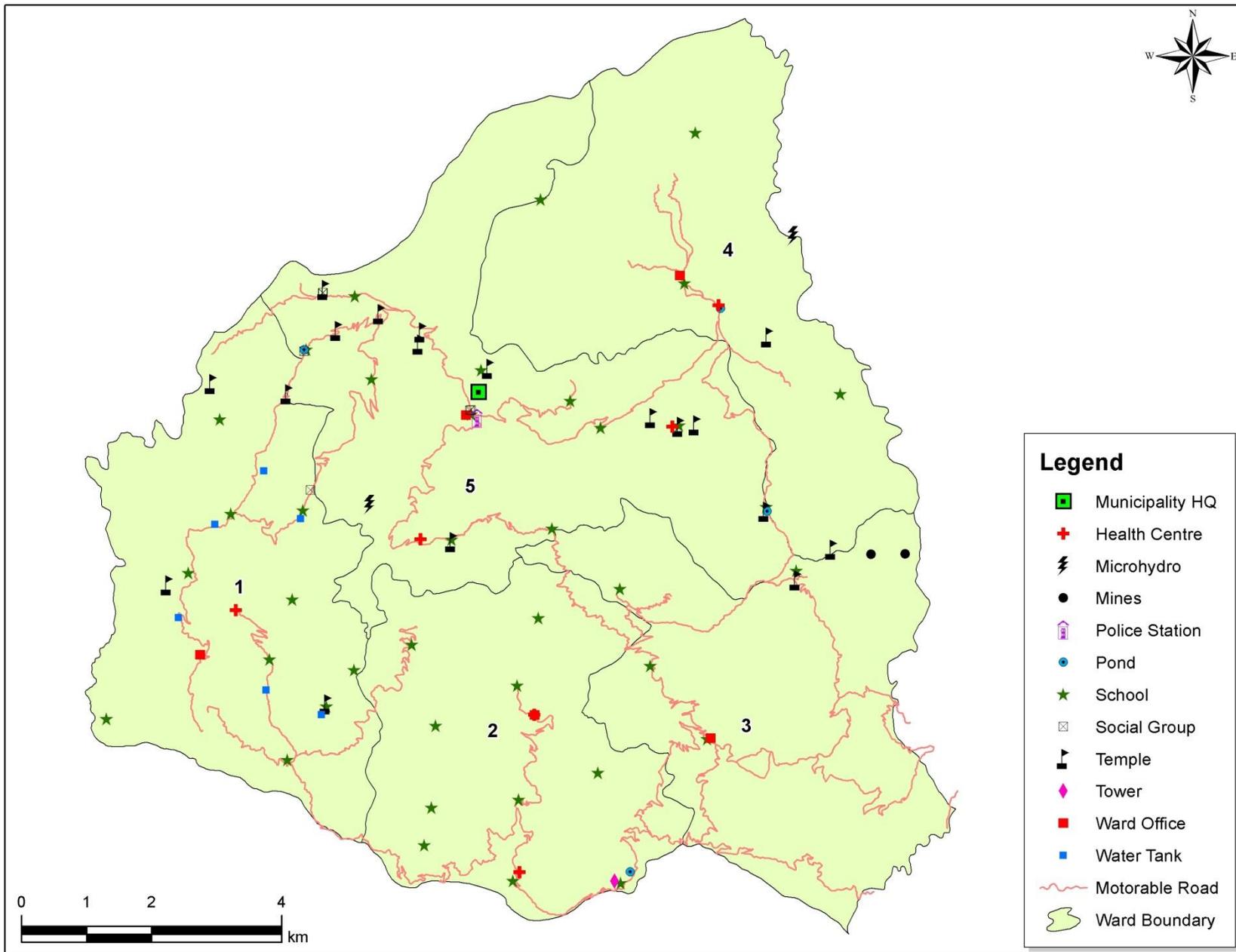


Figure 51. Location of different institutions and prime places in the Tapli RM, 2019

5.1.2 Corporate Institution

i. Prime bank

There is a 71th branch office of the Prime Commercial Bank Limited located in the Jamintar of the headquarters of the municipality, Rupatar. This is in operation from January 9, 2019 with a total number of six staff including four staff from the municipality area. The bank has daily transaction ranging from NPR 0.2 to 0.3 million.

The key services of the bank include remittance transfer; cheque clearance; Inter Bank Panel System (IPS) transfer. Further, it provides credit loan to the local traders and businesspersons, and farmers.

The telephone contact of bank is 027-691280 and 027-69 82 74.

ii. Other

There is no other corporate office in the municipality.

5.1.3 Non-Governmental Organization

Six non-governmental organizations (NGOs) are active in the municipality. Table 73 enlists NGOs and their priority intervention sector and target sites where they act.

The key areas of NGOs interventions are in water, sanitation and hygiene, agriculture and education. NGOs in these sectors make annual investment of NPR xxx ,which is xxx percent of investment that the municipality makes every year.

Table 73. Status of non-governmental organization in the Tapli RM, 2019

Name	Key intervention sector	Target beneficiaries HHs				Investment in 2019 (NPR)
		Okhale	Lekhgaun	Iname	Thanagaun Rupatar	
1. World vision	Health, drinking water					
2. Sahas Nepal	Education, health					
3. Hurendec	Agriculture					
4. Jalpa Yuba Samaj	Health, education					
5. Nepsec	Health					
6. Bal Bikash Samaj	Agriculture					

5.1.4 Social Institutions

i. Club

Table 74 enlists wardwise status of clubs in the municipality.

There are quite a number of clubs in different wards. None of the clubs is financially viable, and has full time running office and staff. Mostly, they do non-formal works such as organize occasional sports' events and cultural performances, public awareness, participate in local events and so on. They do run from the individual donation and from the fund raised in special occasion like *Deusi-Bhailo* in the *Tihar*

Rupatar has the Sunkoshi Youth Club based in the Jamintar. It has its own building and assets.

Most of the clubs are silent.

Table 74 Clubs in the Tapli RM, 2019

Name	Key intervention sector	Target beneficiaries HHs			Investment in 2019 (NPR)
		Okhale	Lekhgaun	Iname	
1. World vision	Health, drinking water				
2. Sahas Nepal	Education, health				
3. Hurendec	Agriculture				
4. Jalpa Yuba Samaj	Health, education				
5. Nepsec	Health				
6. Bal Bikash Samaj	Agriculture				

ii. Cooperatives

There are 10 numbers of cooperatives in the municipality. Rupatar and Iname have more number of cooperative. In total, they do economic activities of their group members, and makes a total transaction of NPR XXX annually. Table 75 enlists wardwise status of cooperatives in the municipality.

Table 75. Cooperative in the Tapli RM, 2019

Name	Wards	Establishment date	Key Intervention	Cooperative members			Turnover (NPR)		Status
				Male	Female	Total	Monthly turnover	Balance at end	
Mahabharat Citrus cultivation cooperative,	1		Orange farming						
Sagarmatha Agricultural cooperative	1								
Lekhbesi Cooperative	2		Saving credit						
Yari agricultural cooperative,	3								
Pushpanjali Women multipurpose cooperative	3		Multipurpose						
Runchebhnajyang Cooperative	3								
Sajhacooperative	4		Saving credit						
Ruparani Cooperative	5		Saving credit						
Parribartansil Agriculture cooperative	5								
Bihani Agricultural cooperative	5								
Total									

iii. Women/Mother's Group

Table 76 below enlists women and mother groups in the municipality.

The female members are organized either in women or in mother groups, which are non-formal groups' organization prevailing in all wards. Each member of the particular group raises group-fund from monthly contribution, which they decide in group, ranging from NPR 10 to NPR 100.

These groups are loose but social organization with strong bond to resolve many issues mostly the associated problems of women members. Such issues range from solving economic problems of members from group fund to the issue like conflicts between life partners. The group funds are mobilized through the consensus of members, and such mobilization sometime observed like informal group banking to support small business and trade, equivocally like making economic sovereignty of the women.

Most of the groups are active weekly in performing village sanitation and other specific task they decide through monthly meeting.

Most of the women/mother groups are silent.

Table 76. Women and mother groups in the Tapli RM, 2019

Name	Wards	Establishment date	Key Intervention	Turnover (NPR)		Status and other key activities
				Per member/months	Balance at end	
Laligurans Women group	1		Saving credit			
	2		Saving credit			
Dangale women group	3		Saving credit			
Chetana women group	3		Saving credit			
Lekhali women group	3		Saving credit			
Makhamali women group	3		Saving credit			
Sayapatri women group	3		Saving credit			
Deurali women group	3		Saving credit			
Deusivailo women group	3		Saving credit			
Nigalbas women group	3		Saving credit			
Total						

5.2 Policy Instrument of the Rural Municipality

The municipality has enacted many policy and programs. Those are:

- 1.
- 2.
- 3.
- 4.
- 5.

5.3 Revenue Mobilization

5.3.1 Source of Revenue

A review of Annual policy and plan for the fiscal year 2074/75 and annual budget for 2075/76 is assessed to get the general financial pattern of the municipality. The TRM has a total income of NPR 260,646,679 from the sources as in Table 77.

SN	Source	Amount
1	Projected income from tax, fee etc.	704,000
2	Equalization grant from the federal government	133,672,000
3	Conditional grant	119,975,000
4	Balance from the previous year	6,295,679
	Total	260,646,679

5.3.2 Revenue Mobilization

Of total income, excluding the conditional grant, the expenditure plan for 2074/75 BS was proposed as in Table 78.

SN	Expense category	Amount	Percent
1	Recurrent expenses	36,744,000	26.12
2	Capital expenses	103,927,679	73.88
	Total	140,671,679	100

The capital expense has been allocated under different themes as shown in the Table 79. The largest amount over 44% has been allocated to the infrastructure development i.e. more than 44 percent followed by the economic development.

SN	Theme	Amount	Percent
1	Economic Development	12,125,500	11.67
2	Social development	17,242,500	6.59
3	Infrastructure development	46,190,000	44.44
4	Environment and disaster management	1,520,000	1.46
5	Institution Development, Service Delivery and good governance	2,050,000	1.97
6	Contribution to various fund	13,078,679	12.58
7	Unspecified	11,721,000	11.28
	Total	103,927,679	100

Sector and themewise revenue mobilization is in Table 80.

Table 80. Use of revenue in sectoral program in 2018 in Tapli RM, 2019		
SN	Theme/subtheme	Amount
A	Economic Development	
1	Agriculture	9,975,540
2	Industry and commerce	650,000
3	Tourism	700,000
4	Cooperatives	800,000
	Sub total	12,125,540
B	Social development	
1	Education	2,000,000
2	Health	900,000
3	WASH	10,350,000
4	Culture promotion	1,550,000
5	Sports and entertainment	350,000
6	Gender equity and social inclusion	2,092,500
	Sub total	17,242,500
C	Infrastructure Development	
1	Local roads	24,800,000
2	Irrigation	6,050,000
3	Building and Urban dev	5,440,000
4	Electricity	9,900,000
	Sub total	46,190,000
D	Environment and Disaster management	
1	Soil conservation	1,100,000
2	Waste management	300,000
3	Disaster management	120,000
	Sub total	1,520,000
E	Institutional development	
1	Security management	500,000
2	Information technology	250,000
3	Documentation management	250,000
4	Data collection and management	500,000
5	Good governance promotion	550,000
	Sub total	2,050,000
F	Other	
1	Contribution for repair maintenance fund, disaster management, Supplementary fund	13,078,679
	Sub total	13,078,679

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