Government of Nepal

Ministry of Urban Development

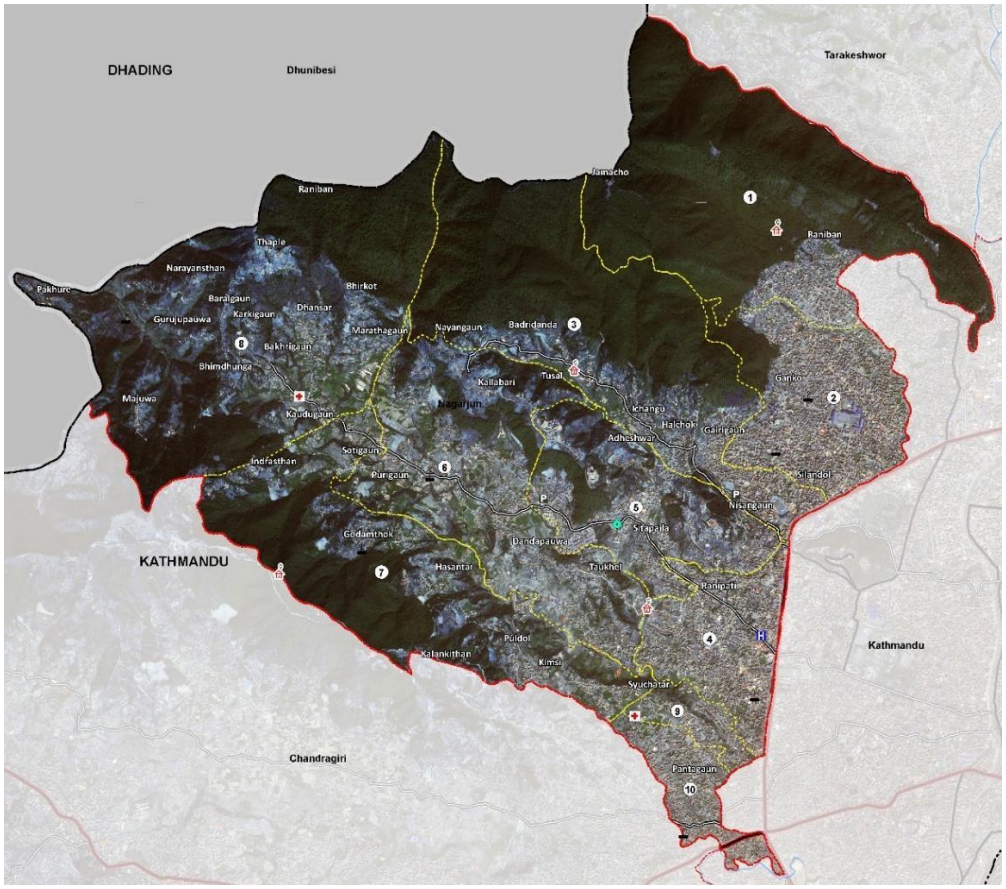
Department of Urban Development and Building Construction

Babar Mahal, Kathmandu

PREPARATION OF INTEGRATED URBAN DEVELOPMENT PLAN OF 14 MUNICIPALITIES

CONTRACT ID: DUDBC/CS/QCBS – 11-074/75

Volume II/ V: Municipal Profile of Nagarjun Municipality



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Study Team

Acronym & Abbreviation

DCRN : District Road Core Network

DTMP : District Transport Master Plan

DWSS : Department of Water Supply and Sewerage KUKL : Kathmandu Upatyaka Khanepani Limited MLD : Millions Litre Per Day

NWSC : Nepal Water Supply Corporation PCC : Plain Cement Concrete

RCC : Reinforced Cement Concrete

VDCs : Village Development Committees WSSB: Water Supply and Sewerage

BM : Bench Mark

CAD : Computer Aided Design

DGPS : Differential Global Positioning System

DUDBC : Department of Urban Development and Building Construction DEM : Digital Elevation Model

DTM : Digital Terrain Model GCP : Ground Control Points

GIS : Geographical Information System GoN : Government of Nepal

Ha. : Hectares

ISO : International Standards Organization Km : Kilometer

M : Meter

Mm : Millimeter

UTM : Universal Transverse Mercator MSL : Mean Sea Level

NEA : Nepal Electricity Authority

NTC : Nepal Telecommunication

Corporation NWSC : Nepal Water Supply

Corporation

PCO : Project Coordination Office

PIU : Project Implementation

Unit RMS : Root Mean Square

RMSE : Root Mean Square

Error TBM : Temporary Bench

Mark sq. km. : Square Kilometer

TIFF : Tagged Image File Format

VDC : Village Development Committee

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Executive Summary

Rapid urbanization in many developing countries has resulted in high concentration of urban population in large cities. In Nepal, population is concentrated mainly in Kathmandu Valley and other cities of Terai or fertile valleys. As its consequence these large cities are failing to cope with the demand of infrastructure services and job opportunities and are increasingly reeling under the externalities of the haphazard urbanization. Environmental degradation, congestion, urban poverty, squatter settlements, unemployment and lagging provisions of infrastructure services have become increasingly visible phenomenon in these large cities. Hence, much of the economic gains acquired from urbanization have been eroded from its negative externalities. Despite non- agricultural sector being a major contributor to gross domestic product (GDP), urban centers in the country have yet to emerge as the engines of economic growth and contribute to reduction of urban or rural poverty alike.

Despite all these problems, government's responses have been grossly inadequate. The responses tend to be scattered and ad-hoc rather than planned and coordinated. A weak institutional capability has been one of the leading factors in poor performance of the government agencies. Above all, lack of the long-term development perspectives or plans has led to uncoordinated actions of agencies involved in urban development. Therefore, the result is poor or limited impact in urban development efforts. Consequently, economic development has not taken place in the desired manner consistent with the pace of population growth.

Keeping in view of context of rapid urbanization, the Government of Nepal has enacted and has been implementing National Urban Policy since 2007 and National Urban Development Strategy since 2016. As per the constitution 2072, the country has been restructured into three level of governance, i.e. Federal, Provincial and Local levels. As the country has been restructured into 7 Provinces and 753 Local levels, numerous roles and responsibilities undertaken by the erstwhile central government has been devolved to the provincial and local governments. The role and responsibilities as well as jurisdiction of local governments has been broadened largely. However, due to the confusion in devolution of power, lack of policy and programs, and largely due to the lack of human resources and financial means, the provincial and local governments have not been able to function efficiently as anticipated. In this regard, the recently enacted Local Government Operation Act has tried to outline clearly the role and responsibilities as well as jurisdiction of local governments, and has been a stepping stone for the effective governance of the local governments.

Therefore, as a long-term policy initiative, GON is providing technical and financial support to 185 municipalities to facilitate the Integrated Urban Development Plan (IUDP) preparation, urban base map and profile of base information; building bye-laws and to promote their planned development and improvement in the quality of life of people of new urban towns.

The Integrated Urban Development Plan (IUDP) of 14 municipalities is a strategic response to the 15 year growth of these municipalities, which brings together infrastructure provision, environmental management, economic growth, disaster preparedness, municipal service delivery and mainstreaming gender equality and social inclusion.

The study is limited to the preparation of Integrated Urban Development Plan of 14 municipalities of Province 3; 11 of which are within the Kathmandu Valley and 3 outside the Valley. The municipalities under the study are clustered in 5 different district, viz. Mahalaxmi Municipaltiy of in Lalitpur District, Suryabinayak Municipality of Bhaktapur District, Shankharapur, Kageshwori Manohara, Gokarneshwor, Budhanilkantha, Tokha, Tarkeshwor, Nagarjun, Chandragiri and Dakshinkali Municipalities of Kathmandu District, Belkotgadhi Municipality of Nuwakot District, Dhunibeshi Municipality of Dhading District and Rapti Municipality of Chitawan District.

Nagarjun Municipality is in Provience No. 3. The total area of the municipality is 29.8 sq. km. The municipality has been divided into 10 wards for the efficient administration. Nagarjun Municipality was declared on 22th Chaitra 2073 merging five VDCs, Bhimdhunga, Ichangu Narayan, Ramkot, Syuchatar and Sitapaila of Kathmandu. The municipality is bounded by Kathmandu metropolitian city in the East, Dhunibesi municipality in the West, Tarkeshwor municipality in the North and Chandragiri municipality and Kritipur municipality in the South.

Vision of Nagarjun must incorporate an identity for the city.

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Through research and community engagement, the IUDP includes analysis, strategic policy and practical actions to improve physical infrastructure, social infrastructure, risk sensitive land use, environment management at town level with proposals for capacity building and institutional strengthening of municipal authority. The IUDP also focuses on improving the conditions of women, the poor and the excluded by undertaking a community development program and gender equality and social inclusion activities through the Social Development Plan.

The IUDP consists of five volumes and includes following documents.

Volume I: Main Report
Volume II: Municipal
Profile Volume III: Maps
Volume IV: Detail Engineering
Design Volume V: Building Bye-
laws

The municipal profile covers the existing scenario of the municipality. The report consists of description of the historical background, topography, demography, physical scenario, social scenario, economic scenario, environmental and ecological status, disaster scenario, land use and urbanization and institutional and financial scenario of the municipality. The existing scenario of the municipality is based on the secondary data received from the municipality.

Chapter 1: NAGARJUN MUNICIPALITY

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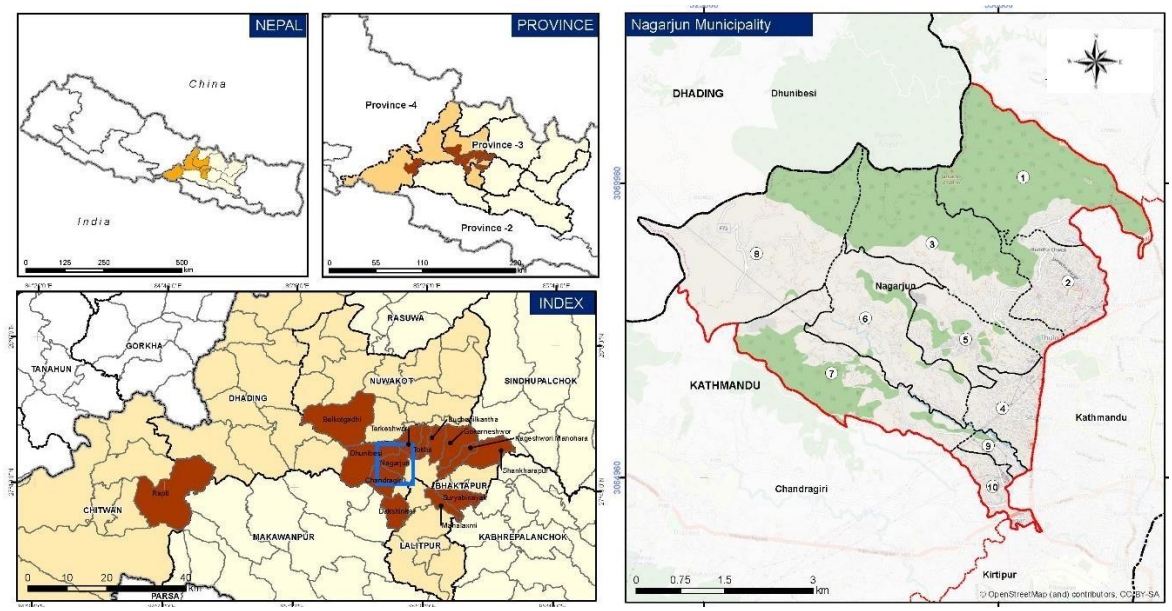
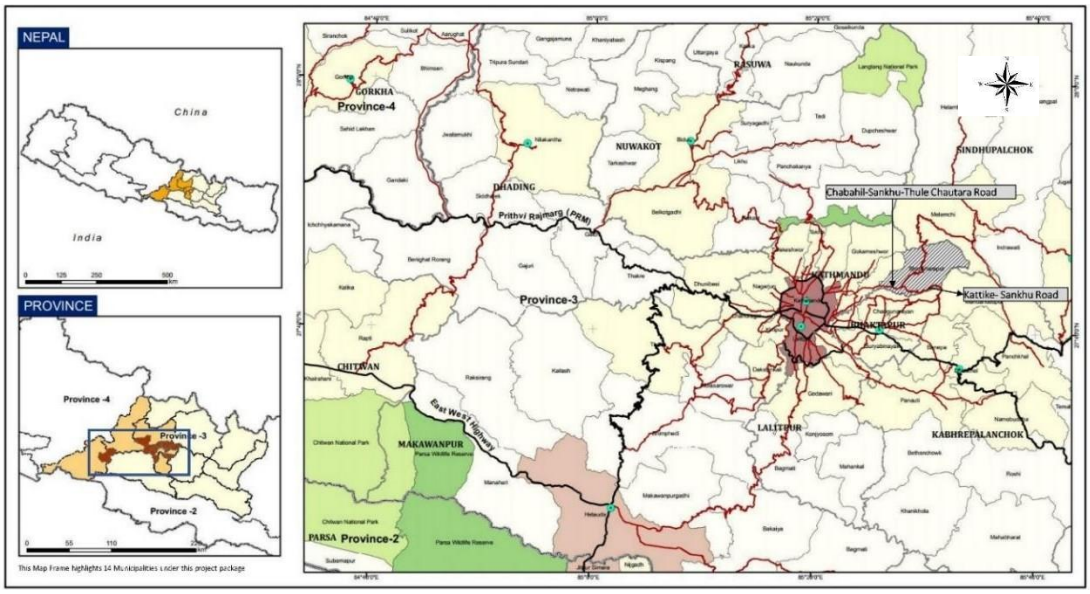


Map 1 Location Map

Regional Context.

Kathmandu Valley as the capital region of the country has a primacy which is unequalled. As the capital, it is the administrative as well as political centre of the country. Nagarjun municipality was formed formed merging five VDC into 14 wards municipality in 16th mansir 2071 which was changed on to ward 10 on 2073/11/22. Nagarjun municipality is surrounded by Kathmandu Metropolitian in east so this municipality provides residential and other necessary infrastructure for its neighbouring municipality. During the plan formulation stages of these municipality, agriculture, tourism and residential area have been accorded high priority as the stepping stones to economic prosperity in these cities.

In the regional context, as the northern areas of municipality harbour significant areas of Shivpuri nagarjun National Park along with high lying hill tops for mountain viewing, the cities could also provide ample opportunities for adventure tourism as well as conventional eco- and religious tourism. In terms of physical distance, this is the municipality which is the nearest from the centre of gravity of the capital region. As the capital region is also expanding so there this municipality also seems to expand from east to west direction. Proposed outer ringroad passes through this municipality which also indicates that urbanization will be in ward 4,5,6 and 9 ward.



Legend

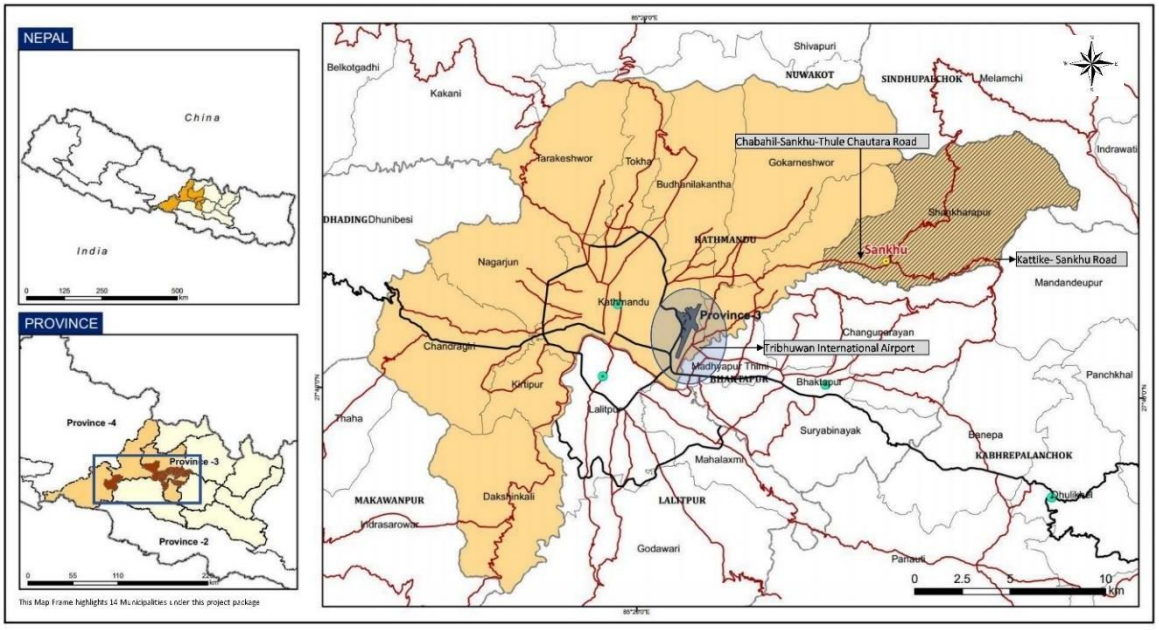
International Boundary — Local Bodies Boundary
Province Boundary — District Headquarters
District Boundary

Source:
- Administrative Boundary: Department of Survey
- Road Network: Department of Road

Local Bodies
Metropolitan City
Sub-Metropolitan City
Municipality
Rural Municipality
National Park
Wildlife Reserve

Road Network
National Highway
Feeder Road

Map 2 Regional Linkage Map



Legend

International Boundary — Local Bodies Boundary
Province Boundary — District Headquarters
District Boundary

Kathmandu District
Tribhuwan International Airport

Road Network
National Highway
Feeder Road

Source:
- Administrative Boundary: Department of Survey
- Road Network: Department of Road

Map 3 Hinterland Map

Historical background

Nagarjun municipality is a historic town of Kathmandu District formed by integrating five villages development committee, i.e. Bhimdhunga, Ichangu Narayan, Ramkot, Syuchatar and Sitapaila. Each of these villages has their own historical importance. Nagarjun name was derived from name of Buddhist saint Nagarjna who came inside Nagarjun forest and mediated for several years and got enlightened (https://www.himalayastrek.com/nagarjun-hill-day-hiking/).

Important Historical, Religious, and tourism spot inside the Nagarjun Municipality

According to Annual Municipal Development Plan Booklet 075/076 Of Nagarjun Municipality there are several historical, religious and tourism spot in Nagarjun municipality. Historical and religious spot and area are the main tourism spot of Nagarjun Municipality. Nagarjun Jamacho, Ichugnarayan temple, Pachali Bhairab, Halchok Aakash Bhairab, Bir Bhagwati, Bishnu Dev (Dipankha Mela), Badri Narayan, Sitapaila Temple, Harisiddhi Temple, Aadeshwor Temple, White Gumba, Ganeshman Smriti Park, Badri Narayan Dham, Swerzerland Park, Bhimsensthan Bhimdhunga, Pushpalal Park, Hasantar Gumba, Bhubaneshwor Temple, Panchakanya Temple, Tarkeshwor Temple, Koteshvairab temple, Janakalyaneshwor temple, Kedarnath temple, Chundevi temple, Radhakrishna temple, Banglamukhi temple, Saraswoti temple, Ganesh temple, Ghatakidevi temple, Setidevi and Kalidevi temple, Kaudu Bhagwati temple, Shanteshwor Mahadev temple, Ghyampe Kuwa, Krishna temple, Kumari temple, Bindabashini temple, Indrini temple, kalidevi temple, Kamaleshwor temple, Ghunsa park, Kodardevi temple, naag temple, Sahid park (Pradunna Shalik), Seuchatar airpot, Shyameshwor mahadev temple, Motidevi park, Ranipati, ugren ngyab chhyoling Gumba, Kalpeshwor Mahadev, Manakamana temple, Seto kuwa, and Nayayan temple of Ramkot are the main religious, historical, and tourism spot of the Nagarjun municipality.

Shivapuri peak and Jamacho are the holy places for both Hindus and Buddhists and source of holy rivers Bagmati and Bishnumati. Jamacho, Buddha Gumba, Pachali Bhairab at Nagarjun is the popular tourist destinations which also provide opportunities for recreation, rock climbing, hiking and wilderness.

Administrative boundary and Topography

1.3.1 Administrative boundary

Nagarjun Municipality is in Provience No. 3. The total area of the municipality is 29.8 sq. km. The municipality has been divided into 10 wards for the efficient administration. Nagarjun Municipality was declared on 22th Chaitra 2073 merging five VDCs, Bhimdhunga, Ichangu Narayan, Ramkot, Syuchatar and Sitapaila of Kathmandu. The municipality is bounded by Kathmandu metropolitian city in the East, Dhunibesi municipality in the West, Tarkeshwor municipality in the North and Chandragiri municipality and Kritipur municipality in the South.

Different wards of previous VDCs were combined to give new structure of wards in the municipality.

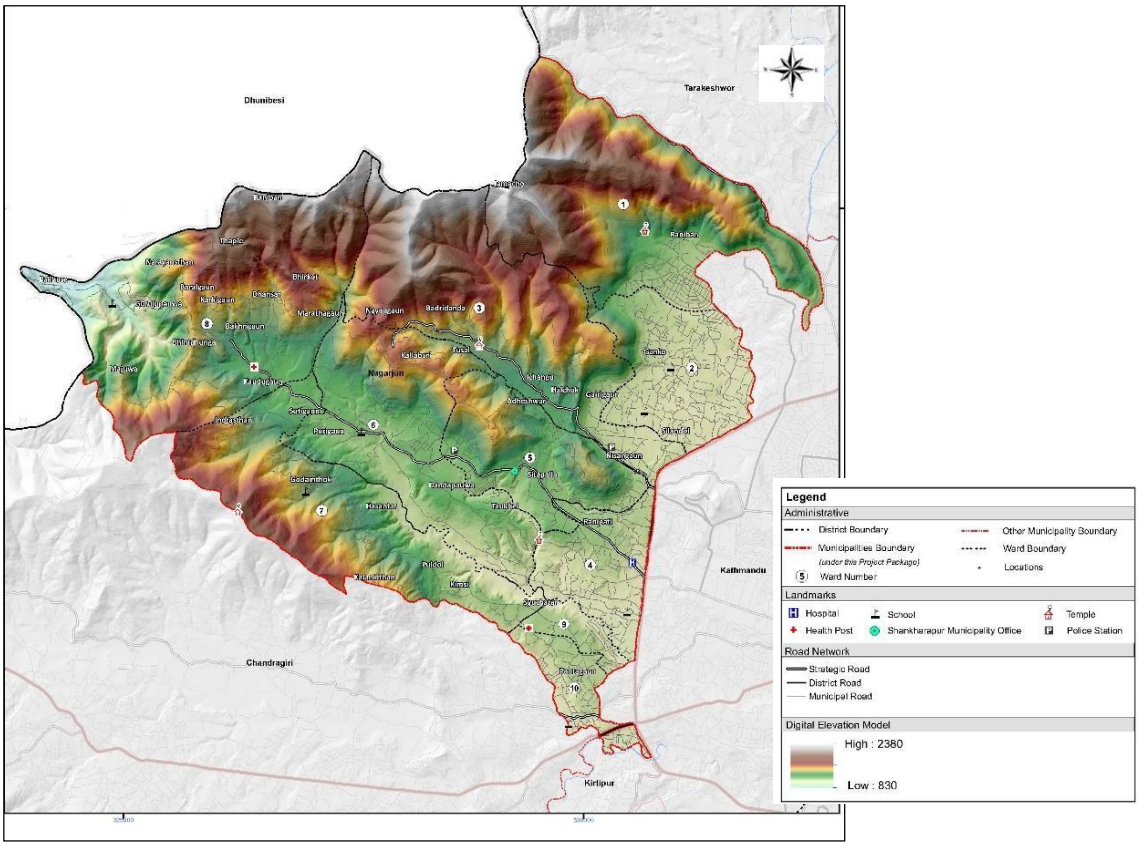
Table 1 Restructuring of wards of VDC to Municipality

Since 2016	2015- 2016	Before 2015	
Nagarjun Municipality (Present wards)	Nagarjun Municipality (Old wards)	VDC name	VDC ward number
1	1	Ichangu Narayan	Ichangu Narayan 7,8,9
2	2	Ichangu Narayan	Ichangu Narayan 5,6
3	3	Ichangu Narayan	Ichangu Narayan 1,2,3,4
4	4	Sitapaila	Sitapaila 1,2,4
5	5,6	Sitapaila	Sitapaila 3,5,6,7,8,9
6	7,8	Sitapaila	Ramkot 4,5,6,7,8,9
7	9,14	Ramkot, Syuchatar	Ramkot 1,2,3 Syuchatar 7,8,9
8	10,11	Bhimdhunga	Bhimdhunga 1-9
9	12	Syuchatar	Syuchatar 1,3,6
10	13	Syuchatar	Syuchatar 2,4,5

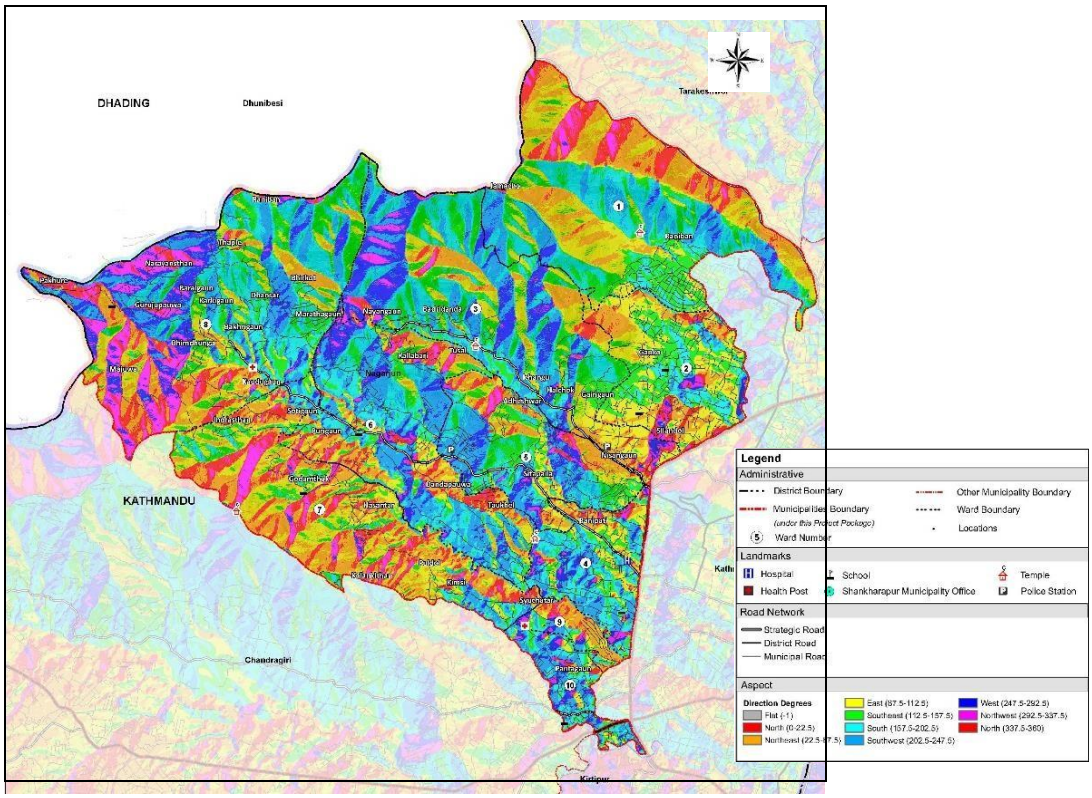
Source: Rajpatra

1.3.2 Topography

Kathmandu valley is oval shaped intermountain basin which stretches at about 30 km in East-West and 25 km in North-South direction and occupies about 650 sq.km and elevation ranges from 830 to 2380 m. The valley is surrounded by Shivapuri lekh in the North, Nagarkot in east, Chandragiri in the sourthwest and Phulchoki in the south. The major rivers in Kathmandu valley are Bagmati River, Bishnumati River, Dhobi Khola, Manohara Khola, Nakhu Khola, Godawari Khola and Balkhu Khola.



Map 4 Elevation Model



Map 5 Aspect Map

Geography

Nagarjun Municipality lies between 85 ˚ 12' E and 85 ˚ 17' E longitude and 27 ˚ 40' N and 27 ˚ 44'N. latitude. The highest altitude of the municipality is 2500 meters and lowest level is 1300 meters.

Geology/ Geomorphology

The Kathmandu valley is basin and it has a mild climate and fertile land. The Kathmandu valley basin is located of Midland Region. It is tectonic basins of the sub-Himalayas.

Climate

Climate zone type are based on latitude and solar radiation. There are three main climate types they are tropics, temperate and polar or artic: Tropics- between Tropic of cancer and Tropic of Capricorn; Temperate- north and sourth of the tropic lines to the Artic circles and polar or artic- north and sourth of the Artic and Antartic circles. These three zones can be further divided into different climate regions based upon the seasonal temperatures, precipitation rates, altitude and topography, distance from oceans and atmospheric circulations. They are tropical- warm and wet, Arid- dry desert, Warm Temperate- warm wet and dry seasons, cool temperate- cool wet and dry seasons, and polar cold. For a mountainous region altitudinal limits are most convenient to define zones.

Nagarjun Municipality lies in subtropical climate zone (1000 to 2000 meters) and Deciduous Monsoon Forest Zone (altitude range of 1,200–2,100 meters).

In Kathmandu valley, during summer the average maximum temperature during the months of July, August is 29.1^{o} C and during winter average minimum temperature during December and January is 2.4^{o} C. The average annual rainfall in Kathmandu valley is 1400 mm, three-fourth of which falls in June, July and August. The wettest month is July with average rainfall 325.3 mm.
There is a high variation in annual temperature and precipitation. The weather station at Kakani (altitude 2066 m), has record of average maximum temperature of 22.70 C in mid - May/June and that of average minimum temperature of 0.300 C in December/January. The mean annual precipitation was 2727 mm mostly occurring during monsoon period.

Natural Resources

1.5.1 Watershed and Water Bodies

There are 6 major rivers in Nagarjun Municipality. The major rivers flowing through the municipality are Manamati khola, Lupang Khola, Tribeni Khola, Junge khola, Dholango Khola and Thulo khola. These rivers are perennial rivers. Manamati Khola flows from ward 4,9,6 and 7. Lupang khola flows in ward 5,6. Tribeni Khola flows in ward 6,8. Junge khola flows in ward 3,5. Dhalongo khola flows from ward 1,3 while Thulo khola flows in ward 8.

1.5.2 Forest

The total forest area covered in Kathmandu district is 151.29 sq. km. The total forest cover in Nagarjun Municipality is 251.42 ha. 14 community forest lies in Nagarjun Municipality which serves 1545households Forest in Nagarjun municipality can be classified in to following vegetation zone:

1) Temperate Mountain Oak Forest : Forest in Nagarjun upper area
2) Lower Temperate Mountain Oak forest: Forest in Nagarjun lower area.
3) Mixed Blue Pine Oak Forest : Forest situated in Bhimdhunga- Sitapaila lower forest area.
4) Mixed Oak- Rhododendron Forest: Forest in Nagarjun – Bhimdhunga.
5) Chirpine Broadleaved Forest : Bhimdhunga area forest.

6) Schima- Castenopsosis Forest : Ramkot area forest. (Source: Municipal Profile)

1.5.3 Mines and natural resources

Mines and natural resources available in Nagarjun Municipality are Stone. Stone are available in ward 5,6,7 and 8 which has been identified thorough ward visit. Two stone quarry have stoped its function while 3 are in planning process to open and two stone mines are in function in this municipality.

Table 2 Details of Mines

s.no	Name	Ward no	Location	Potential	Status
1	Ghattekhola Dunga Khani	8	Ghattekhola		Not in function
2		8	Darshan Khola,Majuwa,Thaple,Bhirkot, Sano Khosshi	Dhunga Khani	
3	Dahachowk Dhunga Khani	7	Dahachowk		
4		6	Dadha Gaun	Dhunga Khani	In process Planning
5		6	Gatte Khola	Dhunga Khani	In process Planning
6		6	Chisapani	Dhunga Khani	In process Planning
7	Aadshwor Dhunga Khani	5	Aadeshwor		Not in function

Demography

1.6.1 Population Distribution

The total population of the municipality as per the census 2068 B.S. is 67,240 with male population 34,064 and female population 32,861 Nagarjun municipality holds 2.67 % population of Kathmandu valley. The total population of Kathmandu valley in 2068 is 2,517,023 (CBS 2068). From 2058 B.S to 2068 B.S, total population of Nagarjun Municipality increased from 33,055 to 67,420 at population growth rate of 7.12 %.

The ward wise population distribution of the municipality is as shown in the table below.

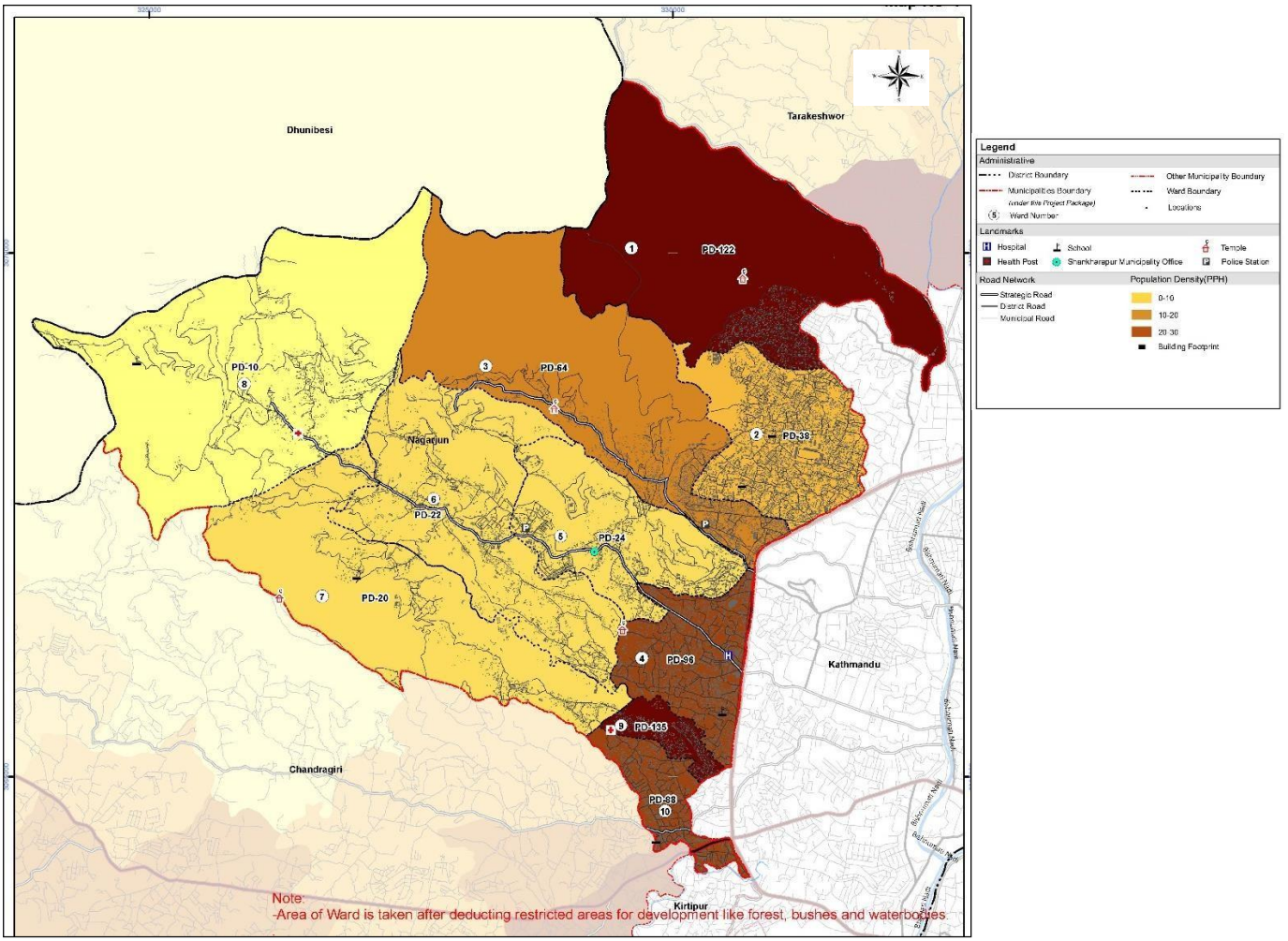
Table 3: Ward-wise Population Distribution

Ward	No. of household	Household size	Population (As per 2068 Census)	Male	Female	**Sex Ratio (in 1000 female)**	Area in hectare	Population Density (pph)
1	1621	4.05	6580	3274	3306	990	503.37	13.07
2	1,889	3.77	7,122	3,495	3,627	963	211.17	33.73
3	2778	3.85	10723	5383	5340	1008	466.18	23.00
4	3561	3.82	13611	7061	6550	1078	142.07	95.81

5	963	4.46	4298	2113	2185	967	208.84	20.58
6	1584	4.41	6999	3526	2978	1184	359.19	19.49
	758	4.97	3774	1859	1915	970	384.42	9.82
8	619	4.7	2915	1484	1431	1037	600.07	4.86
	1368	3.76	5149	2618	2531	1034	38.75	132.87
10	1605	3.89	6249	3251	2998	1084	70.68	88.41
Total	16746	4.02	67420	34064	32861	1037	2984.74	22.58

Source: C.B.S. 2011

The highest population is in Ward no. 4, the lowest population is in Ward no. 8 and the average population is in Ward no. 2. Similarly, the highest population density is in Ward no. 9 and the lowest population density is in Ward no. 8. The household count in the municipality is 16,746. The average household size is 4.03.



1.6.2 Age-sex Composition

The population pyramid below demonstrates the distribution of male and female population by their different age groups. The dominant presence of both male and female of economically active age

group shows availability of working group in the municipality which is the positive point for leading development works of the municipality. However, the less number of male population compare to female in the age group 20 – 24 & 25 – 29 might be due to migration of youth to foreign countries for education and foreign employment.

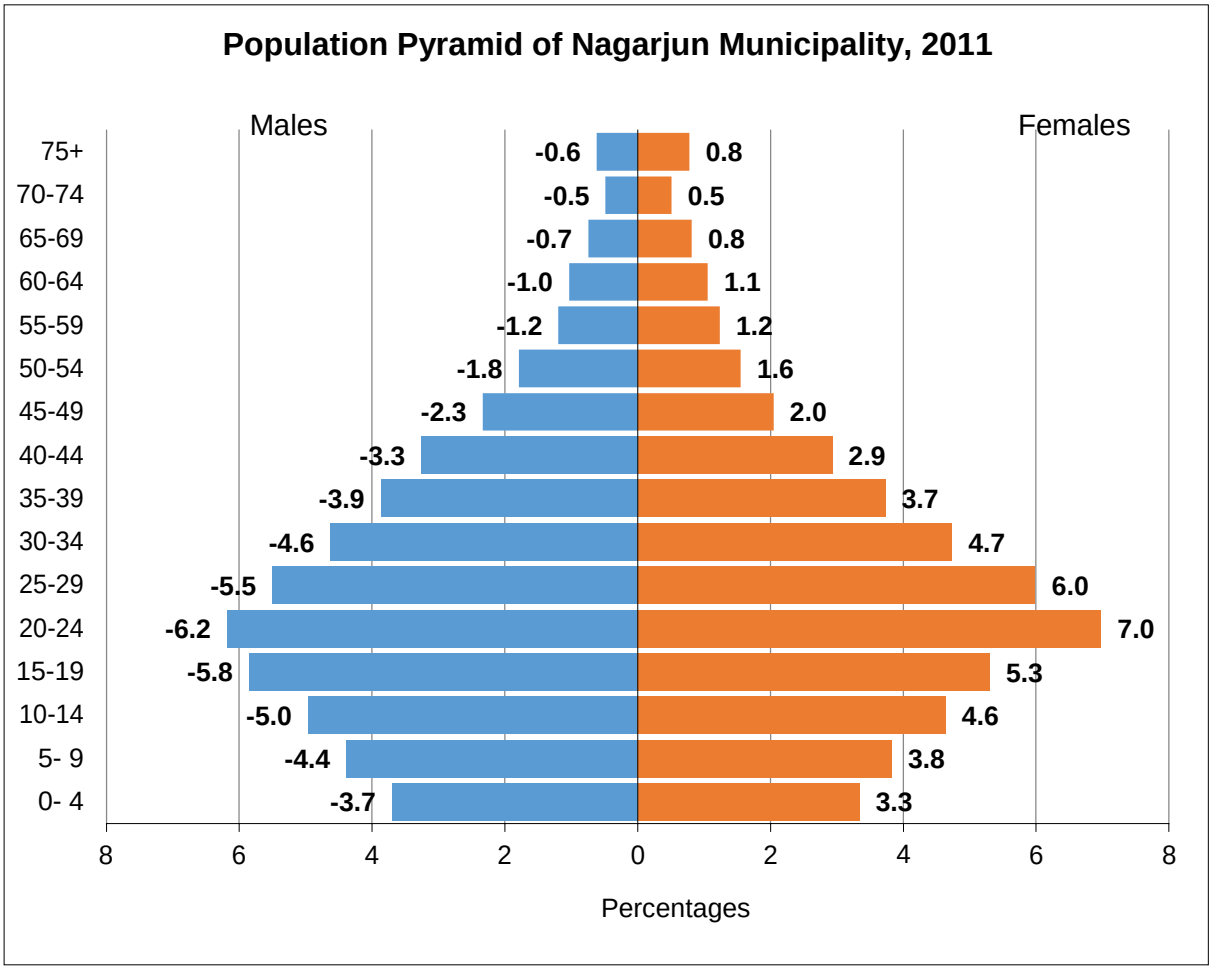


Figure 1 Population Pyramid

1.6.3 Population Growth

The population of the current municipal area increased from 33,055 in 2001 to 67,420 in 2011, more than double in ten years.

Table 4: Households, population and average household size

Census Year	No.HHs	Population			Sex ratio	HH size	Density (p/ha)	Decadal Change		
		Total	Male	Female				No.HHs	Population	AAGR(%)
1991										
2001	7003	33,055	16,912	16,143	104.76	4.72	11.08			
2011	16,746	67,420	34,064	32,861	103.7	4.02	22.58	9,743	34,365	7

Source: CBS 1991, 200, 2012.AAGR= average annual growth rate (exponential); p/ha = persons per hectare

Population growth rate in Kathmandu valley is 4.25 % while population growth rate in Nagarjun municipality is 7 %. This indicates that Nagarjun municipality is attracting more population.

WARD NO	TOTAL POPULATION		EXPONENTIAL GROWTH RATE	GROWTH PERCENTAGE
	2058	2068		
1	1841	6580	0.13	13
2	2327	7122	0.11	11
3	3526	10723	0.11	11
4	5709	13611	0.09	9
5	3885	4298	0.01	1
6	4236	6999	0.05	5
7	4165	3774	0.01	1
8	2622	2915	0.01	1
9	2046	5149	0.09	9
10	2698	6249	0.08	8
Total	33,055	67,420	0.07	7

Source: CBS 2001, 2011

1.6.4 Migration

Generally, people migrate from one place to another for better opportunities and facilities. In the context of Nagarjun municipality, people, especially young generation must have migrated for better education and job opportunities. Migration can be accounted from the absent population. 16.47 % of total household have at least one absent population. This data indicates the migration from this municipality. Total absent population is 3,942 Among this 2,955 are male which is 74.96 % of total absent population.

Table 5: Total absent population

Total household	Absent household	Total	Male	Female
16,746	2,759	3,942	2,955	987

Source: C.B.S. 2011

The migration might be permanent or temporary.

While analyzing the migration status of Nagarjun municipality in the recent year, the number of in-migration is higher than the number of out-migration. Generally, people are migrating from rural area to facilitated urban area.

Table 6: Migration detail

Ward No.	Details of 2073 Baisakh to 2073 end of Chaitra				Details of 2074 Baisakh to 2074 end of Chaitra			
	In		**Out**		**In**		**Out**	
	Registered No.	**No. of Member**	**Registered No.**	**No. of Member**	**Registered No.**	**No. of Member**	**Registered No.**	**No. of Member**
1	14	58			49	202	5	23
2	19	71	4	15	63	225	7	24
3	11	31	5	12	28	89	12	38
4	33	102	8	17	49	169	3	11
5	30	115	4	7	32	105	3	9
6	11	35	4	14	34	133	3	14

7	4	8	4	11	13	54	7	30
8	7	21	3	7	7	34	2	4
9	13	49	1	3	17	52	1	4
10	16	48	1	2	45	143	2	11
Total	**158**	**538**	**34**	**88**	**337**	**1206**	**45**	**168**

Source: Nagarjun Municipality, Vital Registration (Date 2075-2-30)

According to the vital registration data of municipality in- migration households increased from 158 in 2073 B.S.to 337 in 2073 B., where out-migration households is only 34 in 2073 B.S to 45 in 2074 B.S.

1.6.5 Ethnicity

In the municipality, the highest percentage is of Brahmin/Hill which accounts 33%, followed by Chettri 17 %, followed by, Newar 16% and Tamang 12 %. Different Caste and Ethnicity present in the municipality is as follows.

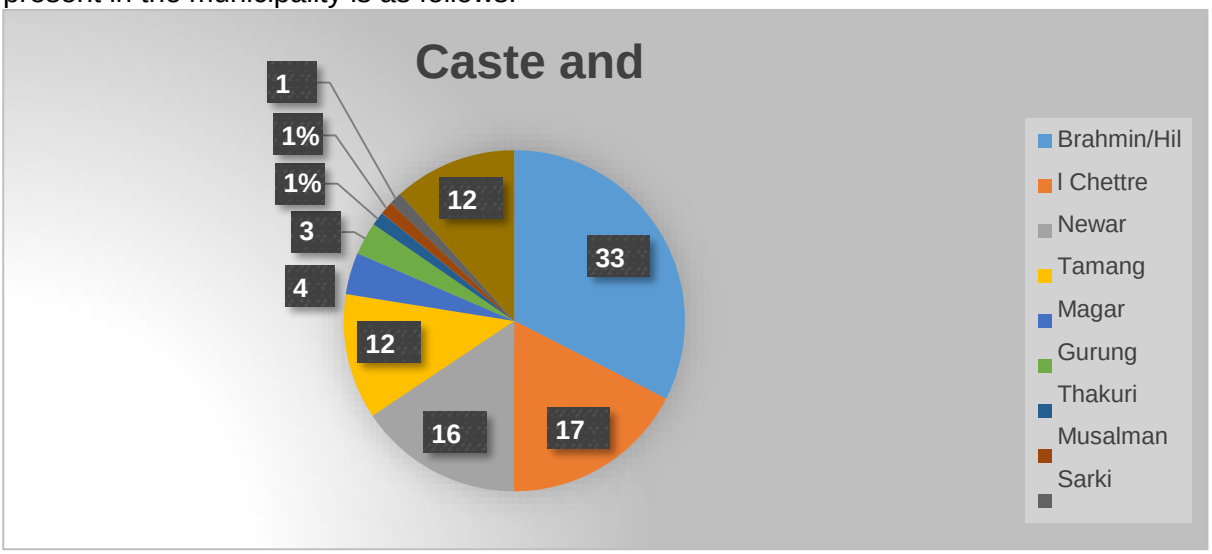


Figure 2 Caste and Ethnicity of Municipality

1.6.6 Differently able population

Regarding differently able population, there are altogether 857 disable population in the municipality, out of which 469 are male and 388 are female. Among different type of disabilities, people having physical disability is comparatively high which counts 284 in total, out of which 150 are male and 134 are female. People having blindness/low vision counts 280 out of which 157 are male and 123 are female. The detail count of disabilities present is listed below.

Table 7: Details of Population with disability

	Total population	Population without disabilit	Population having disability of							
			Physical	**Blindness/ low vision**	**Deaf / hard to hearing**	**Deaf – blind**	**Speech proble m**	**Menta l**	**Intellectu al disable**	**Multipl e disable**
Male	34,064	33,595	150	157	50	1	29	25	13	44
Female	33,356	32968	134	123	53	5	16	17	7	33
Total	67,420	66,563	284	280	103	6	45	42	20	77

Source: C.B.S. 2011

The percentage of physical disability among the different disabilities is higher which counts 33%, followed by blind which counts 32%. Similarly, deaf/hard to hearing accounts 12%.

1.6.7 Literacy

The total literacy rate of population aged 5 years above is 86.84%, of male population is 94% and of female is 77.94 %.

Table 7. Details of Literacy

VDC/ Municipality and sex	Population aged 5 years & above	Population who			Literacy not stated	Literacy rate
		Can read & write	Can read only	Can't read & write		
Male	31,568	29,059	501	2,000	8	94
Female	31,104	24,276	590	6,216	22	79.94
Total	62,672	53,335	1,091	8,216	30	86.84

Source: C.B.S. 2011

1.6.8 Occupation

The rural urban divide is also among the leading determinants of inequality in access to various household-based opportunities, particularly improved sanitation, drinking water, electricity and clean fuels. (Source: Key social development challenges in the Asia-Pacific region in the context of the 2030 Agenda for Sustainable Development)

Social protection and decent work can play a key role in achieving several Sustainable Development Goals by reducing vulnerabilities, preventing people from falling into poverty, empowering vulnerable populations, addressing inequalities in income and improving access to basic social service. The disconnect between wages and productivity means that fewer people benefit from decent jobs and economic growth, while the majority see only marginal changes in their income. Moreover, since household consumption is a major component of demand, and because lower income groups tend to spend any increase in income on purchasing necessary goods, connecting poorer groups with better paid jobs yields a strong multiplier effect.

Regarding occupation, in the whole Kathmandu district, people are engaged in different types of small business. The number of household involved in small scale entrepreneurship are as follows:

Table 8 Details of Small scale entrepreneurship in Kathmandu district

District	Yes	No	Not reported	Total	Total adjusted	% Engaged
Kathmandu	55,275	379,500	643	435,418	434,775	12.71

Source: Population Monograph, Volume III, C.B.S,2011

The households involved in different types of small scale business of Kathmandu district is as follows:

Table 9 Households involved in small scale business in Kathmandu district

Cottage Industry	Business	Transportation	Service	Others	Total
4,062	30,428	1,871	15,230	3,684	55,275

The highest number of people of Kathmandu district are involved in Business, followed by Service, Cottage Industry, Transportation and Others respectively.

Physical Scenario

1.7.1 Transportation

The major transportation network system in Kathmandu valley is via road. The urban growth of Kathmandu valley has been induced through the construction of two highways Tribhuvan highway and Arniko Highway and international airport. The construction of Ringroad and radial roads accelerated the urban development along these roads. Further the government has planned to develop outer ring road connecting the fringe areas in the valley to cater the expanding urbanisation areas.

The total length of road in the municipality is 251.741 km out of which 100.52 km is blacktopped, 14.58 km is gravelled, and 128.09 km is earthen. The total road length of Kathmandu district is 1078.29 km, the road density is 4.72 km/sq.km and national road density is 14 km/sq.km.

Table 10 Length of Roads in based on surface type

	WARD N. O	ROAD SURFACE TYPE LENGTH (KILO METERS)					
		Blacktopped	**Earthen**	**Gravel**	**PCC/RCC**	**Stone paved**	**Grand Total**
	1	6.542	10.315	0.244	0.098		17.199
	2	30.821	5.357	0.120	0.274	0.074	36.647
	3	9.586	13.748	3.937	1.671		28.942
	4	19.956	6.188	0.733	1.718		28.594
	5	11.118	9.812	4.607	0.538		26.074
	6	2.152	24.966	1.774	2.504		31.397
	7	2.796	18.627	3.115	0.188		24.726
	8	0.183	36.442	0.055	0.540		37.220
	9	4.635	1.917		0.281		6.833
	10	12.732	0.717		0.660		14.110
	Grand Total	**100.520**	**128.090**	**14.585**	**8.472**	**0.074**	**251.741**

Table 11 Length of Roads in based on width of road

WARD N. O	ROAD WIDTH CLASS (KILOMETERS)				
	up to 3.0	**3.5-4.0**	**5.0-6.0**	**7.0-8.0**	**Grand Total**
1	0.311	10.982	5.906	0.000	17.199
2	3.859	21.853	10.712	0.222	36.647
3	14.017	11.755	2.596	0.574	28.942
4	3.434	17.689	5.581	1.890	28.594
5	3.764	17.414	3.373	1.523	26.074
6	10.721	16.285	2.866	1.525	31.397
7	1.275	21.863	1.015	0.572	24.726
8	1.938	32.980	0.000	2.302	37.220

9	0.522	5.114	1.197	0.000	6.833
10	0.346	8.235	5.247	0.282	14.110
Grand Total	**40.187**	**164.170**	**38.494**	**8.890**	**251.741**

National highways and feeder roads

The municipality has 3 feeder roads from Shobhabhagawati-Nishangaun - Halchok - Narayanthan ; Kalimati - Sitapaila - Bhimdhunga – Dharke and Thulo Bharang ring road.

Table 12: Major Roads within the municipality and their length

S. N.	Name	Main Roads(km)	%
1	National Highway	2.268	0
2	Feeder Road(major)	15.326	59.54
3	Municipal Road	182.709	40.46
4	Foot Trail	50.285	0
Total Strategic Road		398.755	100

Table 13: List of Feeder roads

Code	Description	Length	Blacktop	Gravel	Earthen	PCC
	Kalimati-Sitapaila-Bhimdhunga-Dharke	7.736	-	-	7.736	-
	Shobhabhagwati-Nishangaun-Halchowk-Narayanthan	4.318	1.228	1.882	0.760	0.446
	Thulo Bharyang-Ring Road	2.429	2.429	-	-	-

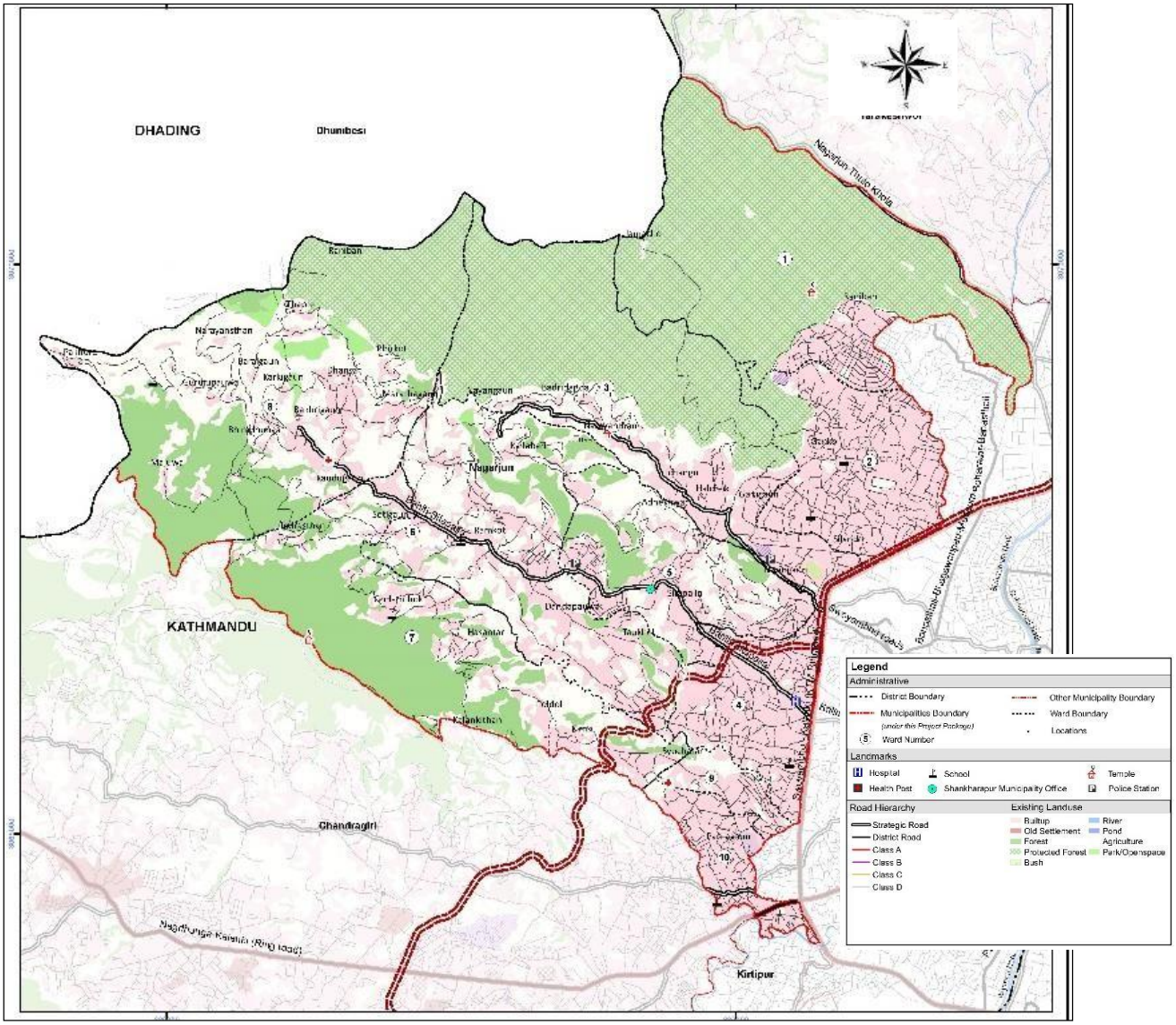
Table 14: Category-wise total road length

Class	Blacktopped (KM)	Gravel road (KM)	Earthen road (KM)	PCC(KM)	Stone Paved (KM)	Total (KM)
NH	1.916	0.352				2.268
FR	3.657	2.122	9.101	0.446		15.326
Municipal Road	83.259	11.115	81.039	7.222	0.074	182.709
Foot Trails			50.285			50.285
Key NH = National Highway, FR= Feeder road, DR = District road, UR = Urban road						

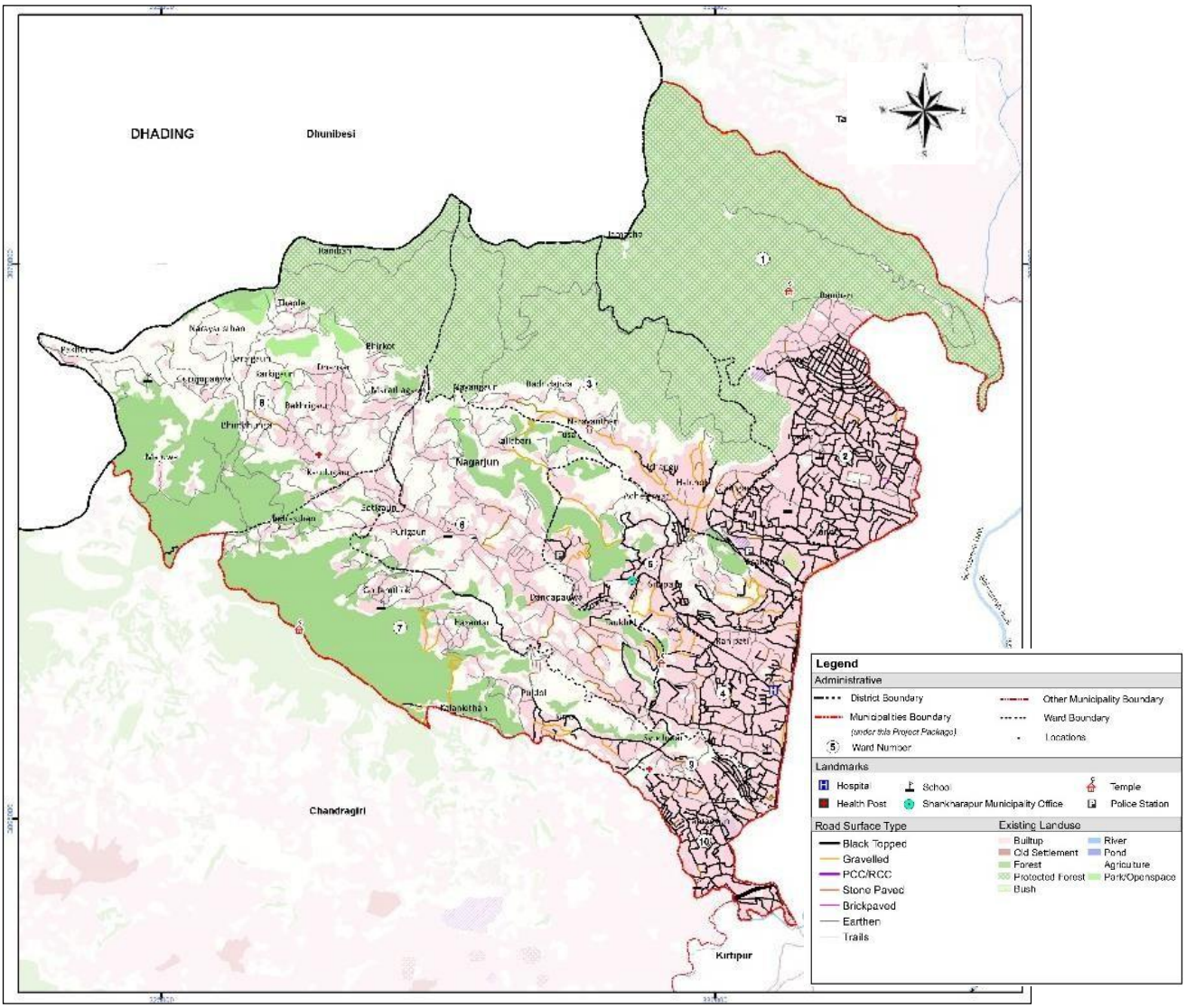
Table 15 Average time required from settlement to reach road

Settlement	Ward	Time Required to reach Road	Remarks
Tamang Basti, Chagdol	5	15 minutes	
Haldaar Settlement	6	30 minutes	
Tusahal Settlement	6	30 minutes	
Dahachowk	7	30 minutes	
Kumaiti	7	20 minutes	
Thaple	8	30	
Bhirkot	8	45 minutes	
Dubechowr	8	45	
Pakhure	8	30 minutes	

(Source: Ward Office)



Map 7 Road Hierarchy Map

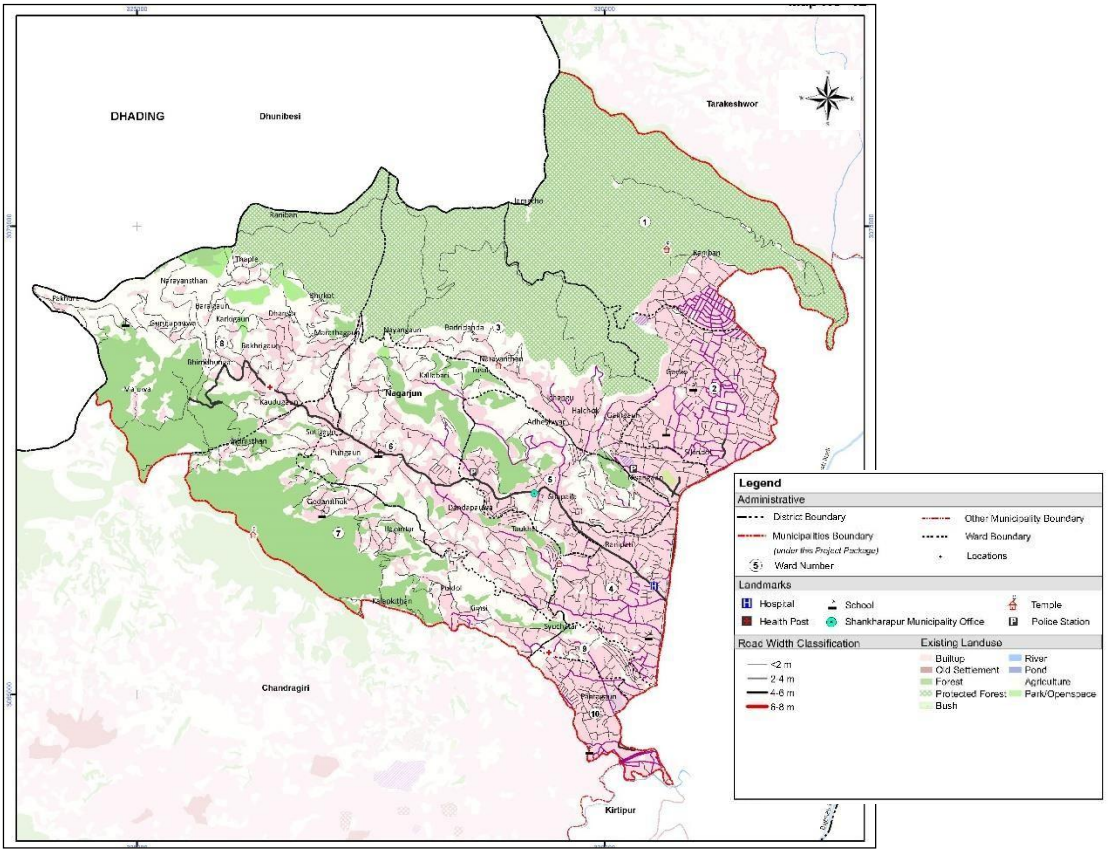


Map 8 Road Network (Surface Type) Map

Table 16 Available Public Bus Routes

S. N	Public Route	Means of Transport
1.	Gairi Gaun-Thulo Bharyang	Micro-Bus
2.	Sano Bharyang-Red Gumba	Micro-Bus
3.	Swoyambhu-Ichhangunarayan-Aadeshwor	Micro-Bus
4.	Sitapaila-Ramkot-Bhimdhunga Nursery-Dhading	Bus (6/7)
5.	Sitapaila-Star Housing-Jyoti Academy-SitaRam School-Dadhapauwa	Micro-Bus (4/5)
6.	Solti Dobato Chowk-Budathoki Cold Store-Aalkatra Karkhana Mahankal Ramkot	Micro-Bus
7.	Sitapaila Chowk-Saranpur Chowk-Harisiddhi-Bhimdhunga	Bus (10/15)
8.	Karkhana Chowk-Thapachowk-Aadeshwor-Ichhangunarayan	Micro-Bus (20)
9.	Syuchatar-Hasantar-Godamthok-Nursery Chowk	Micro-Bus
10.	Ratnapark-Pati Chowk-KaliDevi-Godamthok	Micro-Bus
11.	Kalanki-LRI Road-Naikap	Bus

(Source: Municipality)



Map 9 Road Network (Road Width) Map

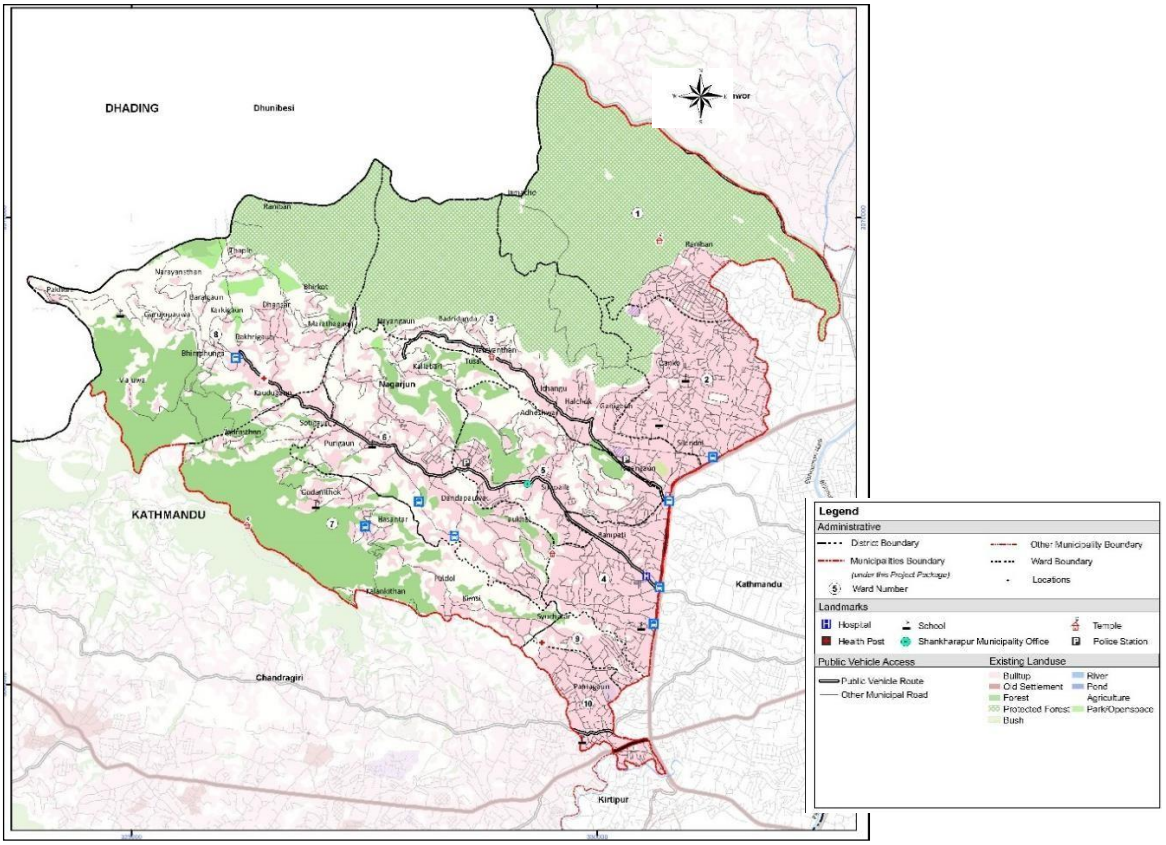


Table 17 Description of existing bus-stops

Place	Ward no.
Nursery Chowk Bus Stop	2
Radha Krishna Chowk Bus Stop	2
Tufan Chowk Bus Stop	2
Kharibot Micro Bus Station	2
Gairi Gaun Bus Stop	3
ThuloBharyang Bus Stop	3
Sano Bharyang Bus Stop	3
Sitapaila Bus Station	4
Swoyambhu Bus Stop	4
Bhimdhunga Buspark	8
Syuchatar Bus Station	9

(Source: Ward Office)

1.7.2 Water Supply

The water supply effort in Nepal started from Bir Dhara piped water in 1891 in few selected parts of Kathmandu which later was succeeded by Pani Goswara. The Department of Water supply and Sewerage (DWSS) was established in 1972 to manage drinking water for urban, semi urban and rural areas throughout the country. Water supply and Sewerage (WSSB)) was established in 1974 to manage drinking water in Kathmandu valley and some urban areas outside the valley which was later succeeded by Water supply and sewerage corporation (WSSC). Nepal Water Supply Corporation (NWSC) was established in 1990 with the objective of improving drinking water supply services in Kathmandu valley and outside valley and expand services in rural areas as well. Kathmandu Upatyaka Khanepani Limited (KUKL) was established in 2008 to manage drinking water and sanitation in urban areas of Kathmandu valley and separated from NWSC.

In Nepal 44.5% percent of population use piped water source and remaining use other sources of water such as well, river, boring, spout and spring water. (NPC/UNDP, 2013) The supply of water in piped system is intermittent supply therefore larger portion of household constitute of water source other than piped water. The daily demand of water in Kathmandu valley is 320 million litres per day (MLD) but the water supplying agency could only provide 106 MLD and 76 MLD in wet and dry seasons, respectively (KUKL 2010). In order to fulfil the deficit in the supply system other improved sources such as ground water (tube well, protected bore well, dug well), spring water, rainwater and unimproved sources such as unprotected dug well, vendor's water tanker, unprotected spring water, bottled water and surface water are used excessively. The Melamchi Water Supply Project (MWSP) is underway with initial design capacity of 170 MLD and expandable to 510 MLD, which will be the major source of water for the valley within the ringroad after its completion. Nagarjun Municipality is not served by the water in MWSP.

The largest source of water in Nagarjun Municipality is Tap/ piped water supply. According to census 2068, 37.6 % of household have piped connection for drinking water.

At present, most used source of drinking water is tube wells and private distributers. Other sources of water supply currently being used are water spouts, communal wells and borings. The composition of water supply as per the census 2068 is tabulated below.

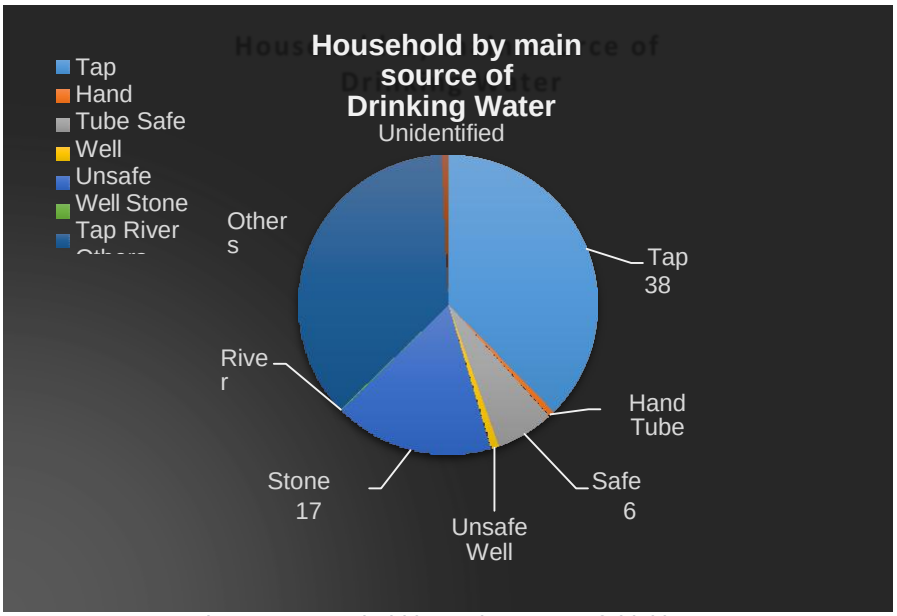
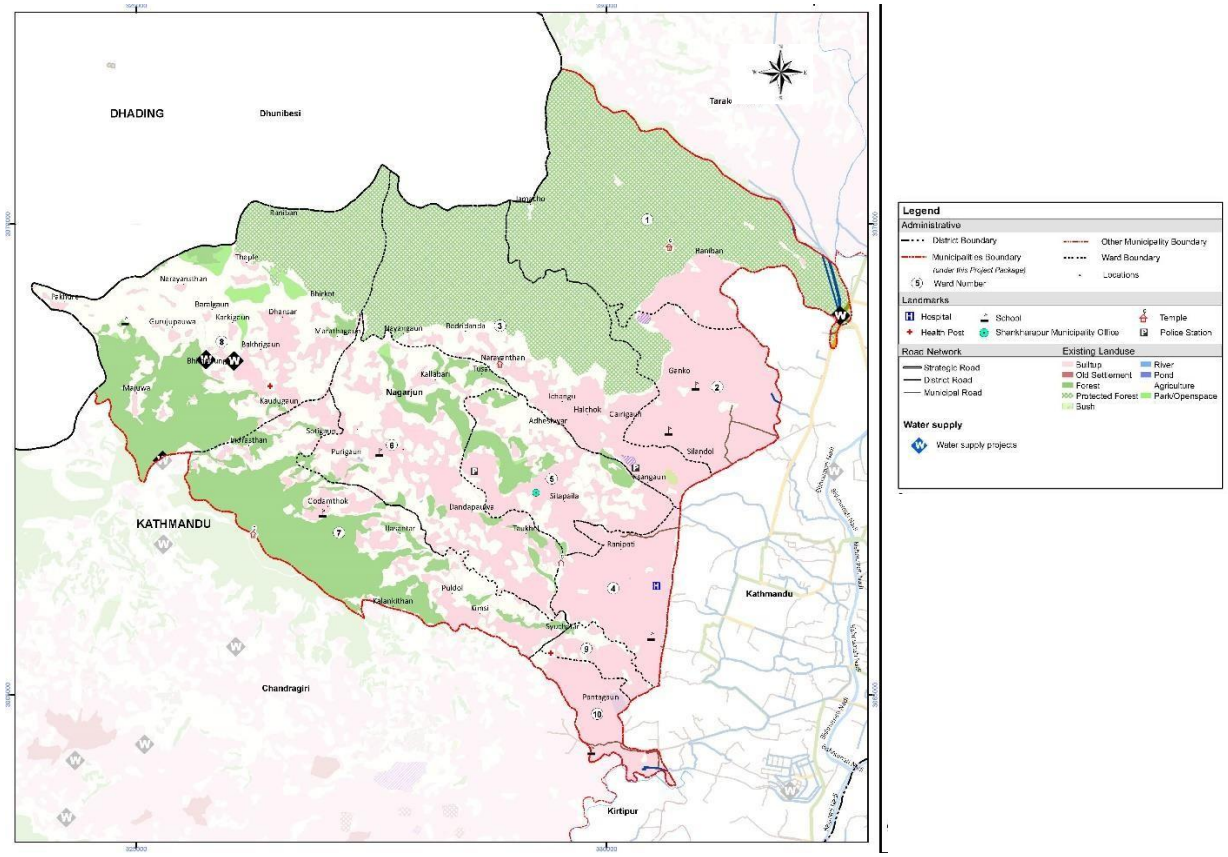


Figure 3 :Household by main source of drinking water



Map 11 Water Supply Projects

Table 18 Water Supply Projects

S.N	Name of the project	Source	Ward	Capacity	Benefited area	Benefitted Households	Total supply	Delivery system
1	Paandhara Khanepani Aayojana	Boring	2				Active	47 Public Tap
2	Tindhara Khanepani Aayojana	Boring	2				Active	Private Tap
3	Sano Bharyang Khanepani Aayojana	Boring	2				Active	Public Tap
4	Pabitra Basti Khanepani Aayojana	Boring	2				Active	Public Tap
5	Ichhangunarayan Khanepani Aayojana	Deep Boring	3				Active	Public Tap
6	Teendhara Khanepani Aayojana	Deep Boring	3				Active	Public Tap
7	Panchdhara Khanepani Aayojana	Deep Boring	3					Public Tap
8	Dhanakumari Mandir Khanepani Aayojana	Proposed Deep Boring	3				Active	Public Tap
9	Chakra Vinayek Upabhokta Samiti		4				Active	Public Tap
10	Baal Kumari Khanepani tatha Sarsafai Upabhokta Samiti		4				Active	Public Tap
11	Sitapaila Khanepani tatha Sarsafai Upabhokta Samiti		4				Active	Public Tap
12	Saranpur Khanepani tatha Sarsafai Upabhokta Samiti		4				Active	Public Tap
13	Kwoupatol Khanepani tatha Sarsafai Upabhokta Samiti		4				Active	Public Tap
14	Lamthuki Khanepani tatha Sarsafai Upabhokta Samiti		4				Active	Public Tap

15	Bhairab Tole Khanepani tatha Sarsafai Upabhokta Samiti		4				Active	Public Tap
16	Sangambasti Khanepani tatha Sarsafai Upabhokta Samiti		4				Active	Public Tap
17	Milantol Khanepani tatha Sarsafai Upabhokta Samiti		4				Active + Under construction	Private Tap
18	Sitapaila Height Khanepani tatha Sarsafai Upabhokta Samiti		4				Active + Under construction	18 Public Tap
19	Harisiddhi Khanepani Upabhokta Samiti	Boring	5			500	Active	3 Public Tap
20	Sitapaila Khanepani tatha Sarsafai Upabhokta Samiti	Boring	5			450	Active	10 Public Tap
21	Bhairabtole Khanepani Upabhokta Samiti	Boring	5			350	Active	3 Public Tap
22	Chhagdol Khanepani Upabhokta Samiti	Natural Source	5			200	Active	2 Public Tap
23	Aadeshwor Fulbari Upabhokta Samiti	Boring	5			150		
24	Padma Multipure Khanepani Samiti	Boring	5			200		
25	Bimire Khanepani	Nagarjun Forest	5			40		
26	Bimire Ghattekhola Tole Bikaas Samiti		6					
27	Umagaun Tole Bikas Sastha		6					
28	Jayanti Tole Khanepani Sudaar Samiti		6					
29	Koteshwor Tole Bikaas Samiti		6					
30	Pokhara Dadha Tole Bikaas Samiti		6					

31	Aanandanagar Tole Bikaas Samiti		6					
32	Lupang Tole Sudaar Samiti		6					
33	Kharitar Tole Sudaar Samiti		6					
34	Baireni Khanepani Aayojana	Boring	7			300		
35	Briyet Hasantar Khanepani Yojana	Hasantar Nagarjun Forest	7			150		
36	Sotigaun Khanepani Yojana	Aadhuwabari Samudayik Ban	7			200		
37	Syuchatar Khanepani tatha Sarsafai Upabhokta Samiti	Boring	9			650		
38	Durganagar Khanepani Samiti	Boring	9			250		
39	Panchakanya Khanepani Samiti	Boring	9			450		
40	Tarkeshwor Khanepani Upabhokta Samiti	Boring	10					
41	Bhairabi Khanepani Nirman Samiti	Boring	10					

(Source: Municipality)

1.7.3 Drainage and Sewerage System

There is no proper sewerage network in Nagarjun Municipality. After the declaration of municipality provision of septic tank has become mandatory for the buildings to get approved.

1.7.4 Energy

Electricity

The main source of household lighting is electricity. The electricity line in this municipality is connected with the National Grid. According to the census 2068, 98.36% of household use electricity for household lighting.

Table 19: Population according to use of source of light

S. N.	Source of lighting	No. of household	Percentage
1	**Electricity**	**16,471**	**98.36**
2	**Kerosene**	**95**	**0.57**
3	**Bio gas**	**42**	**0.25**
4	**Solar**	**11**	**0.07**
5	**Others**	**127**	**0.76**
6	**Total**	**16,746**	**100**

(Source: C.B.S 2011)

No major transmission line passes through the municipality. There are 18 identified number of transformers within the municipality as information provided by Ramkot Nolight. There are additional six Private transformers in Ramkot Area.

Table 20: Transformers with location

S.N	Location	Ward	Capacity
1	Bhimdhunga Khadagaun		50
2	Ramkot Dahachowk		100
3	Bhimdhunga Buspark		200
4	Ramkot Kaudu		25
5	Ramkot Shantinagar		200
6	Bhimdhunga Tersogaun		50
7	Ramkot Ubhogaun		50
8	Ramkot Bazaar		100
9	Ramkot Purigaun		50
10	Ramkot Jayantigaun		50
11	Ramkot Dadhapauwa		150
12	Ramkot Talataukhel		100
13	Ramkot Aalkatra		100
14	Ramkot Echadol		200
15	Bhasku Chowk		200
16	Sitapaila Harisidhhi		100
17	Padma Colony		100
18	Dadha Gaun		100

(Source: Ramkot Nolight)

Cooking fuel

The residents of Municipality use different types of fuel for cooking. Maximum people i.e. 81.79 % of people use LP gas for cooking, which is followed by Wood/firewood which counts 15.17 % and few people use Kerosene oil for cooking that counts 1.99 %. Use of bio-gas, electricity and cow dung are nearly negligible.

Table 21 Fuel used by Households

Total household	Fuel usually used for cooking							
	Wood / firewood	Kerosene	LP gas	Santhi/ guitha (cow dung)	Bio gas	Electricity	Others	Not Stated
16,746	2,541	344	13,696	7	23	2	33	110

[Source: C.B.S. 2011]

Alternate Energy

The use of solar energy has been promoted and encouraged by government of Nepal.

1.7.5 Information and Communication

There is easy access of telecommunication. The people having landline telephone and internet is 28.29% and 15.58 % respectively according to CBS 2011. 91.55% of total household have mobile phone for communication.

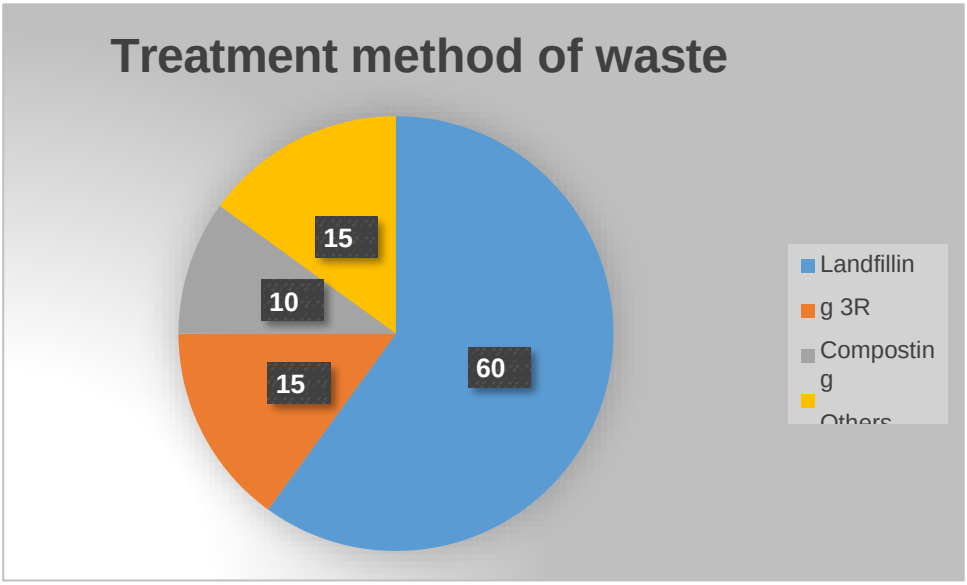
Table 22 Number of households having different communication facility

S. No	VDC name	Number of households	Radio	Television	Cable Television	Computer	Internet	Telephone
1	Bhimdhunga	619	398	506	111	74	20	53
2	Ichang Narayan	6,288	3,443	4,755	4,416	2,080	988	1,730
3	Ramkot	1,937	1,328	1,681	826	419	181	451
4	Seuchatar	3,378	2,171	2,708	2,176	1,315	651	1,142
5	Sitapaila	4,524	2,679	3,626	2,842	1,592	769	1,361
	Total	**16,746**	**10,019**	**13,276**	**10,371**	**5,480**	**2,609**	**4,737**

[Source: C.B.S. 2011]

1.7.6 Solid Waste Management

NGOs and private waste collectors are involved in managing solid waste of the municipality. Private organisation named NEPSE MAC pvt ltd, Data binayak bhalo sanstha and hariyo Fohor Byabasthapan are currently associated with municipality for community-based waste management services. Estimated total waste generation from the municipality is 21.9 tons/ day with assumption of 0.32 kg/capita/day. Solid waste collected in Nagarjun municipality almost 60 % goes to landfill, 15 % is recycled and reused, 10 % is composted and 15 % are managed in other ways.



Social Scenario

1.8.1 Educatio n

The municipality comprises people of different education level. Children attaining primary (1-5) classes are maximum in number which counts 6,084 number of male and 5,559 female followed by students acquiring Lower Secondary (6-8) counts 4,516 male student and 3,931 female student and intermediate and equivalent student 4578 male and 3722 females. education up to S.L.C i.e. 4,168 male students and 3,317 female students. There is a gradual decrease in number of people achieving Graduate and equivalent education and Post graduate equivalent and above simultaneously. The population achieving non-formal education counts as 1,042 male and 1,383 female.

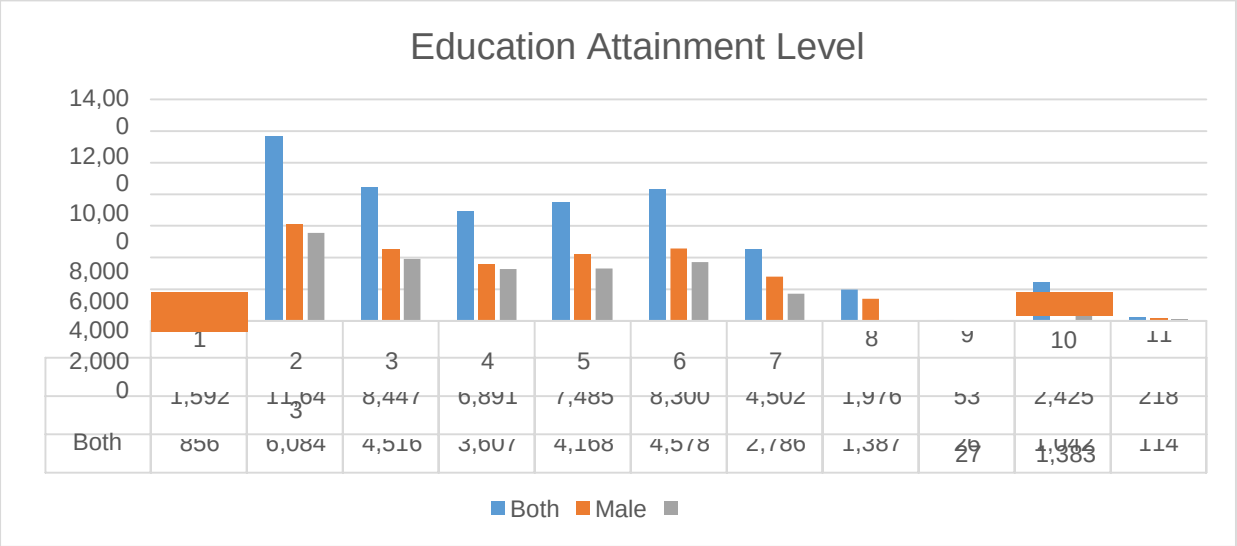


Table 23 : Population having different education level

[Source: C.B.S. 2011]

The highest percentage is of primary level 21.75 %, which is followed by Lower Secondary 15.78 % and Secondary level 12.87 % simultaneously.

In the municipality, there are altogether 66 schools. Out of which 16 are primary, 10 basic, 33 Secondary and 7 Higher Education level. The total number of educational institutions including both Public/Government and Institutional/ Private is tabulated below.

Table 24 Educational institution

S.N.	Educational Institutions	Public/Government	Institutional/Private	Total
1	Primary (1-5)	5	11	16
2	Basic (1-8)	3	7	10
3	Secondary School	7	26	33
4	Higher Education	3	4	7
	Total	**18**	**48**	**66**

[Source: Municipal Profile]

Other Schools

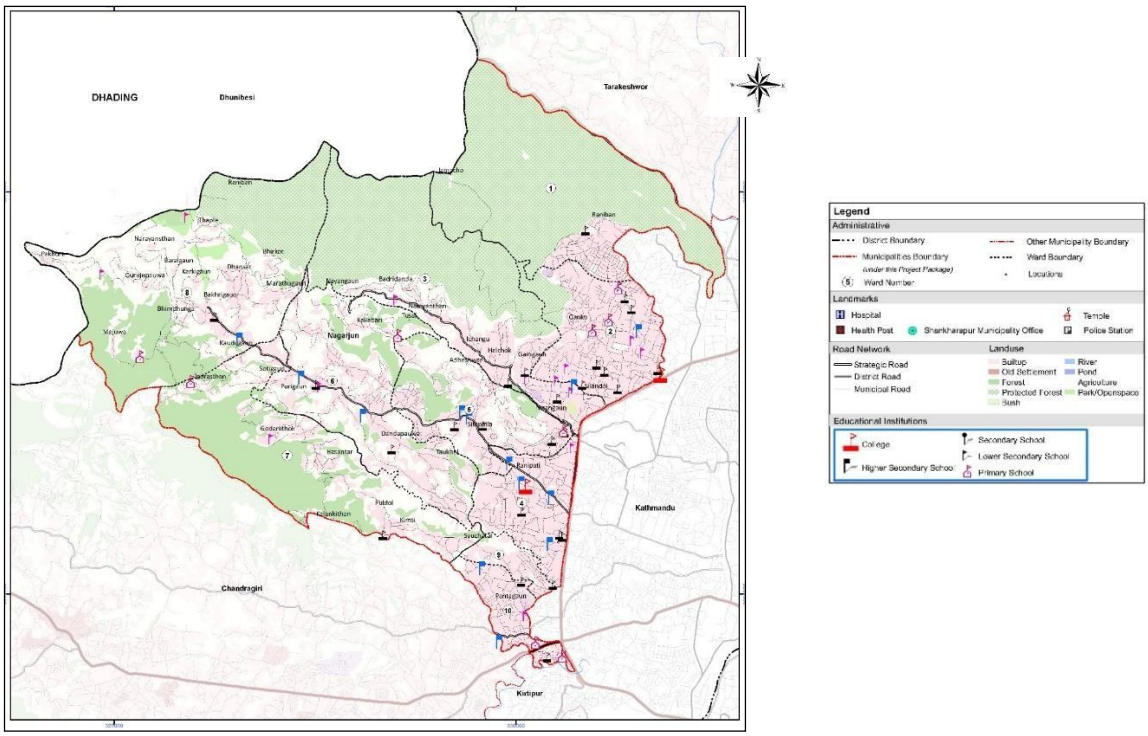
In the present context, there are altogether 19 Early Childhood Development Centre, 1 Informal Primary Community Learning Center and other 3 Community Learning Center, 1 Open Learning School, 1 Religious School, 4 Alternative *(Baikalpic)* School Community, 3 Darbandi and Grant available school.

Table 25 Different others school in Municipality

S.N.	Name of School	Type	Address
1.	Sitabal Bikas Adharbhut Vidhyalaya, Ichangu Narayan	Mothertongue School/Community Learning Center	Icchangunarayan
2.	Halchowk Secondary School	Secondary 9 & 10	Halchowk
3.	Karmasamten Lingagumba School (Grant-teacher)	Basic (1-5)	
4.	Bhimdhunga Community Learning Center	Community Learning Center	Nagarjun-10
5.	Icchangu Narayan Community Learning Center	Community Learning Center	Nagarjun-3
6.	Ramkot Community Learning Center	Community Learning Center	Nagarjun-7
7.	Shradha Mahila Baikalpik Vidhyalaya	Secondary Level	Sanobharyang
8.	Jagaran Mahila Vidhyalaya	Basic	Nagarjun-3
9.	Hamro Adarsa Mahila Vidhyalaya	Basic	Nagarjun-10, Seuchatar
10.	Shradha Mahila Vidhyalaya	Basic	Nagarjun-3, Sanobharayang
11.	Sitaram Higher Secondary School	Staff in grant	
12.	Sitapaila Higher Secondary School	Granted	
13.	Amar Jyoti Higher Secondary School, Seuchatar	Granted	
14.	Shree Janasudhar Lower Secondary School	With No teacher and teacher in rahat kota	
15.	Shree Sita Balbikas Lower Secondary School	With No teacher and teacher in rahat kota	

Source: District Education Office, Kathmandu 2074

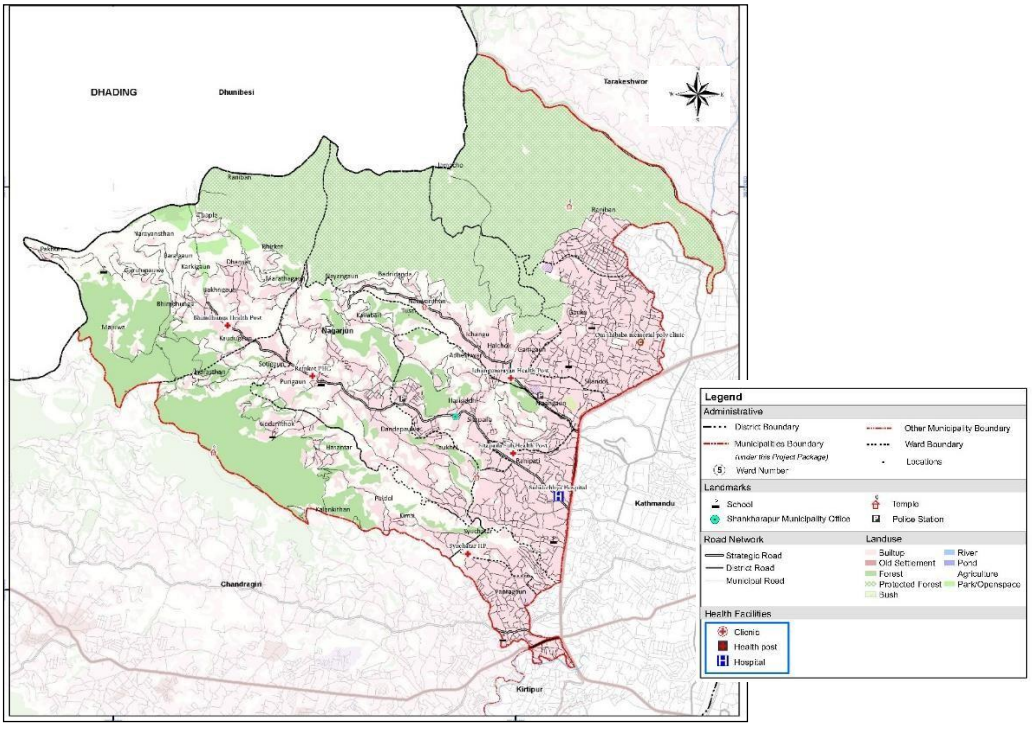
ECD -25			Public/Community			Private/Institutional		
Girls	Boys	Total	Girls	Boys	Total	Girls	Boys	Total
Dalit		12	Dalit		168			



Map 12 Distribution of Educational Institutions

1.8.2 Health

In the Nagarjun Municipality, generally most of the people have easy health access. The presence of hospitals nearby has supported the residence a lot in case of special disease and treatment. And for the general treatment, there are Primary health centre and health post. In the village areas also, clinics are providing health service.



Map 13 Distribution of Health Institutions

The municipality is working on providing service for safe motherhood. In the case of vaccination, the municipality has been declared the fully vaccinated municipality.

Major diseases

The major diseases seen in the municipality are Respiratory disease, Diarohhea, Skin disease and others.

Female Community Health Volunteers

There are altogether 99 Female Community Health Volunteers working in the municipality. The number of FCHV working in different health posts are presented in the table below.

Table 26 Number of Female Community Health Volunteers in health institutions

S.N.	Health institution	Number of FCHV
1.	Seuchatar health post	20
2.	Ramkot Primary health centre	28
3.	Bhimdhunga health centre	18
4.	Sitapaila health post	17
5.	Icchangu Narayan health post	16
	Total	**99**

Source: Municipality Profile, 2074

1.8.3 Social welfare (Old age home / Orphanage/Centre for differently abled person)

The number of people receiving Social Security in the Fiscal year 2074/2075 (Previous year) is as below:

S.N.	Description of social security program	Number
1	Elderly citizens	62
2	Elderly Citizens (Dalit)	934
3	Single women	152
4	Widow women	1002
5	Fully disabled	72
6	Severely Disabled	68
7	Child protection subsidies receiving children -Dalit	43
	Total	2,333

Source: Municipal Profile

So, the total number of people getting security allowances are 2,333, out of which 1002 Widow women are getting social security along with 934 Dalit Elderly citizens, 152 Single women, 72 Fully disabled, 68 Severely Disabled and 43 Child protection subsidies for dalit.

1.8.4 Social Inclusion

The area is socially inclusive in terms of ethnicity, caste, gender, and economic class. The space for social and cultural diversity and sensitivity particularly to disadvantaged, marginalized and minority groups, and poor people and youth in general reveals social inclusion. Among the total 20 board members of the municipality, 8 are women which constitutes 40%. And among the total 34 ward members, 14 are female which accounts 41.17 %. Similarly, all dalit members are women which counts 9.

Table 27 Organizations & groups involved in development of Toles

S. N	Tole development organization's name	Office location/ward	Working area of the organization
1	Baal Saichhik Pratisthan	Ichhangunarayan	Social Awareness
2	Shree Ichhangunarayan Yuwa Club	Ichhangunarayan	Social Awareness
3	Silandol Bikaas Samaj	Ichhangunarayan	Social Awareness
4	Baandevi Mandir tatha Samrakchyan Samiti	Ichhangunarayan	Social Service
5	Aapagga Asahaya Bikkas Kendra	Ichhangunarayan	Disabilities
6	Manaslu Baal Kalyan Kendra	Ichhangunarayan	Social Service
7	Tindhare Yuwa Club	Ichhangunarayan	Social Service
8	Gyan Swasthe Sikshya Sasastikaran tatha Byabasthapan Nepal	Ichhangunarayan	Social Service
9	Samyukta Sewa Samiti	Ichhangunarayan	Social Service
10	Shree Manjushree Tol Sudhar Samiti	Ichhangunarayan	Social Service
11	Care Human	Ichhangunarayan	Social Service
12	Arcade Nepal	Ichhangunarayan	Social Service
13	Sundaar Nagar Mahila JAgaran Samaj	Ichhangunarayan	Social Service
14	Dikshu UNESCO Sang	Ichhangunarayan	Social Service
15	We Volunteer Nepal	Ichhangunarayan	Social Service
16	Nawa Jeevan Sewa Samaj	Ichhangunarayan	Social Service
17	Naya Sapana Foundation	Ichhangunarayan	Software Sambandhi
18	Kathmandu Saman Dhuwani Byabasahi	Ichhangunarayan	Social Service
19	Naya Sapag Foundation	Ichhangunarayan	Natural herbs
20	Swostha Samaj Bikaas tatha Anusandhan Kendra	Ichhangunarayan	Temple and social service
21	Aaginchowk Kathmandu sewa samaj	Ichhangunarayan	Social Service
22	Pabitra Basti Tol Sudar Samiti	Ichhangunarayan	Social Service
23	Korona Nepal	Ichhangunarayan	Social Service
24	Aayel Nepal Baalgriha	Ichhangunarayan	Social Awareness

25	Sanomaayenga Star Club	Ichhangunaraya n	Sports Development
26	Santipur Sewa Sanga	Ichhangunaraya n	Social Service
27	United Life Nepal	Ichhangunaraya n	Environment Related
28	Dollar Work Samudayek Bikaas	Ichhangunaraya n	Indiginous People Related

29	Mamata Volunteer	Ichhangunaraya n	Environment Related
30	Common Ground National	Ichhangunaraya n	Environment Related
31	Yuwa Sip Bikaas tatha Aantar Saskritik Aadanpradan Sang Nepal	Ichhangunaraya n	Litreture And Arts Related
32	Yaarhiti Raniban Bahuudasayiya Yuwa Club	Ichhangunaraya n	Education development
33	Tindhara Namuna Mahila Samuha	Ichhangunaraya n	Women Development
34	Hamro Aastha Punasthapana Kendra	Ichhangunaraya n	Environment Related
35	Chhokri Dhargon Lin Foundation	Ichhangunaraya n	Security Related
36	Satetana Mahila Samuha	Ichhangunaraya n	Women Development
37	Gramin Bikaas Sastha	Ichhangunaraya n	Natural Herbs
38	Hamro Paribartansil Samaj Nepal	Ichhangunaraya n	Social Service
39	Bihani Kiran	Ichhangunaraya n	Social Service
40	Samarpan Nepal	Ichhangunaraya n	Social Service
41	Hariyali Samaj Nepal	Ichhangunaraya n	Environment Related
42	Sachha Emandari Yuwa Club	Ichhangunaraya n	Social Service
43	Radha Krishna Mahila Samuha	Ichhangunaraya n	Women Related
44	Nawa Shrijansil Club	Bhimdhunga	Social Service
45	Bhikshu Sudarsan Lumanti Puj	Bhimdhunga	Medicine production
46	Bhuchyeya Niyantran Sastha	Ramkot	Social Service
47	Giri Samaj Sambandhisthal Upabhokta	Ramkot	Social Service
48	Delight Youth Club	Ramkot	Sports Development
49	Shree NAbajagaran yuwa Club	Ramkot	Sports Development
50	Gramin Bikaas Kendra	Ramkot	Social Service
51	Shree Ichadol Tol Sudaar Samiti	Ramkot	Education Related
52	Namuna Gramin Bikaas Karyakram	Ramkot	Disabilities Related
53	Nagarjun UNESCO Club	Ramkot	Co-oprative
54	Shree Bhairabi Mahila Bikaas Samuha	Ramkot	Environment Related
55	Koteshye Bhairab Yuwa Maitri Club	Ramkot	Sports Development

56	Dolama Tara Nepal	Ramkot	Women Related

57	Sitapaila Housing Byabasthapan Samaj	Sitapaila	Social Service
58	Sano Sansar Innitiative	Sitapaila	Social Service
59	Shree Aadheshwor Fulbari Samaj Sudhar Samiti	Sitapaila	Social Service
60	Nurbi Saskritik Yuwa Utthan Samiti	Sitapaila	Social Service
61	Kathmandu Bahira Cricket Sanga	Sitapaila	Social Service
62	Sikshya ra Swastheko lagi Rastriya Karyakram	Sitapaila	Social Service
63	Tusaldevi Nabajagaran Tol Bikaas Samudaya	Sitapaila	Culture Related
64	Jaya Shree Pashupatinath Mahila Samuha	Sitapaila	Software Related
65	Jalabayu Paribartan Aadhyen Samaj Nepal	Sitapaila	Social Service
66	Chakra Binayek Sewa Samaj	Sitapaila	Social Service
67	Aadarbhut Aabasyekta Nepal	Sitapaila	Social Service
68	Fun Action Nepal	Sitapaila	Social Service
69	Bhadramati Khane Pani Upabhokta tatha Sarsafai Samiti	Sitapaila	Drinking and Sanitation
70	Nepal Ambulance Sewa	Sitapaila	Social Service
71	Sitapaila Height Khane Pani Samiti	Sitapaila	Social Service
72	Himalayan Balbalika Paropakar Sanga	Sitapaila	Social Service
73	Aasha Pratisthan	Sitapaila	Social Service
74	Lamthumki Srijanshil Yuwa Samaj	Sitapaila	Social Service
75	Narayan Sewa Aasram	Sitapaila	Social Service
76	Rishimuni Sewa Aasram	Sitapaila	Math/Mandhir Sambandhi
77	Pushpalal Smriti Batika	Sitapaila	Environment Related
78	Srijana Yuwa Club	Sitapaila	Waste Management
79	Kathmandu Shanti UNESCO Kendra	Sitapaila	Environment Related
80	Kanyanjanga UNESCO Kendra	Sitapaila	Cottage Industries
81	Shanti Shikshya UNESCO Kendra	Sitapaila	Education Related
82	Janagadana UNESCO Sanga	Sitapaila	Motor Driving Related
83	Kantipur UNESCO Sanga	Sitapaila	Health Related
84	Sungaba Mahila Paribar	Sitapaila	Saftware Related
85	Panchakumari tole Sudhar Samiti	Sitapaila	Social Awareness
86	Muktinath Shree Krishna Trust Nepal	Sitapaila	Environment Related

87	Samajik Sewa Samiti	Sitapaila	Social Service
88	Rastriya Durgam Chhetra Bikaas	Sitapaila	Indiginous people Related
89	Madesh Bikaas Patrakar Sanga	Sitapaila	Litreture and Arts Related
90	Sahara Nepal	Sitapaila	Medicine Production Related
91	Saskritik Sangralaya Nepal	Syuchatar	Social Service
92	Aamalachaur Bidhyalaya Purba Biddhyarthi Sanga	Syuchatar	Social Service
93	Tarkeshwor Ramayan Aadhyatmik Samaj	Syuchatar	Social Service
94	Sunrise Nepal	Syuchatar	Social Service
95	Srijansil Mahila UNESCO Kendra Nepal	Syuchatar	Environment Related

1.8.5 Government & Non-government organization and Institutions

Organization is a group of individuals working together to achieve one or more objective. They are composed of individuals and groups of individuals and oriented towards achieving collective goals. They consist of different functions. the functions need to be coordinated. All organizations have a management structure that determines relationships between the different activities and the members, and subdivides and assigns roles, responsibilities, and authority to carry out different tasks. Different kinds of tasks and purpose related organizations are registered in Nagarjun Municipality.

1.8.6 Religious Places

The major religious and historical places are Ichugnarayan temple, Pachali Bhairab, Halchok Aakash Bhairab, Bir Bhagwati, Bishnu Dev (Dipankha Mela), Badri Narayan, Sitapaila Temple, Harisiddhi Temple, Aadeshwor Temple, White Gumba, Ganeshman Smriti Park, Badri Narayan Dham, Swerzerland Park, Bhimsensthan Bhimdhunga, Pushpalal Park, Hasantar Gumba, Bhubaneshwor Temple, Panchakanya Temple, Tarkeshwor Temple, Koteshvairab temple, Janakalyaneshwor temple, Kedarnath temple, Chundevi temple, Radhakrishna temple, Banglamukhi temple, Saraswoti temple, Ganesh temple, Ghatakidevi temple, Setidevi and Kalidevi temple, Kaudu Bhagwati temple, Shanteshwor Mahadev temple, Ghyampe Kuwa, Krishna temple, Kumari temple, Bindabashini temple, Indrini temple, kalidevi temple, Kamaleshwor temple, Ghunsa park, Kodardevi temple, naag temple, Sahid park (Pradunna Shalik), Seuchatar airpot, Shyameshwor mahadev temple, Motidevi park, Ranipati, ugren ngyab chhyoling Gumba, Kalpeshwor Mahadev, Manakamana temple, Seto kuwa, and Nayayan temple of Ramkot are the main religious, historical, and tourism spot of the Nagarjun municipality.

Table 28 Religious Areas in Municipality

S.N.	Name of Major religious site and heritage	Place and ward
1.	Halchowk Bhairav	Ward no. 3
2.	Aadeshwor Shiv	Ward no. 5
3.	Ichhangu Narayan	Ward no. 5
4.	Bhaikha Bhairav	Ward no. 5
5.	Harisidhhi Devi	
6.	Chakkra Narayan Mandhir	

7.	Sitapaila Mandhir	
8.	Gayetri Chetana Kendra (Bhimdhunga)	Ward no. 8
9.	Narayan Pokhrel Pratishthan	
10.	Syuchatar Hawai Maidhan	Ward no. 10
11.	Panchakanya Mandhir	Ward no. 4
12.	Tarkeshwor Mahadev	
13.	Kamaleshwor Mahadev	
14.	Bhairavi Mandhir	
15.	Dadha Pati	
16.	Syuchatar Parkhal	
17.	Switzerland Park	

Culture

1.9.1 Festivals

Various festivals are celebrated in Nagarjun Municipality. Some of the festivals are as follows:

1. Thulo Ekadashi
   Basically, Ekadashi fasting is observed on every 11th Tithi in Hindu calendar. There are two Ekadashi fasting in a month, one during Shukla pakshya and another during Krishna pakshya. Ekadashi fasting span for three days. Devotees keep strict fast on Ekadashi day and break the fast on next day only after sunrise. Eating all type of grains and cereals is prohibited during Ekadashi fasting. According to Devotees they can choose their fasting without water, with only water, with only fruits and with one-time latex food.
2. Dashain
   Dashain, the most important famous Hindu festival which is celebrated all over Nepal delightfully. This festival mostly celebrated in the month of either September or October for 15 days started from Ghatasthapana and ends with the full moon (Poornima). Hindus greatest festival, Dashain honors a great conquest of the gods over the evil demons. The symbol of power, Goddess Durga is worshiped during this festival.

3. Tihar
   The next five day long famous festival celebrated in Nepal is Tihar which is also known as Deepawoli (festival of lights) and mostly falls on the month of October or early November. It is the festival of lights that brings the worship of Laxmi, the Goddess of Wealth along with the worship of dog, crow and cow respectively.
4. Maghe Sangranti
   Maghe Sangranti is celebrated in the month of 1st Magh. On this day, the sun is believed to start moving toward the Northern Hemisphere.
5. Ghode Jatra
   Ghode Jatra is celebrated in the month of Chaitra and organized by Nepal army and Police force. The equestrian parade and the competition takes place at Tundikhel, a large grass- covered ground in the center of Kathmandu, one of its most important landmarks. According to a legend, a demon is hiding under Tundikhel, so a horse race, cycle race and acrobatic shows are supposed to scare him off.
6. Jamachowk Mela

Jamachowk Mela is celebrated in Baishak Purnima in Jamachowk height temple.

7. Indra jatra
   Indra jatra is celebrated for 8 days in the month of September by the Newar community of Kathmandu Valley. It begins with the erection of a wooden pole made of pine at Basantapur Square in front of the old Hunaman Dhoka Palace. Every evening of the jatra the Lakhey dance shows in the stree of Kathmandu with loud drums. The chariot of Kumari, the living Goddess, is taken out in a procession through the main streets of Kathmandu. The festival of Indra Jatra ends with the lowering of the (lingam) pole bearing Indra's flag amidst religious ceremonies.
8. Shivaratri
   In the honor of Lord Shiva, Shivaratri is celebrated annually by the Hindu people in the late winter and before arrival of the summer. In this day most of the people goes to the shiva temple for worship and stay whole night with fire. Celebrated in Naag Bhusan Mahadev temple in ward 1

9. Buddha jayanti
   Buddha Jayanti is the special day for both Hindus and Buddhist in Nepal. On this day people celebrate the life of Lord Buddha, his birth, Enlightment and *Mahaparinirvana* (Death). Lumbini is the place where Prince Siddhartha (known as Buddha) was born. The newly born Prince is believed to have taken seven steps and uttered a timeless message to all humanity. It is believed that this happened in the beautiful *Sal grove*, which is now focal point of the Lumbini Garden area. celebrated in Dhaylaun Gumba in ward 1

10. Mela on Bandevi tempKalle : Temple situated on Magar tol of ward 1 , celebrated in kartik Panchami.

Economic Scenario

This municipality falls in state number 3 and state no.3 is the most developed state compared to other six states in terms of socio-economic, contribution to GDP, concentration of banks and financial institutions, urbanization level etc. For instance, the share of GDP of this state in national economy is 31.9%, per capita income and productivity of labour both is the highest accounting for US$ 1534 and Rs.182,223 respectively. As much as one-third or 34.4% of banks and financial institutions are located in this state. Being the capital region of the country until recently, the share of service sector to GDP is 44.5% which is also highest among all states.The number of households with access to water supply, electricity, toilet facilities etc. is relatively high in this state. It accommodates one-fifth or 20.9% of country's total population with 13.8% of total land therefore density of population is high which is 272 persons per sq.km. The level of urbanization in Kathmandu, Bhaktapur, Lalitpur, Chitwan and Makanpur is 59.7,54.1,47.2,45.4 and37.4 respectively in 2014 (Population Monograph of Nepal,Vol.2,CBS,2014).With increase in number of municipalities after 2014,the urbanization level of Kathmandu,Lalitpur and Bhaktapur etc.must have increased further.

Despite of all these positive side of the picture, there are many problems/challenges which this state has to confront. For instance, haphazard urbanization particularly in three cities of the Kathmandu Valley resulting into tremendous pressure on the existing facilities and services, traffic congestion,

rising prices of land and housing leading to informal settlements etc. The level of poverty is 15.3% and food balance sheet is alarming indicating deficit as much as 535,028 Metric ton in FY2015/16.

Kathmandu district context

Kathmandu district being the capital city of the nation until recently is undoubtedly the most developed and prosperous city in terms of socio-economic, urbanization, provision of infrastructure services and facilities etc. More than 60% of the population in Kathmandu district lives in the urban areas and this is the highest level of urbanization in Nepal compared to urbaniztion level of remaining distrcts in Nepal.The city of Kathmandu is equally rich in ancient historical,archaelogical cultural heritage both tangibles and intangibles.For instance, Boudha, Kathmandu Durbar Square,Swoyambhu three out of seven belonging to World Heritage Sites are located in this city alone. In addition to this, there are innumerable number of intersting and beautiful temples,bihar,chaityas,bahi/bahal and bihar with fascinating traditional architecture, wood carving, metal casting and stone crafting which can be seen in this city and this attracts not only lures foreign tourists but also Nepali people alike.

Kathmandu is probably the most crowded and unplanned city in Nepal where regular traffic jam, lack of water supply, frequent occurrence of solid waste management problem,pollution of both dust and fumes etc has become part of daily life to city dwellers. Until recently the city had faced more than 16 hours of load shedding which now has become just a nightmare nobody likes to remember. Most of the city black topped city roads are dusty in sunny days and muddy and slippery in rainy days where one has to struggle to cross the road avoiding the potential accident in the mean time.

Due to rapid urbanization resulting from accelerated inflow of population from all over the country the housing construction is booming regardless of rocketing prices of land and their location. As the area of precious agricultural land is dwindling at faster rate annually, obviously leading to tremendous decrease in food grain production. This is clearly shown by the level of food deficit to the extent of 386,515 metric ton in FY 2015/16 and this deficit is increasing year after year.

According to preliminary result of National Economic Census conducted by Central Bureau of Statistics in 2018, there are 123,994 establishment in this district and the number of persons engaged are 575,003.

Municipality

context

Introduction

This municipality is one of the fast urbanizing municipalities among several other municipalities in the Kathmandu Valley. Being very close to Kathmandu City availability of transportation facilities, shops of daily necessities, people prefer to build their houses in this municipality and this has resulted the significant growth of population in this municipality in recent years. Obviously, the land price is soaring year after year so also the number of new houses. The famous Comfort Housing's first project has started in this municipality and now and few other housing developers are following it.

According to preliminary result of National Economic Census conducted by Central Bureau of Statistics in 2018, there are 3477 establishment in this municipality and the number of persons engaged are 11,001.

1.10.1 Trade &

Business Major problems

1.Lack of uniformity in prices and quality of goods

2.Lack of specific area for

shops 3.Unorganized market

Industry

Major problems

1.Lack of promotion of traditional skills and

enterprises 2.Lack of specific area for

establishment industries 3.Lack of herb processing

industries

4.Lack of investment-friendly policy to attract investment in large

industry 5.Lack of income generating skill training

1.10.2 Tourism

The vision setting workshop unanimously agreed and decided tourism as the lead sector and it is expected that this sector will drive the economy of municipality to the road of prosperity in near future.

Major problems

1.Lack of tourism related infrastructure

2.Lack of training for tourism

development

3.Lack of adequate dissemination of local culture and

tradition 4.Lack of security to tourist

5.Lack of adequate resources

6.Lack of standard hotels, restaurants, home

stay etc. 7.Lack of trained guides

8.Lack of adequate dissimination

The potential area/s for different aspects or dimension of tourism development is presented below:

S No.	Type of tourism	Potential area/s
1	Religious	Ichhangunarayan Temple, Kalbhairab Temple, Badranarayan Temple, Bhimsenthan Temple, Tarkeshwor Temple, Hasantar Gumba, Shaktibllabeshwor Temple, Mahadev Temple, Dakshya Kunda, Bhagawoti Temple, Sitapaila Temple,
2	Hiking/trekking	Nagarjune Conservation area , Raniban Area,
3	Botanical/zoological	Ganeshman Memorial Park,
4	Historical	Halchowk Aakshbhairab, Bhimdhunga

5	Park	Sahid Park, Swizerland Park,
6	Home stay	Thaple, Kallabari, Raniban, Ichhagunarayan, Majuwa
7	Natural/Sightseeing/ Entertainment	Nagarjune Conservation Area, Ratamate view Tower
8	Adventure	Jama chau, Chakdol Hill, Badrinarayan Cave, Kedernath Cave, Maheshnarayan Cave,
9	Weekend tourism	White Gumba , Bhirkot

Possibility

- Homestay
- Religious tourism (Shree Radhakrishna temple, Ichangu Narayan temple, white gumbha)
- Entertainment tourism (Hotel, view tower, cycling, hiking, cable car)

There are touristic interest place and religious and historical sites in this municipality. The exploitation of these different types of tourism development also lead to development of other service oriented business like money exchange, trekking, travel and ticketing, souvenir shops, transportation etc, In addition to this, the other thing which can attract tourist could be non living heritage like local festivals, traditional Bhajans, songs, folk dance etc. of different communities.

1.10.3 Agriculture

Paddy		Buck Wheat	
Area	724.88	Area	0.46
Production	3886.34	Production	0.46
Yield	5.08	Yield	1.00
Maize		**Wheat**	
Area	909.93	Area	357.63
Production	3085.70	Production	1144.41
Yield	3.39	Yield	3.20
Millet		**Barley**	
Area	78.13	Area	0.37
Production	78.86	Production	0.37
Yield	1.00	Yield	1.00

(Source: Statistical Information On Nepalese Agriculture, Ministry of Agriculture,Land Development and Cooperatives Development,2017.)

* In order to get estimated area, production etc., the proportionate share of cultivated area of Kageshwori municipality to total cultivated area of Kathmandu district is derived in percentage form. Based on this, the proportionate area and production is calculated and yield of municipality is derived simply dividing production by area. Area in hectare, production in metric ton and yield in metric ton per hectare.

Strength on agriculture:

- Gateway to Kathmandu valley
- More housing company in Nagarjun municipality
-

Weakness

- Width of ROW not sufficient for big vehicle such as truck, lorry.
- Not available of public land near Ringroad area.
- Urbanizing is decreasing agriculture land
- Not able to attract big investment
- Around 36.28 % land are slope land (> 30).
- Conservation of agriculture land to residential area.

Opportunities:

- Kalimati and Balkhu vegetable market is not sufficient for the people living northeast of kathmandu valley
- Public land available for the construction of agriculture market and cold storage
- Possibility of poultry farm, cattle farm and livestock.
- Construction of Naubise Thankot Tunnel

road. Threat:

- Fast track can affect the market as it will help to import from south of Nepal.
- Agriculture profession not profitable as other occupation.
- Agriculture profession not considered as profitable, respectable and professional.

Major problems

1.Subsistence type of agriculture system with limited use of modern

inputs 2.Increasing rate of land sub-division and land plotting in

haphazard manner 3.Use of excessive pesticides and insecticides

and chemical fertilizers

4.Lack of irrigation facilities and its poor management

5.Limited access to modern inputs like improved seeds, equipments,extension services etc

6. Lack of modernization and commercialization of

agriculture 7.Lack of manpower as youths are not

interested in agriculture 8.Lack of clod store and

organized market

9.Lack of protection measure to protect crops from animals

1.10.4 Livestock

Major problem faced in Livestock:
1.Lack of adequate knowledge about existing potentialities
2.Lack of knowledge about new possibilities and limited dissemination from concerned agencies to local farmers
3. Limited exploitation of potentialities existing in poultry, dairy farming, meat production 4.Lack of commercialization in livestock

Table 29 Poultry Firms in Municipality

S.N.	Name of poultry firm	Address	Meat Production	Export Status
1.	Rakesh Bahudeshye Gai tatha Kukhura Farm	Nagarjun Municipality 10, Syuichatar		
2.	Bajrabarahi Bahudeshye Krishi Farm	Nagarjun Municipality 7, Hasantar		
3.	Safal Krishi Farm	Nagarjun Municipality 7, Hasantar		
4.	Rimal Gai tatha Krishi Farm	Nagarjun Municipality 5, Ichhangunarayan		
5.	L.S.Agro Farm Private. Limited	Nagarjun Municipality 6, Taukhal		
6.	Basnet Gai/Bhaisi tatha Tarkari Udhyog	Nagarjun Municipality 6, Jayentigaun		

Table 30 Diary Firms in Municipality

S.N.	Name of dairy firm	Address	Milk Production	Milk Collection Center	Export Status
1.	Adhikari Gai Farm	Nagarjun Municipality 4, Sitapaila			
2.	Padam Gai Farm	Nagarjun Municipality 6, Kharitar			
3.	Nuwakot Dairy Pasal	Nagarjun Municipality 4, Sitapaila			
4.	Dhading Dairy Pasal	Nagarjun Municipality 4, Sitapaila			

1.10.5 Horticulture

Problem seen in horticulture in municipality:

1. Lack of adequate knowledge about existing potentialities
2. Lack of knowledge about new possibilities and limited dissemination from concerned agencies to local farmers

1.10.6 Banking & Finance

List of bank and cooperatives in municipality are as follows:

Table 31 Banks in the Municipality

S. N	Name of the Bank/ Finance	Address
1.	Nabil Bank Limited	Halchowk
2.	Himalayan Bank Limited	Halchowk
3.	Machhapuchhere Bank Limited	Halchowk
4.	Siddartha Bank Limited	Halchowk
5.	Krishi Bikash Bank Limited	Halchowk
6.	Prime Commercial Bank Limited	
7.	Sunrise Bank Limited	Sitapaila
8.	N.M.B Bank Limited	Sitapaila
9.	Prabhu Bank Limited	Swoyambhu
10.	Janata Bank Limited	
11.	Civil Bank Limited	Swoyambhu
12.	Nepal Bangladesh Bank Limited	
13.	Citizen Bank Limited	
14.	Dev Bikash Bank Limited	
15.	Muktinath Bikash Bank Limited	Sitapaila Marg
16.	Om Bikash Bank Limited	
17.	Nepal Gramin Bikash Bank Limited	
18.	Nirdhan Uatthan Bank Limited	
19.	Mahila Sahayatra Micro Finance Sastha Limited	
20.	Swodeshi Lagubitta Bittiya Sastha Limited	

Table 32 Cooperatives' Particular

S. N	Name of the Cooperative	Office location/ward	Type of cooperative	Working area of the cooperative
1	Raniban Mahila	Ichhangu Narayan	Saving and credit Cooperative	Ichhangu Narayan VDC
2	Jagaran	Balaju	Saving and credit Cooperative	K.M.C 15,16, Sitapaila, Manamaiju and Ramkot VDC
3	SahaGaurab	Swoyambhu	Saving and credit Cooperative	K.M.C 13,15,16, IchhanguNarayan and Sitapaila VDC
4	IchhanguNarayan	IchhanguNarayan	Saving and credit Cooperative	IchhanguNarayan VDC
5	Jayanti	Ramkot-07	Saving and credit Cooperative	Ramkot,Bhimdhunga,Syuchatar,Sitapaila
6	Tarkeshswori Mahila	Syuchatar	Saving and credit Cooperative	Syuchatar VDC only
7	Sewaro	IchhanguNarayan	Saving and credit Cooperative	IchhanguNarayan, Goldunga, Futu,Manamaiju,Tokha
8	Ramkot	Sitapaila	Saving and credit Cooperative	Balambu,Ramkot,Sitapaila,Syuchatar
9	Syuchatar	Syuchatar	Saving and credit Cooperative	KMC 13,14,15 Syuchatar, Sitapaila, Balambu,NAikap, Satungal, Dahachowk
10	Samudayik Sewa	Sitapaila	Saving and credit Cooperative	Ichhangunarayan, Sitapaila,Ramkot, Bhimdhunga VDC
11	Grihasarmik Panchakumari Mahila	Sitapaila	Saving and credit Cooperative	Sitapaila,Syuchatar,Ramkot VDC
12	Surakchhict	Syuchatar	Saving and credit Cooperative	Syuchatar,Tinthana,Sitapaila,Naikap
13	Naya Nepal	Ichhangunarayan	Saving and credit Cooperative	Ramkot,Sitapaila,Ichhangunarayan,Manamaiju
14	Chandrakar	Swoyambhu	Saving and credit Cooperative	Ichhangunarayan,Sitapaila,Manamaiju,Gongabhu,Dhapasi
15	Bhugol	Ichhangunarayan-06	Saving and credit Cooperative	Syuchatar,Sitapaila,Ichhangunarayan VDC
16	Aadeshwor Mahila	Sitapaila-02	Saving and credit Cooperative	Sitapaila,Ramkot,Bhimdhunga,Ichhangunarayan,Syuchatar

				VDC
17	Mastamandali Kalyankari	Ichhangunarayan	Saving and credit Cooperative	Ichhangunarayan,Goldhunga, Ma namailu
18	Auto Bikaas	Sitapaila	Saving and credit Cooperative	Sitapaila,Syuchatar,Ramkot,Bh im dhunga,Dahachowk
19	Nawa Panchakanya	Syuchatar	Saving and credit Cooperative	Syuchatar,Ramkot,Sitapaila,Ich h angunarayan
20	Jyoti Sworup	Syuchatar	Saving and credit Cooperative	Syuchatar,Ramkot,Sitapaila,Na ik ap
21	Bahudhanya	Sitapaila-01	Saving and credit Cooperative	Sitapaila,Ramkot,Bhimdhunga,I c hhangunarayan,Manamaiju
22	Sitapaila Nawajyoti	Sitapaila	Saving and credit Cooperative	Sitapaila,Ichhangunarayan,Syu ch atar VDC

23	Chirag	Ichhangunarayan	Saving and credit Cooperative	Syuchatar,Sitapaila,Ichhangunarayan,Manamaiju
24	Sai Buddha	Ichhangu-04	Saving and credit Cooperative	Ichhangu,Ramkot,Bhimdhunga,Syuchatar,Sitapaila
25	Hoste Haise	Syuchatar-04	Saving and credit Cooperative	Naikap,Tinthana,Syuchatar,Balambu,Satungal,Dahachowk
26	Solti	Sano Bharyang	Saving and credit Cooperative	Gongabu,MAnamaiju,Ichhangunarayan
27	Shree Bir Bhagawati	Ichhangu-02	Saving and credit Cooperative	Ichhangunarayan ,Ramkot VDC
28	Nawapaluwa	Sitapaila-06	Saving and credit Cooperative	Sitapaila,Ramkot,Bhimdhunga,Syuchatar,Ichhangunarayan VDC
29	Subharnabhumi	Ichhangunarayan-06	Saving and credit Cooperative	Sitapaila,Manamaiju,Goldunga,Ichhangunarayan
30	Anjali	Ichhangunarayan-09	Saving and credit Cooperative	Ichhangunarayan,Sitapaila,Ramkot,Bhimdunga,Syuchatar
31	Jayamata	Syuchatar- 01	Saving and credit Cooperative	Syuchatar,Ramkot,Balambu, Dah achowk
32	Ramjunu	Sitapaila	Saving and credit Cooperative	Sitapaila,Ramkot,Ichhangu,Goldunga,Dharmasthali
33	Radhe Krishna	Ichhangunarayan	Saving and credit Cooperative	Ichhangu,Manamaiju,Sitapaila,Goldunga,Dharmasthali
34	ManabPremi	Ramkot-01	Saving and credit Cooperative	Ramkot,Ichhangu,Bhimdunga,Dahachowk,Sitapaila
35	Hamro Ramkot	Ramkot-07	Saving and credit Cooperative	Ramkot,Bhimdunga,Sitapaila,Syuchatar.Ichhangu
36	Yubatara	Sitapaila	Saving and credit Cooperative	Ramkot,Bhimdunga,Sitapaila,Dahachowk,Naikap
37	Jibigoparjan	Ichhangunarayan	Saving and credit Cooperative	Ichhangu,Sitapaila,Ramkot,Bhimdunga,Dharmasthali
38	Hamro Gaun	Ramkot-04	Saving and credit Cooperative	Ramkot,Bhimdunga,Sitapaila,Ichhangu,Syuchatar
39	Rubi	Sitapaila	Saving and credit Cooperative	Sitapaila,Syuchatar,Manamaiju,Ichhangu,Goldunga
40	Puspahar	Sitapaila	Saving and credit Cooperative	Sitapaila,Ichhangu,Naikap,Ramkot,Syuchatar

41	Janasudhar	Ichhangu	Saving and credit Cooperative	Ichhangu,Ramkot,Sitapaila,Goldu nga
42	Maruti	Sitapaila	Saving and credit Cooperative	Sitapaila,Ramkot,Bhimdunga,Ich hangu,Syuchatar
43	Bahu Aayamik Krishi	Sitapaila-01	Saving and credit Cooperative	Ramkot,Bhimdunga,Sitapaila,Ich hangu,Syuchatar VDCs
44	Subha Kiran	Sitapaila	Saving and credit Cooperative	Sitapaila,Ramkot,Bhimdunga,Ich hangu,Syuchatar
45	Kotashya	Ramkot-04	Saving and credit Cooperative	Sitapaila,Ichhangu,Syuchatar,Bhi mdunga,Ramkot VDCs
46	Pabitrabhumi	Sitapaila-03	Saving and credit Cooperative	Sitapaila,Bhimdunga,Ramkot,Ich hangu,Syuchatar VDCs
47	Shramshree	Sitapaila-01	Saving and credit Cooperative	Ramkot,Sitapaila,Bhimdunga,Syu chatar,IChhangu VDCs

48	Tulsi	Sitapaila-01	Saving and credit Cooperative	Sitapaila,Ichhangu,Goldunga,Ra mkot,Syuchatar VDCs
49	Hamro Nagarjun	Ichhangu - 09	Saving and credit Cooperative	Ichhangunarayan VDCs
50	Udhamsil	Syuchatar-04	Saving and credit Cooperative	Syuchatar,Naikap,Balambu,Da ha chowk,Thankot VDCs
51	Bosten	Sitapaila-01	Saving and credit Cooperative	Sitapaila,Ichhangunarayan,Ra mk ot,Syuchatar
52	Ramkot Mahankal	Ramkot-02	Saving and credit Cooperative	Ramkot,Bhimdunga,Sitapaila,S yu chatar VDCs
53	Hiramoti	Sitapaila-01	Saving and credit Cooperative	Tinthana, Sitapaila,Syuchatar,Ramkot,B him dunga
54	Additional	Sitapaila-01	Saving and credit Cooperative	Sitapaila,Naikap,Balambu,Ram ko t,Syuchatar
55	Hamro Janathailai	Bhimdunga-04	Saving and credit Cooperative	Ramkot,Bhimdunga,Sitapaila,S yu chatar,Ichhangunarayan VDCs
56	Upasana Mahila	Sitapaila-04	Saving and credit Cooperative	Sitapaila, Ramkot,Bhimdunga,Ichhangu ,Sy uchatar
57	Bharpardo Krishak	Sitapaila	Saving and credit Cooperative	Sitapaila,Syuchatar,KMC 13,15 and 16
58	Saman Sahabhagita	Ichhangunar ayan	Saving and credit Cooperative	Ichhangunarayan,Ramkot,Sitap ai la VDCs
59	Dhungedhara	Ichhangunar ayan-09	Saving and credit Cooperative	Sitapaila,Ichhangunarayan,Gol du nga,MAnamaiju
60	Smarika	Sitapaila-01	Saving and credit Cooperative	Bhimdhunga, Sitapaila,Ichhangunarayan,R amk ot,Syuchatar VDCs
61	Hamro Milijuli	Ichhangunar ayan-08	Saving and credit Cooperative	Ichhangunarayan VDCs
62	Challenge	Syuchatar-01	Saving and credit Cooperative	Sitapaila,Ramkot,Syuchatar,Na ik ap
63	Bala Tripura Sundari	Sitapaila	Saving and credit Cooperative	Sitapaila,Syuchatar,Ichhangun ara yan,Ramkot,Bhimdunga VDCs
64	Eklabya	Sitapaila-01	Saving and credit Cooperative	Syuchatar,Purano Naikap,NAy a NAikap,Sitapaila,Tinthana VDCs
65	Sunaulo Aayam	Syuchatar-04	Saving and credit Cooperative	Syuchatar,Naikap,Dahachowk, Th

				ankot VDCs
66	Samriddhisil	Sitapaila-04	Saving and credit Cooperative	Sitapaila,Syuchatar,Ichhangunara yan,Ramkot,Bhimdunga
67	Aadhunikjan	Sitapaila	Saving and credit Cooperative	KMC 16, Sitapaila,Ramkot,Ichhangu,Gong abhu VDCs
68	Sarbamanya	Ichhangunar ayan-04	Saving and credit Cooperative	KMC 15,16, IChhangunarayan,Sitapaila,Ramk ot VDCs
69	Yesuyor	Syuchatae- 01	Saving and credit Cooperative	Purano Naikap, Syuchatar,Ramkot,KMC ward no 14
70	Seti Ganesh	Sitapaila-01	Saving and credit Cooperative	KMC ward no 13,14,15, Sitapaila,Syuchatar VDCs

71	Ramkot Bindabasini	Ramkot-04	Saving and credit Cooperative	Ramkot,Bhimdunga,Sitapaila VDCs
72	Devnagar	Ichhangunarayan-09	Saving and credit Cooperative	KMC ward no 15,16, IChhangunarayan,Sitapaila VDCs
73	Sitaram Maitri	Sitapaila-06	Saving and credit Cooperative	KMC ward no 15, Sitapaila,Ramkot,Bhimdhunga, Ichhangunarayan VDCs
74	Lok Hitkari	Syuchatar-04	Saving and credit Cooperative	KMC ward mo14, Syuchatar,Sitapaila,Ramkot VDCs
75	Sundar Nagar	Ichhangunarayan-09	Saving and credit Cooperative	Ichhangunarayan VDC
76	Unison	Syuchatar- 02	Saving and credit Cooperative	KMC ward 14, Syuchatar,Sitapaila,Ramkot,Pura no Naikap VDCs
77	Gairigaun	Ichhangunarayna-05	Saving and credit Cooperative	Ichhangunarayan VDC
78	Patta	Sitapaila-06	Saving and credit Cooperative	Sitapaila VDC
79	Kamalpokhari	Syuchatar-01	Saving and credit Cooperative	Syuchatar VDC
80	Hiraratna	Syuchatar-01	Saving and credit Cooperative	Syuchatar VDC
81	Suryamalika	Sitapaila-02	Saving and credit Cooperative	Sitapaila VDC
82	Sahara Bahuaayamik	Ichhangunarayan-06	Saving and credit Cooperative	Ichhangunarayan VDC
83	Artha Sansar	Ichhangunarayan -09	Saving and credit Cooperative	Ichhangunarayan VDC
84	Himmat	Syuchatar-09	Saving and credit Cooperative	Syuchatar VDC
85	Jeevan Paribartan	Sitapaila-04	Saving and credit Cooperative	Sitapaila VDC
86	Krishma	Sitapaila-01	Saving and credit Cooperative	Sitapaila VDC
87	Sarba Sewa	Ramkot-03	Saving and credit Cooperative	Ramkot VDC
88	Paropakar Swasthe	Ichhangunarayan-01	Health Cooperative	Ichhangunarayan,Sitapaila,Ramkot VDCs
89	Shyameshwor	Ramkot	Agriculture cooperative	Ramkot,Bhimdunga,Sitapaila,Ich hangunarayan, Syuchatar VDCs
90	Krishi Bikaash	Sitapaila	Agriculture cooperative	Ichhangunarayan,Manamaiju,Go ngabu,Sitapaila,Goldhunga
91	Aakashdevi Mahila Krishi	Ichhangunarayan	Agriculture cooperative	Ichhangunarayan VDC

92	Bhimdunga Krishi	Bhimdhung a -04	Agriculture cooperative	Bhimdhunga,Ramkot,Sitapaila,I c hhangunarayan,Dahachowk
93	Pakhure Krishi	Bhimdhung a -03	Agriculture cooperative	Bhimdhunga,Ramkot VDCs
94	Samagra Krishi	Syuchatar	Agriculture cooperative	Syuchatar,Naikap,Balambu,Da ha chowk,Bhadbhanjhyang
95	Bharpur Krishi	Sitapaila-01	Agriculture cooperative	Sitapaila,Syuchatar,Ramkot,Bh im dhungs,Purano Naikap VDCs

96	Ramkpt Sana Kisaan Krishi	Ramkot-06	Agriculture cooperative	Ramkot VDC
97	Gramin Hatemailo Krishi	Bhimdhunga -01	Agriculture cooperative	Bhimdhunga VDC
98	Janassneha Krishi	Ramkot-07	Agriculture cooperative	Ramkot VDC
99	Jaya Shivasakti	Ichhangunarayan	Multipurpose Cooperative	Ichhangunarayan,Sitapaila,Syuchatar,Manamaiju,Gongabu
100	Panchdhara	Ichhangunarayan	Multipurpose Cooperative	Ichhangunarayan,Ramkot,Sitapaila,Syuchatar,Bhimdhunga VDCs
101	Gramin Mahila Bikaash	Ichhangu-01	Multipurpose Cooperative	Ichhangunarayan,Sitapaila,Ramkot,Bhimdhunga
102	Haushala	Sitapaila-06	Multipurpose Cooperative	Sitapaila,Ramkot,Bhimdhunga,Ic hhangunarayan,Syuchatar 05 VDCs
103	Aakriti	Sitapaila-07	Multipurpose Cooperative	Bhimdhunga,Ramkot,Sitapaila,Ic hhangunarayan,Syuchatar 5 VDCs
104	Tarapunja	Ramkot-09	Multipurpose Cooperative	Ramkot,Sitapaila,Bhimdhunga,Syuchatar,Dahachowk
105	Janahit	Ramkot-02	Multipurpose Cooperative	Ramkot,Bhimdhunga,Sitapaila
106	Prayetna	Sitapaila-01	Multipurpose Cooperative	KMC 13,14, Sitapaila,Ramkot,Bhimdhunga
107	Ichhangu Mahila Jagriti	Ichhangunarayan	Multipurpose Cooperative	Sitapaila,Goldhunga,Ramkot,Bhimdhunga,IChhangunarayan VDC
108	Sakriya Krishi	Ramkot-01	Multipurpose Cooperative	Ramkot VDC
109	Prithivi	Sitapaila-04	Multipurpose Cooperative	Sitapaila,Ramkot,Bhimdhunga,Syuchatar,Purano Naikap
110	Jeebanmarga	Sitapaila-01	Multipurpose Cooperative	Sitapaila,Ichhangunarayan,Bhimdhunga,Ramkpt,Syuchatar VDCs
111	Nagarik Uthhan	Sitapaila-03	Multipurpose Cooperative	Gogambhu,KMC ward no 1,33,32,29
112	Sulok	Syuchatar-01	Multipurpose Cooperative	KMC ward no 13,14,20, Sitapaila,Syuchatar VDCs
113	Bishwobiraat	Sitapaila-01	Multipurpose Cooperative	Sitapaila,Ramkot,Ichhangunaray an,Bhimdhunga,Syuchatar

114	Taubhikal Sahara	Ramkot-05	Multipurpose Cooperative	Ramkot,Sitapaila,Syuchatar,Bhim dhunga,Ichhangu
115	Jaguruk Upabhokta	Sitapaila-02	Consumer Cooperative	Sitapaila,Ramkot,Ichhangunaray an,Syuchatar,Bhimdhunga VDCs
116	Sewamulu k Upabhokt a	Nagarjun Municipalit y 02	Consumer Cooperativ e	Nagarjun Municipality 02
117	Grihasramik Panchakuma ri Mahila	Sitapaila	Other Cooperatives	Sitapaila,Ramkot,Syuchatar,Than kot VDCs

Environmental and Ecological Status

1.11.1 Forest

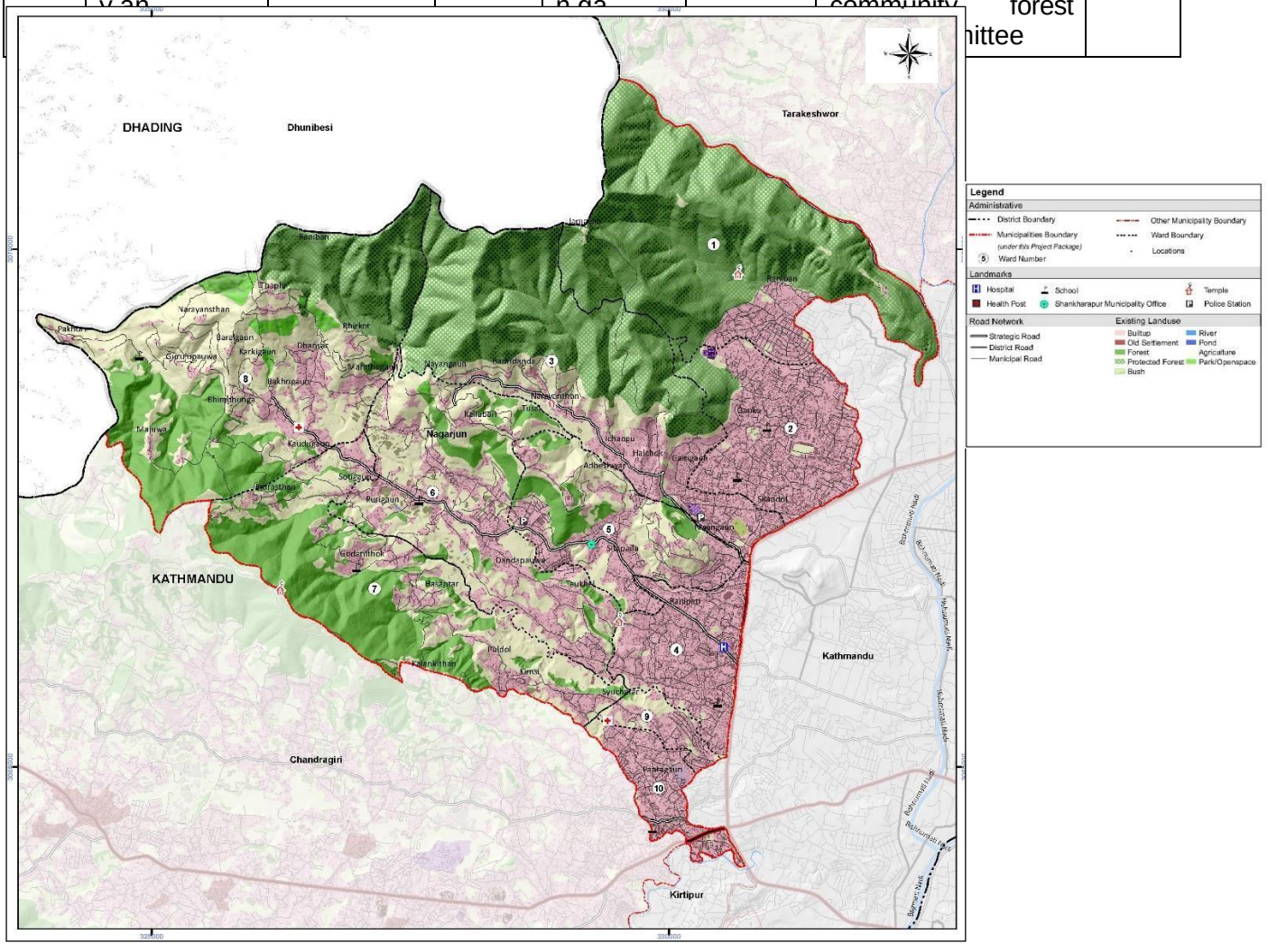
There are 176 community forest in Kathmandu district among them 14 community forest serves 1545 households.

Table 33 List of Forests

S. No.	Name of the Forest	Type of Forest	Wards	Tole	Benefitted hh no.	Name of the Users Committee	Area of Forest (ha.)
1	Fasku	Community	6	Ramkot	114	Fasku community forest users committtee	22.95
2	Jhakribas	Community	7	Ramkot	178	Jhakribas community forest users committee	44
3	Aduwabari	Community	7	Ramkot	84	Aduwabari community forest users committee	37.8
4	Hasantar	Community	7	Seuchatar	259	Hasantar community forest users committee	64
5	Shyameshwor Mahanta	Community	6	Ramkot	100	Shyameshwor community forest users committee	1.28
6	Panchakanya	Community	9	Seuchatar	87	Panchakanya communnity forest users committee	1.94
7	Panchakanya Kalpeshwor	Community	6	Ramkot	155	Panchkanya kalpeshwor community forest users committee	12.64
8	Chapakoban	Community	7	Ramkot	191	Chapakoban community forest users committee	60.55
9	Harisiddhi Sallabari	Community	5	Sitapaila	73	Harisiddhi sallabari community forest users committee	4.5.
10	Jayanti devi	Community	8	Sitapaila	91	Jayantidevi community forest users cummittee	23.2
11	Nursery bhanjyang	Community	8	Bhimdhun ga	56	Nursery bhanjyang community forest users committee	31.2

12	Majuwa	Community	8	Bhimdhun ga	38	Majuwa community forest users committee	23.4

13	Chhagdole	Community	7	Sitapaila	80	Chhagdole community forest user s committee	6.8
14	Gaihidhara	Community	5	Sitapaila	39	Gaihidhara community forest users committee	0.5
15	Jugekhola	Kabuliyet	3	Ichangun a rayan	84	Jugekhola Community forest user s committee	3.28
16	Ichangunara y an	Kabuliyet	3	Ichangun a rayan	43	Ichangunarayan community forest users committee	8
17	Ghattekhola	Kabuliyet	6	Bhimdhu n ga	112	Ghattekhola community forest users committee	5.8
18	Maheshnara y an	Kabuliyet	6	Bhimdhu n ga	165	Maheshnarayan community forest ittee	33



Map 14 Spatial Distribution of Forests

1.11.2 Air Pollution

Air quality in Kathmandu valley is worsening. Kathmandu valley is surrounded by high hills ranging form 2000 to 2800 meteres from sea level. Due to this, valley have bowl- shape structure which restricts the movement of air retaining the pollutants in the air The main reason for degrading air quality in Kathmandu valley is due to vehicle and brick kiln in valley. Chronic exposer of deteriorated air increases the chance of non communicable airborne disease such as lung disease, heart disease and cancer. According to a report of World Health Organization (WHO), the maximum status of fne Particulate Matter (PM2.5) in urban areas of Nepal was noted to be 140 μg/m3 [37] which is 10 times higher than the desirable value (Bhuvan Saud, Govinda Paudel, 2018).

About 50.88 % of the total road network of Nagarjun municipality is earthen which is causing air pollution due to dust. After earthquake in 2015, many damaged houses were constructed and construction materials are present along road and open space which is causing air pollution.

1.11.3 Water Pollution

Kathmandu valley has been having severe water treatment problem since many years because of unplanned urbanization and rapid population growth. Water Pollution is the most visible consequences of the haphazard development.

Table 34 List of rivers in Nagarjun Municipality (Source: field survey, community forest progress report 2073-2074)

S.no	Name of river	Ward number
1	Manamati Khola	Ward 4,9,6,7
2	Lupang Khola	Ward 5,6
3	Tribeni Khola	Ward 6,8
4	Juge Khola	Ward 3,5
5	Dholango Khola	Ward 1,3
6	Thulo Khola	8

Water pollution on these rivers are seen due to disposal of solid waste on bank of the river. The sustainable river management in urban areas is not well known and adopted in Nepal. Despite of their fundamental role since ancient times as the first place of urbanization, riverside areas are frequently afflicted by tremendous problems of overcrowding, conflicting uses, and pollution, often due to the absolute lack of planning and management. Sadly, this has manifested into reality in the case of the Kathmandu Valley. Water pollution can also be seen in traditional ponds in Nagarjun municipality. These traditional ponds are covered by solid waste and plastics causing water pollution.

1.11.4 Noise Pollution

In Urbanizing area there are many building constructions on process. This construction of building is causing noise pollution on these areas. Noise pollution can also be felt in buspark due to unmanaged parking space.

1.11.5 Open space

Open space is those space where there is no built structure. Open space can be used for recreational space, shelter during disaster, open green space, parks etc. In Nagarjun municipality there are open space Halchowk Stadium, Switzerland Park and Khulachaur etc.

District coordination committee have identified open space suitable to take shelter during disaster. Khulachawr in Ichhangunarayan having area around 150 ropani and Community Building in three different School area are the identified area suitable to take shelter during disaster in Nagarjun municipality.

1.11.6 Sanitation

Regarding Sanitation, use of toilet also plays a vital role. The household without toilet facility is also in significant number which is 97.96 %.

Total households	Households without toilet facility	Households with toilet facility of		Toilet facility not stated
		Flush toilet	Ordinary toilet	
16,746	229	14515	1890	112

[Source: C.B.S 2011]

In Nagarjun municipality there are 6 public toilets. The List of Public Toilets, there Location and its present condition is as follows:

Table 35 List of Public Toilet

S. No	Quantity	Ward No	Place	Managed By	Current Situation
1.	1	10	Club Bhawan	Tarkeshwor Club	Unidentified
2.	1	8	Bhimdhunga Buspark	Unidentified	Poor Condition
3.	1	7	Hasantar	Hasantar Tole Bikaash Sastha	Good Condition
4.	1	6	Kasarthok		Under Construction
5.	1	5	Aadeshwor	Aadeshwor Mahila Samuha	Good Condition
6.	1	2	Tinghare	Ward Office	Poor Codition

Solid waste is thrown in roads and open space causing pollution and unpleasant view.
Switzerland Park is popular as picnic spot but is also causing pollution as people have dumped waste in forest area.

There is no municipal waste collection system so waste are been collected by private organisation such as NEPSE MAC pvt ltd, Data binayak bhalo sanstha and hariyo Fohor Byabasthapan. these organization only focus on solid waste collection from household so solid waste is accumulated in public place like buspark, road, parks which is degrading the beauty of the settlement.

Disaster

Disaster brings serious disruption in the functioning of a community or society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community to cope using its own resources (UNISDR, 2009). Epidemics, landslide, floods, fire, thunderstorm, accident and earthquake are some of the main hazards in Nepal. Among these flood, fire, landslide and epidemics are major disaster.

In Kathmandu district data from 1971-2016 shows that earthquake is major disaster as it has damaged 43605 houses completely killing 1230 people.

Table 36 Damage due to different disaster in kathmandu district (1971-2016)

Type of disaster	Frequency	Death	Injured	Affected population	Affected building	
					Totally affected	Partially affected
Earthquake	10	1230	8076	99936	43605	56568
Fire	703	120	283	4180	464	472
Accident	93	93	26	32	1	1
Landslide	40	71	28	531	66	40
Epidemic	60	41	377	4132	0	0
Flood	43	36	13	196	31	228
Blast	15	11	15	4	1	1
Lightning	14	7	7	11	5	4
Strom	18	6	26	0	0	12
Hurricane	5	0	0	0	0	10
Others	147	179	254	2255	78	33
Total	1148	1794	9105	111277	44251	57369

(source: DesInventar Database of Nepal 1971-2016)

In Nagarjun municipality mainly earthquake, fire, landslide and accident are major disaster.

1.12.1 Earthquake

Nepal is most susceptible to earthquake as a consequence of the collision between Indian Plate and Eurasian Plate. Nepal is in the 11th position in the list of most vulnerable country to earthquake in the world and from the perspective of the total number of human casualties in the city, it stands in the 1st (Dakhal, 2015).

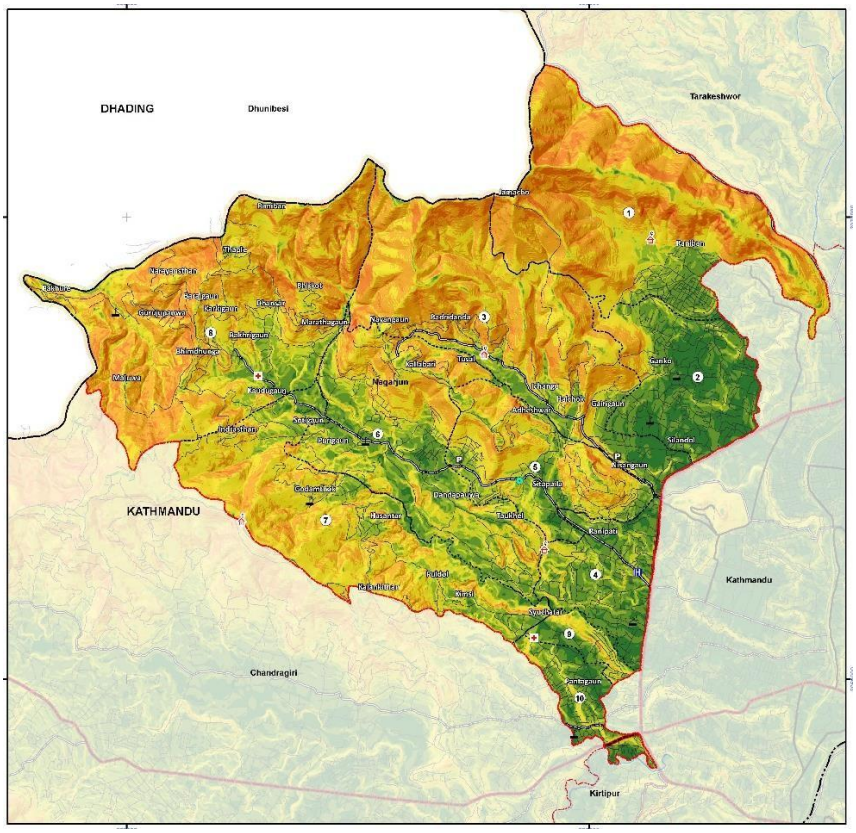
Kathmandu valley is considered as one of the most vulnerable cities in the world from earthquake because of its huge population, haphazard unplanned urbanization, unscientific building construction, weak policies and co-ordination mechanism among different government organization. In 2015 earthquake hit Nepal which caused massive damage to the country affecting eight million people. The death toll crossed over 8,000 and injured 20,000 and half million homes were destroyed.

Nagarjun Municipality was one of the most affected during 2015 earthquake.

Observing rainfall data of 1980-2004 indicates total monsoon rainfall is increasing which is increasing the discharge of the river. The increased discharge has high capacity to erode riverbanks and occurrence of flood. In Nagarjun municipality also during monsoon season there is problem of flood making the cultivable Land in the risk of Flood. There is need of construction of retaining wall in ward 4 near Manamati River Corridor to stop flood and landslide occurring in ward.

1.12.2 Landslide

Landslide are the most geological hazard in Nepal in terms of its occurrence which is mainly triggered by earthquake and intense rainfall (Dakhal, 2015). Due to topography of Nepal also landslide is frequent and occurs more losses. Nagarjun municipality consists of hill and hillock consisting of various types of soil which had put it in risk of landslide.



Map 15 Terrain of Nagarjun

In ward consultative workshop we identified some issues on landslides in different places of municipality. Landslide problem is seen in hilly area such as in ward 9(Biraditole) ,5(Chagdol) ,7(Hasantar)
,8(Bhimdhunga) and 6 (Thapatole) due to earthquake, unplanned road construction, absence of storm water drains and deforestation.

Municipality	Ward No.		Area of Different Terrain as per degree of slope(ha)						
		0-2	2-5	5-10	10-15	15-30	30-45	45-60	>60
Nagarjun	1	3.24	26.23	27.69	19.14	121.31	219.84	84.67	1.11
	2	88.41	73.11	19.26	5.52	12.71	11.63	0.47	
	3	16.02	28.78	29.12	21.04	129.01	203.35	38.45	0.29
	4	24.27	62.44	32.98	11.94	9.44	0.93	0.04	
	5	5.47	22.35	36.17	23.08	77.74	39.84	3.96	0.17
	6	9.27	57.55	78.31	48.54	102.30	57.64	5.48	
	7	4.44	25.58	50.85	37.15	178.48	82.23	5.58	0.02
	8	1.92	14.35	35.33	34.66	188.84	257.52	66.99	0.34
	9	6.49	9.77	7.17	5.57	7.98	1.72	0.03	
	10	16.05	26.03	15.50	6.21	6.49	0.34	0.04	
	Area	175.58	346.19	332.38	212.85	834.3	875.04	205.71	1.93

Table 37 Landslide affected area in Nagarjun municipality

S. N	Place and Ward	Ward No	Type of calamity	Time of outbreak of calamities	Past damages	Current situation
1	Above Durga Nagar Colony	9	Landslide	Frequently	Land	Possibility of Land and House damage
2	Thaple	8	Landslide	Rainy Season	Cultivable land and Livestock	In danger
3	Majuwa	8	Landslide	Rainy Season	Cultivable land and Livestock	In danger
4	Rato Mate	8	Landslide	Rainy Season	Cultivable land and Livestock	In danger
5	Bhirkot	8	Landslide	Rainy Season	Cultivable land and Livestock	In danger
6	Ghatte Khola	8	Landslide	Rainy Season	Cultivable land and Livestock	In danger
7	Khadkagaun	8	Landslide	New Road track	Cultivable land	In danger
8	Hasantar	7	Landslide	Rainy	House and Land	Satisfactory
9	Dahachowk	7	Landslide	Rainy	House and Land	Satisfactory
10	Jyoti Pra.Bhi	6	Landslide	Rainy	Land	Houses in the risk
11	Near Manamati Khola	4	River Cutting	Rainy	Cultivable Land	Annual Loss of Land
12	Ichhangunarayan Area	3	Landslide	Rainy		
13	Gairigaun Height	2	Landslide	Rainy	House and Land	Danger

1.12.3 Fire

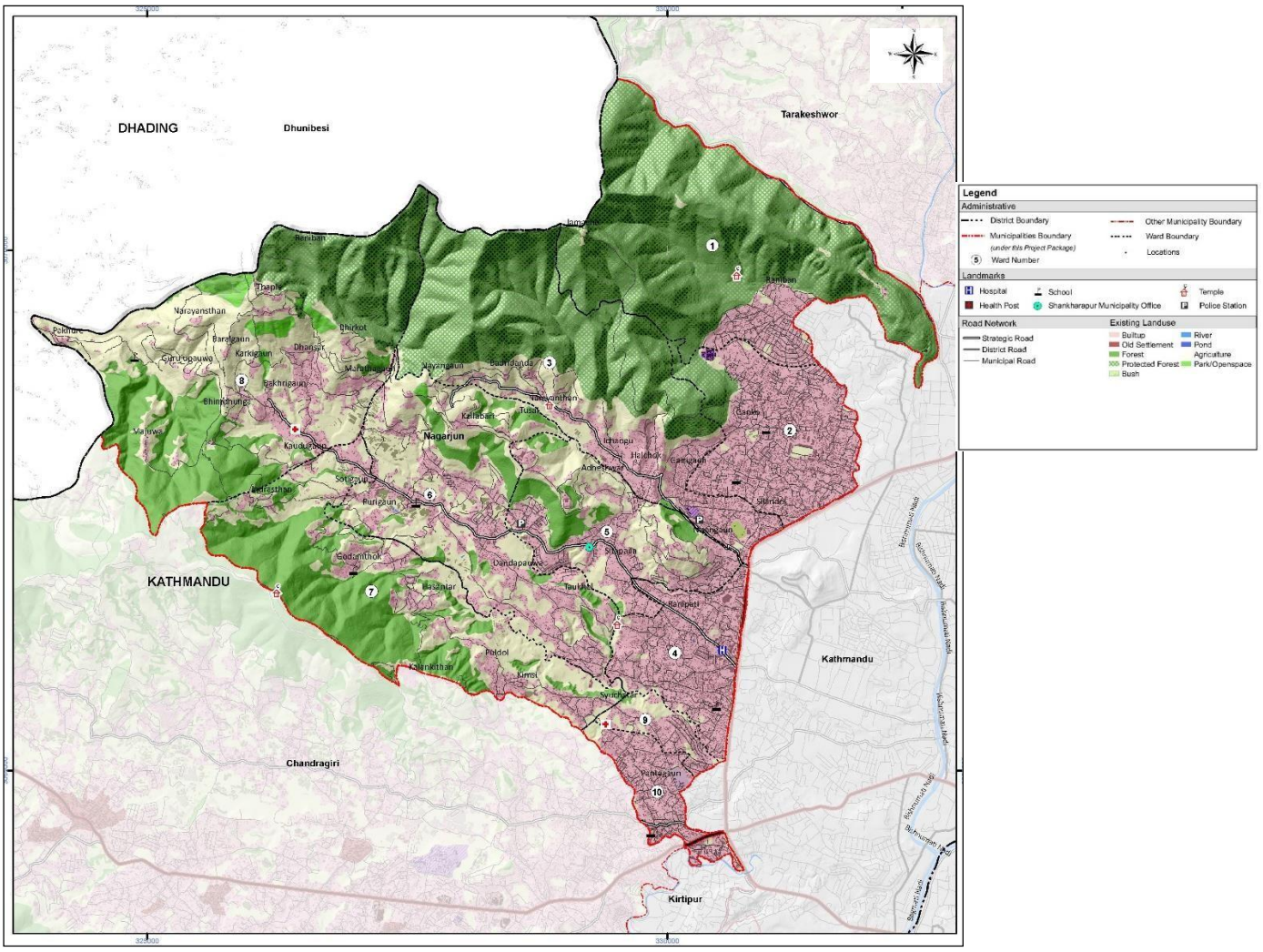
Fire occurs mainly between April and June during dry season. Fire is mostly common in rural and terai region due to very poor housing condition. At past for fighting fire, there were water related components such i) ponds and wells ii) stone spout iii) rivers and stream used. Core settlement of Nagarjun municipality is dense and compact, increasing fire hazard risk to the settlement.

In case of outburst of fire, fire brigade has to arrive from Bhaktapur or Pulchowk.

Land use and Urbanization

1.13.1 Land use

Among the total land available of 2984 hectares, use of 24.38 % of land is agriculture, 13.85 % is forest and 30.61 % is settlement area.



Nagarjun Municipality

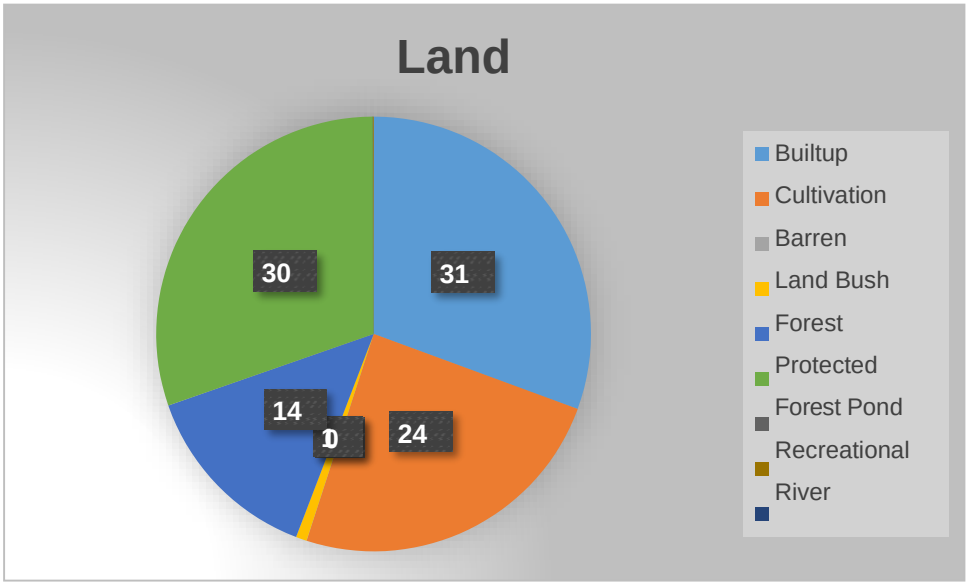


Figure 4: Land Use

Table 38: Existing landuse of Nagarjun Municipality

S. No.	Description	Area (Ha)	Percent
1	Builtup	913.4427	30.611
2	Cultivation	727.5999	24.383
3	Barren Land	0.030924	0.001
4	Bush	24.13418	0.809
5	Forest	413.4989	13.857
6	Protected Forest	903.5166	30.279
9	Pond	0.176772	0.006
10	Recreational	1.567725	0.053
	River	0.031852	0.001
	Total	2984	100

1.13.2 Housing and Squatter

About 23% of the house in Nagarjun Municipality are of Mud bonded bricks and stone while 42.8 percent house are of RCC with pillar structure.

Table 39 Households by foundation of house/housing unit

Total	Type of foundation of house					
	Mud bonded bricks/ stone	Cement bonded bricks /stone	RCC with pillar	Wooden Pillar	Others	Not stated
5406	3,838	5,383	7,174	45	26	280
						Source: C.B.S – 2011

Institutional and Financial Management

1.14.1 Institutional Capacity

Human Resource and Institutional Set up

For proper management of municipality's functions and programs, municipality has formed various Committees and sector-wise committees at municipal level in accordance with the section 14 of Local Government Operation Act, 2074 (LGOA). Most of the major committees of municipality are formulated in the chair of Deputy Mayor except Resource Estimation and Ceiling Committee, and others are composited in the head of Executive Board Members. There are five different major committees, i.e. Resource Estimation and Ceiling Committee; Local Revenue Consultative Committee; Budget and Programme Committee; Judiciary Committee; and Legislative Committee in functions. Likewise, Sectorial Committees in the municipality are also formed and carry out their functions accordingly. There are five sectorial committees, such as, Public Service and Capacity Development Committee; Social Development Committee; Infrastructure Development Committee; Economic Development Committee; and Environment and Disaster Management Committee. Thus, most of the Executive Board Members are directly responsible and involved in the municipality's functions. The duties and responsibilities of each committee are also prepared and classified properly.

Manpower:

The manpower working in various sections of the municipality are 51 in number. Out of 51 staff, 12 are officers and rest ones are assistant level. They are working in various sections, Administrative, Account, Agriculture, Livestock, Engineers and IT. The personnel administration is leaded by Chief Administrative Officer (CAO).

As per the MOFAGA, 51 numbers of manpower have been provisioned in total ward offices. 12 nos. of manpower have been set up as technical manpower in total at ward offices. At the main office of municipality, there are 8 nos. of engineers including Technical Section head and five Reconstruction engineers. Likewise, 4 staff of livestock service are also managed at municipality office. However, manpower for town police, plumbing, ambulance and fire- bridged operation has not been managed as per the manpower detail of MOFAGA.

In the existing situation, Administration, Account, Engineering, Livestock Service, Health, IT, Education and Women development sections are in functions; and necessary manpower in aforesaid sections has also been arranged. Most of the staffs are working in Administration section, whereas only 2 – 2 nos. in Account section and Financial section, and two in IT section, and three in Health, six in women (4 excess staff).

However, as per the provision (above 75 thousand populations) of MOFAGA, there should be seven different sections, i.e. Administration, Planning and Monitoring section; Infrastructure development and Environment management section; Health section; Law and Social Development Section; Education, Youth and Sports section; Economic development section; and Account Administration section. Administration, Planning and Monitoring sub-section, Revenue sub-section, Information and Communication Sub-section, and Ward offices come under the administration section. Likewise, four sub-sections are provisioned under the Infrastructure Development and Environment management section, i.e. Roads and other infrastructure; Building and settlement development; Environment & Sanitation, and Disaster management; whereas, Social security and vital registration; Women, Children and Social Welfare; and Health unit comes under the Health section. Consumer right sub-section; Cottage and Small industries; Agriculture Service Center, Livestock service center are under the Economic Development section; and School, Child Development Center, Sports Committee, and Technical and Vocational Training Center are provisioned under the Education, Youth and Sport Section. The Internal Audit unit is provisioned as a separate unit.

Organizational Structure and Organogram:

The organizational structure of Nagarjun municipality has been mentioned below:

Mayor
Mr.Mohan Bahadur

Deputy Mayor
Sushila Adhikari

Chief Administrative Officer
Mr. Shree Krishna Prasad Sapkota

Ward Chairman and Municipal Board Members and Ward Members

Mr. Ram Chandra lama Ward Chairman Ward No.1 Mr. Thumraj K.c. Ward Chairman Ward No.2 Mr. Premlal Shrestha Ward Chairman Ward No.3 Mr. Karud Kumar Balami Ward ChairmanWard No.4 Mr . Mahesh Rimal Ward Chairman Ward No.5 Mr . Rajindra Budhathoki Ward Chairman Ward No.6 Mr . Ramesh Gautam Ward ChairmanWard No.8 Mr. Sukra Bahadur Tamang Chairman Ward No.9 Mr. Ram Krishna Bhattari Chairman Ward No.10

Ms. Shanta Lama Municipal Board
Ms. Bimala Maharjan Municipal Board
Ms. Goma Subedi Municipal Board
Ms. Kalpana Nepali Municipal Board
Ms. Bidhya Nepali Municipal Board
Ms. Rama Chalise Municipal Board
Ms. Chanda Shrestha Municipal Board
Ms. Babu Krishna Nepali Municipal Board

Administration, Planning and Monitoring Section
Mr. Achyut Dahal, Section Officer

Administration Planning and Monitoring Sub Section
Mr. Narayan Prasad Timilsina (Nayyab Subba)

Ms. Shusila Aryal Gyawali (Kharidar)

Ms. Indu Lama (Kharidar)

Revenue Sub Section
Mr. Rajendra Prasad Gautam (Nayyab Subba) Ms. Shaileshowri Giri (Computer Operator) **Information and Technology Sub Section** Mr. Bishnu Hari Aryal (IT Officer)
Mr. Sagar Khatri (Assistant Computer Operator)

1. Ward
Sushila Lohani Sharma Kharidar Ward Secretary Ward.1
Mr. Rishi Prasad Bhattari Kharidar Ward Secretary Ward.2
Mr. Siddrtha Shrestha Kharidar Ward Secretary Ward No.3 Mr. Junga Bahadur Chanda (Nayyab Subba) Ward Secretary Ward.4 Ms. Shanti Shah (Nayyab Subba ') Ward Secretary Ward.5 Ms. Indira Koirala(Nayyab Subba) Ward Secretary Ward 6 Ms. Suma K.c. Kharidar Ward Secretary Ward.7
Mr. Dhurba Bhandari Kharidar Ward Secretary Ward.8
Mr. Rameshwor Dhangana Kharidar Ward Secretary Ward.9
Mr. Ram Prasad Ghimire (Nayyab Subba) Ward Secretary Ward 10

2.Ward Technical Staff Detail
Ms. Kanchan Balami Sub Engineer Ward .1 and 2 Mr. Dinesh Giri Engineer Ward 2 and 3 Ms. Shandhya Regmi Sub Engineer Ward .5 Mr. Narindra Shrestha Sub Engineer Ward.6

Infrastructure Development and Environment Management Section
S.D.E. Gazetted 2nd Class Technical

Road and other infrastructure development sub section
Mr. Kanchan Khanal, Engineer
……, Sub-engineer
……., Sub-engineer **Building and Settlement Development Sub-section**
Mr. Shambhu Raj Shrestha

Health Section
Ms. Sushila Kathayath Public Health Officer,7th

Public Health Promotion Sub Section
Ms. Kamala Chapagain ,Public Health inspector

Law and Social Development Section

Section Officer
…… ……..
….. **Bhuvan Giri** Nayyab Subba Bindu Subedi Assistant *4*th

Eduction and Youth and Sports Section Mr. Madi Raj Abasthi
Section Assistant /f=k|=c=g=k=÷ Assistant 5th
……..
..Municipality Under Congerational Schools job holder teacher detail Unlawful mentain

Economic Development Section Ms. Shrjina Poudel

Horticulture Development Officer
Industry
…….. Assistant *4*th **consumer**

Economic Administration Section Mr. Ananda Kumar Khadka Account IT Officer n]=kf=/f=k=cg= Assistant *4*th
…… **Jr. Accountant**
…… Assistant *4*th
Ishwori Lamichhane

Internal audit unit
6th level officer
…….. Ms.Sanjib k.c
. Assistan*4* th

Internal audit officer

s.no	Name	Caste
1	Dr.Ganesh	Lama
2	Dr.Prabesh Bikram	Shigha
3	Dr.Jyoti	Pandey
4	Bidhya Aryal	Shai
5	Reb Maya	Shah
6	Gita Sharma	Poudel
7	Chirad	Achrya
8	Latta	Mahat
9	Arjun Bahadur	Khadka
10 11	Narayad	Ghimire
12	Prativa	Pokhrel
13	Tara	Bhandari
14	Babita Lhoni	Sarita
15	Pandey	Himilaya
16	Bhatta	Puspa Devi
17	Balami	Sita Gehali
18	Radha	Updhye
19	Goma	Ghimire
20	Bed Prakash	Bhatta
21	Sarita	Marasini
22	Rekha	Shah
23	Kalpana	Dahalani
24 25	Rekha	Shrestha
26	Udit Kumar	Thapa
27	Rita	Shrma
28	Ashmita	Poudel
29	Prakash	Khatiwada
30	Yogendra	Nayak
31	Janak	Adhikari
32	Pabitra	Ranabhat
33	Tika Kumar	Shrma
34	Shova	Adhikari
35	Kubir	Ghimire
36	Parbat	Naupane
37	Rima Karki	Tiwari
38	Durga	Ghale
39	Kamala	Shrestha
40	Radhika	Balami
41	imala Rai	Sobita

Children Development Center

School

Sports committee

Local Level Technical and Vocational training centre

Unit and Service Center Domestic and smallest industry
…….
Ms. Mina Duwadi Lamichhine
Auribed Section Mayor Mr. Uttam Bista
Auribed Section **Animals Survice Center** Chandrakanta Panta
Animals Development Assistant Mr. Shyam Harijan Nayyab technology Assistant Agriculture Section Ms. Pabitra Rai Health Section Adjective Health Service center job holder staff quantity of 35.

Rameshwor Lama Board
Jujun Lama Board
Bishwokarma Lama Dalit Women Board
Bir Nagarkoti Board
Darnal Lama Board
Nagarkoti Nepal Dalit Women Board
Gaimer Board
Bishoshwor Prasad Dhungana Board
Bishnu Prasad Bhattari Board
Buddhamaya Putuwar(Nagarkoti) Women Board
Kalpana Basel Board
Kishab Thapa Board
Hamjumla Rai Board
B.K Dibendra Raj Giri Tamang Board
Ghale Board
Pariyar Women Board
Bishowshwor Lama Prasad Giri Nepali Board
Kancha Lal Dalit Women Board
Kanchha Lal Tamang Board
Thakurathi Women Board
Dalit Women Board Dilip Risal Board
Bhupindra Kumar Budhathoki Board
Khadka Dalit Women Board Women Board
Bidur Board
Chandrika Langkes
Kishwor San
Sushil Kumar
Sabin Dalit Women Board
Sashi Board
Mahan Rameshwori Sabina Mijar
Indir Board

Organizational Capacity and Capacity building:

For the purpose of capacity strengthening of manpower and elected officials as well as municipality programs, have not been conducted yet. Similarly, members of User's Groups, Child Clubs, and Community Based Organizations (CBOs) has also not been benefited from the municipality. For the purpose of institutional development purpose, this municipality has allocated ……. percent of total estimated budget of FY 2075/76, and it was …. percent in FY 2074/75. However, for the capacity enhancement of human resources through trainings, municipality has determined to undertake the work through good governance policy.

Acts and Laws provision:

2nd Municipal Assembly has approved the Co-operative Act 2075, Financial allocation Act 2075, Gazette Publication Act 2075, for the Fiscal year 2075/76.

Similarly, different 18 nos. of policies and 10 guidelines for various purpose; basically to carry out municipal functions smoothly and effectively has been approved from the 2nd municipal assembly of Nagarjun Municipality. The approved policies and guidelines are listed as following.

- Nagarjun Municipality Good Governance Policy, 2075
- Nagarjun Municipality Economic and Finance Policy, 2075
- Nagarjun Municipality Urban Development Policy, 2075
- Nagarjun Municipality Infrastructure Development Policy, 2075
- Nagarjun Municipality Urban Transport Policy, 2075
- Nagarjun Municipality Social Development and Co-operative Policy,2075
- Nagarjun Municipality Education Management Policy,2075
- Nagarjun Municipality Health Policy,2075
- Nagarjun Municipality Culture, Heritage and Tourism Policy,2075
- Nagarjun Municipality Environment Policy,2075
- Nagarjun Municipality Disaster Risk Management Policy,2075
- Nagarjun Municipality International relationship Policy,2075
- Nagarjun Municipality Agriculture and Food Policy,2075
- Nagarjun Municipality Building Bye-laws Policy,2075
- Nagarjun Municipality Urban Development Commission Policy,2075
- Nagarjun Municipality Youth and Sports Policy,2075
- Nagarjun Municipality Targeted Group Policy,2075
- Nagarjun Municipality Board Decision Policy,2075
- Nagarjun Municipality Market Monitoring Guidelines, 2075
- Nagarjun Municipality Consumer Committee Formation Guidelines,2075
- Nagarjun Municipality FM Radio Operation Guidelines, 2075
- Nagarjun Municipality Work division regulation, 2075
- Nagarjun Municipality Municipal Board Meeting Operation Guidelines, 2075
- Nagarjun Municipality Local Disaster Management Guidelines, 2075
- Nagarjun Municipality Agriculture Business Promotion Guidelines, 2075
- Nagarjun Municipality Contract Staff Management Guidelines,2075
- Nagarjun Municipality Public Land Conservation Guidelines, 2075
- Nagarjun Municipality Judiciary Committee Guidelines, 2075
- Nagarjun Municipality Class Gha Construction Business Guidelines, 2074

Good Governance Practice:

Nagarjun Municipality is in practice of maintaining of Good Governance. Some progresses have been made in the field of Accountability, Transparency, and Public Participation. Likewise, formulation and regulation of Good governance policy has supported in good governance practice.

Nagarjun Municipality prepares the annual programs in participation of local level organizations, such CBOs, NGOs, Private sector, line agencies, and stakeholders accomplishing eight steps of planning. Different 18 policies and 10 guidelines of the municipality have been endorsed from the municipal assembly; and all are in enforcement. Likewise, municipality publishes its decisions through publications. Monitoring and supervision from the municipality is also in practice from the years. Citizen's Charter, Suggestion Box, Notice Board, Information officer, Grievance settlement are also in practice. Municipality organizes Public hearing and social audit every year for the dialogues with public directly. Similarly, under the fiduciary risk reduction, municipality has been carrying out internal as well as final auditing, income and expenditure publication, financial irregularities control, proper budget allocation, and preparation of procurement plans.

Institutional Coordination and Network Establishment:

Nagarjun Municipality has established network with various government and non-government organizations basically for public participation and multi-sectoral investment in different development works.

In cooperation with stakeholders, Nagarjun municipality has been carrying out various projects and programs in community level.
Likewise, Child Club, User's Group, Target Groups, Drinking Water and Sanitation Consumer Committee are community based organizations; working with Municipality; and carries out number of projects and programs of this municipality.

In coordination with as well as grants of Federal Government, Province Government and Department of Roads, this municipality is carrying out specially infrastructure constructions.

Key Problems and Issues:

Some key problems and issues of the municipality has been listed as following

- Inadequate skilled and trained manpower in the municipality
- Not organizing basic as well as refreshment trainings to municipal staffs and elected officials
- Citizen awareness and educational campaigns as well are not being organized time to time
- Smoothness less and complex working procedures of municipality.
- Service recipients' are less educated about the municipality services.
- Lack of social feelings and harmony in the social functions.
- Not following the principle of Right Man in Right Place.
- Absence of technical manpower in the ward offices
- Literacy and educational programs for seniors not being conducted.
- Lack of official building of municipality and ward offices as well.
- Physical infrastructures are not disabled and GESI friendly.

- Weak coordination and cooperation established between inter sections, and poor communication.
- Not following Citizen's Charter properly which has not been updated and is poorly visible; and absence of digital notice board
- No online service facility
- Technology friendly services not available in the municipality.
- Ethics and moral value less prioritized
- Inadequate legal provisions and Acts as well of Federal and State government relating to local government are in practice
  Less numbers of legal manpower in municipality working for preparing the legal documents

1.14.2 Financial Capacity Revenue Sources:

Nagarjun municipality received the revenue from the various source. House rent tax, house and land tax, vehicle tax, advertisement tax, professional tax, land revenue and tenancy tax are the local taxes of this municipality. During the FY 2074/075 house and land tax under the local tax is the major tax sources; received 3.4 percent of total income. Similarly, building permit is another key income source of this municipality; received Rs. 73, 80 and 52 million in FY 2072/73 to 2074/75 respectively.

The weightage of Own Source Revenue (OSR) is in total income having 17.9 percent, in increasing trend in compared to previous year, by 8.0 percent in FY 2073/74. Likewise, revenue allocation is also increasing form in compared to preceding years. It was received Rs. 8, 10 and 15 million from the FY 2072/73 to 2074/75 respectively; and the growth trend was 12.9 and 50.0 percent in FY 2073/74 and 2074/75 respectively.

Municipality received Rs. 290.3, 244.5, and 348.0 million grants from the federal and province governments. It's weightage in the total income having 78.1 percent in FY 2074/75 and 74.9 and 73.1 percent in FY 2072/73 and 2073/74 respectively; seems that municipality highly depended on the government grants. Moreover, the growth trend is also in escalated form; in compared with previous it was up by 42.3 percent in FY 2074/75. During the FY 2072/73 to 2074/75 municipality received equalization grant, and special grants, inter-governmental grant, conditional and unconditional grants from the federal and providential government. The detail of incomes of this municipality has been given in table 01.

Budget achievement of this municipality is not satisfactory. The lowest budget achievement is Vehicle tax having 0.6 percent, and the highest 107.7 percent of equalization grant. The achievement of total fees is 62.4 percent, 68.9, percent of OSR and 75.1 percent of total grants.

Table 40 Income details : For the FY 2072/73 to 2074/75

Lines	072/073	073/074	074/075	Estimated 2074/75	% of total revenue	Budget achievement in %
Property tax	-	-	-			
House rental tax	-	-	5,000,000	40,000,000	1.1	12.5
House & land tax	-	-	15,000,000	40,000,000	3.4	37.5
Vehicle tax	-	-	100,000	17,827,699	0.0	0.6
Advertisement tax	-	-	150,000		0.0	
Professional tax	-	-	2,150,000	30,000,000	0.5	7.2
Land revenue tax	-	-	2,500,000	20,000,000	0.6	12.5
Entertainment tax	-	-	50,000		0.0	
Tenancy tax	-	-	1,000,000	5,000,000	0.2	20.0
Total Local Tax	**-**	**-**	**25,950,000**		**5.9**	
Service fee	-	-	100,000		0.0	
Building permit	73,909,000	80,000,000	52,750,000	80,000,000	11.9	65.9
Fine and punishment	-	-	200,000	5,000,000	0.0	4.0
Total Fees	**73,909,000**	**80,000,000**	**53,050,000**	**85,000,000**	**12.0**	**62.4**
Other income	184,000	-	200,000	29,920,000	0.0	0.7
Total Miscellaneous income	**184,000**	**-**	**200,000**	**29,920,000**	**0.0**	**0.7**
Own Source Revenue	**74,093,000**	**80,000,000**	**79,200,000**	**114,920,000**	**17.9**	**68.9**
Revenue allocation	8,857,000	10,000,000	15,000,000	79,200,000	3.4	18.9
Cost sharing	14,224,000	-	-	0	0.0	
Total Other Income	**23,081,000**	**10,000,000**	**15,000,000**	**79,200,000**	**3.4**	**18.9**

Inter government grant	152,284,000	2,838,000	-	116,991,000	0.0	0
Equalization grant – Federal	133,108,000	215,107,000	212,157,000	196,900,000	48.0	107.7

Conditional grant Federal	-	15,000,000	135,933,000,000	149,600,000,000	30.7	90.9
Unconditional grants-special	-	10,000,000	-	0	0.0	
Conditional grant - other	4,952,000	-	-	0	0.0	
Conditional grant – Province	-	1,588,000	-	0	0.0	
Total Grants	**290,344,000**	**244,533,000**	**348,090,000**	**463,491,000,000**	**78.7**	**75.1**
Total Income	**387,518,000**	**334,533,000**	**442,290,000**	**657,611,000,000**	100.0	67.3

Expenditure:

Nagarjun municipality spent 235.2 million in FY 2072/73 and 196.9 and 373.3 million in FY 2073/74 and 2074/75 in total. Employees' salary, allowance and office expenses are the major areas of expenditure under the current expenditure, spent 3.5, 4.5 and 2.7 percent respectively of total expenditure in FY 2074/75. Likewise, social security and skill development programs under the social program; and Public construction and cost sharing are the major areas of expenditure. More than 57.4 percent of total expenditure spent in public construction.

The weightage of current expenditure in total expenditure is taking the second highest position, 16.3 percent of total expenditure; and the highest position are holding by capital investment, 70.9 percent; whereas the position of ordinary capital investment and social program is comparatively falls in lower, as percent 6.5 and 6.3 respectively.

The growth trends of current expenditure, social program and capital investment are also increasing form compared to previous years. Current expenses and Ordinary capital investment are increased by
162.2 and 257.7 percent, whereas Social program and Capital investment by 25.0 and 78.8 percent in FY 2074/75 respectively.

Budget variance of total expenditure is 54.8 percent, whereas the variance of current expenditure, social program, and ordinary capital having 19.1, 77.4, and 55.8 percent respectively; is not in sound position.

Table 41 Expenditure details: For the FY 2072/73 to 2074/75

Items	2072/73	2073/74	2074/75	Estimated 2074/75	% of total exp.	Budget variance in %
Salary	2,572,000	2,971,840	13,207,960	13,207,960	3.5	0.0
Allowance	12,650,000	4,278,322	16,792,000	16,792,000	4.5	0.0
Dress	368,000	600,000	750,000	750,000	0.2	0.0
Medical Expenses	220,000	87,609	200,000	500,000	0.1	-60.0
water and Electricity	153,000	234,273	550,000	600,000	0.1	-8.3
Communication Charges	519,000	937,244	1,100,000	1,500,000	0.3	-26.7
Rent	970,000	2,262,000	3,600,000	3,600,000	1.0	0.0
Fuel	964,000	596,976	2,560,000	3,600,000	0.7	-28.9
Repair & maintenance	232,000	436,025	1,500,000	3,700,000	0.4	-59.5
Insurance	68,000	192,620	300,000	500,000	0.1	-40.0
Office expenses	5,432,000	5,000,000	10,000,000	500,000	2.7	1900.0
Stationery Expenses	50,000	84,800	150,000	300,000	0.0	-50.0
Office accessories	-	-	-	7,500,000	0.0	-100.0
Publication expenses	-	-	-	7,200,000	0.0	-100.0
Other Service Fee	14,000	24,790	100,000	400,000	0.0	-75.0
Training Expenses	121,000	1,500,000	400,000	500,000	0.1	-20.0
Inspection Expenses	823,000	156,300	3,500,000	5,000,000	0.9	-30.0
Total travelling exp.	211,000	622,900	800,000	2,030,000	0.2	-60.6
Advertisement Expenses	-	93,500	250,000		0.1	0.0
Contingency Expenses	-	411,881	800,000	2,690,000	0.2	-70.3
Miscellaneous Expenses	-	2,690,014	4,230,668	4,300,000	1.1	-1.6
Total Current Expenses	**25,367,000**	**23,181,094**	**60,790,628**	**75,169,960**	**16.3**	**-19.1**
Internal Loan's Interest	-	100,000	-	-	0.0	0.0

Total Debt Payment	**-**	**100,000**	**-**	**-**	**0.0**	**0.0**
Financial Assistance	-	130,627	300,000	-	0.1	0.0
Social Security Grants	21,237,000	15,896,668	-	40,000,000	0.0	-100.0

Health and education	1,574,000	-	-	-	0.0	0.0
Skill Development and Awareness expenses	20,258,000	1,100,000	8,000,000	47,780,000	2.1	-83.3
Program Expenses	3,449,000	750,000	15,000,000	11,476,000	4.0	30.7
Miscellaneous Program Expenses	-	916,084	200,000	4,500,000	0.1	-95.6
Total Social Program expenses	**46518000**	**18793379**	**23500000**	**103756000**	**6.3**	**-77.4**
Furniture and Fixtures	-	1,875,369	2,200,000	2,200,000	0.6	0.0
Vehicles	662,000	1,405,800	18,000,000	6,500,000	4.8	176.9
Machinery equipment	6,448,000	1,338,775	1,500,000	1,500,000	0.4	0.0
Computer, Software purchase	-	2,202,000	2,700,000	2,500,000	0.7	8.0
Building Construction	225,000	-	-	42,500,000	0.0	-100.0
Total Ordinary Capital	**7,335,000**	**6,821,944**	**24,400,000**	**55,200,000**	**6.5**	**-55.8**
Maintenance of public property	21,761,000				0.0	0.0
Consultation services	6,201,000	7,211,012	13,249,940	7,000,000	3.5	89.3
Conditional Capital Grants	51,220,000	-	-	-	0.0	0.0
Matching Fund Grants	30,428,000	-	-	-	0.0	0.0
Public Construction	46,404,000	126,107,730	214,152,345	-	57.4	0.0
Cost Sharing	-	10,270,689	30,000,000	-	8.0	0.0
Capital maintenance	-	200,000	210,000	-	0.1	0.0
Capital Inspection	-	3,000,000	5,000,000	-	1.3	0.0
Contingency Capital Expenses	-	1,261,436	2,070,000	-	0.6	0.0
Total Capital Investment	**156,014,000**	**148,050,867**	**264,682,285**	**7,000,000**	**70.9**	**0.0**
Total Expenditure	**235,234,000**	**196,947,284**	**373,372,913**	**241,125,960**	**100.0**	**54.8**

Budget Allocation:

Nagarjun has allocated NRs. 804.11 million for the fiscal year 2075/76. It is supposed to receive from Federal Government NRs. 465.7 million, 84.9 million from Province government and 3.5 million from Roads Development. Similarly, NRs. 220 million and 28.82 million supposed to receive from internal revenue and internal loans.

Project Completed and Cost sharing:

During the FY 2074/75 municipality completed 364 nos. of projects in ward level. Ward number 2 and 5 accomplished the highest nos. of projects (46 nos.) and ward number 9 completed the lowest nos. of project 15 nos. Similarly, 178 nos. of projects are accomplished by the User's Groups.

In total municipality enabled to accomplish 721 numbers of projects during the FY 2074/75 successfully; in which 438 nos. of projects are relating to physical infrastructure construction. Likewise, 189 nos. of projects are relating to Social Development; 29 nos. of projects are relating to Environment; 16 Institutional Development, 49 Economic Development.

Committee formation: This municipality has formed different committees for the various purposes; Revenue Consultative Committee is one of them for the revenue. Revenue Consultative committee also carries out the fixation of tax tariff, areas and limitation. In this regard, the Economic Act, 2075 is in implementation of municipality

Manpower and their experience: There are only two number of manpower are working in Account section of municipality. Similarly, two are in revenue section and one in internal audit.

Major Problems:

In connection with the Fiscal Management following are the main problems of municipality

- Inadequate manpower in Revenue and Account sections
- Internal revenue realized in lower amount
- Ineffective expenditure management system
- Not updated data and information related to revenues
- Impractical tax tariff and limitation

Chapter 2: Base Map

Base Map of Nagarjun Municipality

Data Summary

Base Map

▪ Satellite Imagery	
▪ Satellite Imagery	Digital Globe Worldview-4
Acquisition date	3/3/2018
Spatial resolution	0.5m
Image bands	RGB, 321
Image format	16 bits RGB TIFF image
Photogrammetric workstation/software	Erdas Imagine 2014
Processing	Orthorectification using Erdas Imagine software with surveyed Ground Control Points.

Topographical Base Maps	
Projection System	WGS 1984 UTM Zone 45 N
Map sheets (scale 1:2,500)	18 sheets
Map sheets (scale 1:5000)	3 sheets

Municipality GIS Datasets

GIS Datasets	
GIS Vector Data Format	ESRI Shape file and Geodatabase
GIS Raster Data Format	TIFF (world)
Metadata standard	ISO

Background

Base map or in general is a topographic map indicating a large scale detail and quantitative representation of the existing physical

features of an area such as streets, rivers, parks etc. and serving as a foundation for all subsequent mapping with a geographic reference such as latitude and longitude or Universal Transverse Mercator (UTM) grid information. Over the years, the paradigms of topographic base maps based on topographic surveys have been superseded by digital photogrammetry and remote sensing techniques using high resolution aerial and satellite imagery. The availability of such technologies has enabled cost-effective and rapid development of base maps in digital form with very high levels of details and accuracy. Consequently, this has opened up opportunity of usages of base map for multitude of applications. Amongst such applications domains, urban planning and management is one of the sectors, where the usages of large scale digital base map has been growing. The consequent update of such base map will ease the agencies like Department of Urban Development and Building Construction, Municipality, Road Department, Water Supply & Sewerage Department, Electricity Department, Telecom companies, etc.

In context of Nepal, the trend started from the preparation of base map of Kathmandu Valley in 1998 by Department of Urban Development and Building Construction (DUDBC). Since then, large scale digital base maps have been prepared for Butwal, Birgunj, Itahari, Inaruwa, Tansen, Janakpur, Ilam, Mechinagar, Kalaiya, Gaur, Baglung, Pokhara, Bhadrapur, Siddharthanagar, Hetauda, Panauti, Banepa, Dhulikhel and other municipalities.

Under this project, large scale digital topographic base maps and GIS system is developed for Nagarjun Municipality to enhance its decision making capability in urban and environment planning and management. The base maps are produced at the scale of 1:2,500 for Urban area and 1:5000 for Rural area. The base map is prepared using the latest technology in digital photogrammetry and high resolution(0.5m) satellite image of Digital Globe..

Components of Base Map

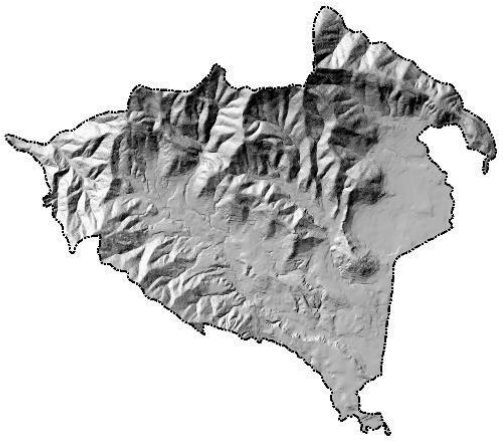
Base map contains topographic features, land cover, hydrography, man-made structures like buildings, roads, electric poles and lines, telephone pole and lines, drainage networks etc., mapping planimetric and vertical control points, characteristics areas, administrative boundaries, Project boundary, toponyms of geographical places and other features. In addition, the digital base map contains the digital spatial datasets of these features, different variants of these data for various purposes as well as high resolution satellite image based on which these maps and data have been made. In general, the base map contains the following components:

2.2.1 Orthophoto

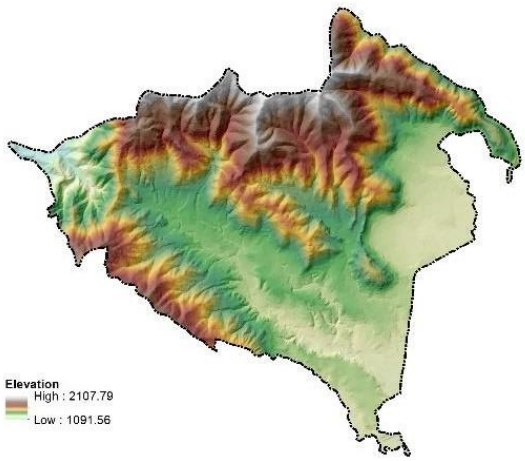
Orthophoto is geometrically corrected high resolution aerial or satellite imagery. Orthophoto is digitally corrected for terrain relief displacement, camera/sensor distortions, radiometric distortions as well as corrected for coordinate reference system. Orthophotos is the fundamental reference data used for feature extraction for topographical base map and associated GIS datasets. High resolution satellite orthophotos are in general created from high resolution satellite imagery or by Arial survey.

2.2.2 Terrain Topography

The terrain topography features contain the terrain landform represented by contour lines, elevation spot levels and digital elevation model (DEM) using shaded relief.



Map 17



Map 18 Digital Elevation

2.2.3 Characteristics Topography

Characteristics topography is the features representing the characteristic surface of the ground. Such features include cliff, embankment, escarpment, peaks, pass, pits, depression, cutting, quarry, landslides etc.

2.2.4 Geodetic Control

Geodetic control points are the planimetric and elevation national reference points established by the Survey Department. The geodetic control points are categorized as bench marks for vertical control, planimetric control points for horizontal control and 3D GPS points for both horizontal and vertical controls.

2.2.5 Hydrography

Hydrography represents features related to watercourses, water bodies, water related structures. The feature categories in hydrography include river, stream, lake, pond and reservoir, glacier, canal, natural spring and hydrological structures such as dams, sluice gates and other structures.

River/Stream represents the natural flowing watercourse system. If the watercourse is perennial and has width greater than 5m, it is categorized as a river. River is represented by both the flow line, which is, in general the centre line representing the deepest line of flow and the polygon, bounding the limiting edges of the flow. The network of flow lines represents the hydrological pattern (i.e. river system of an area). Streams which are not perennial and have width less than 5m, are termed as rivulets (Kholsi) and are represented only by flow line, generally the centreline of the flow.

Lake/Pond/Reservoir is a natural or manmade body of standing water. It is represented by its bounding line and area extent. Glacier is a large slow moving river of ice found in high altitudinal Himalayan regions.

Canal is manmade watercourse for conveyance of water for irrigation or hydropower generation purposes. Canal is represented by flow line. If the width is greater than 5m, it is represented by flow line, flow edges and water body area.

Hydrological structures are manmade infrastructures/structures used for controlling water flow, conveyance, diversion, protection etc. These structures include dam, sluice gates, river protections, spillways etc.

Spring is naturally occurring point where groundwater from underground aquifer flows out to the ground surface.

2.2.6 Land Cover

Land cover is the characteristics of the physical material covering the ground surface. Land cover, in general includes cultivation, vegetation, built-up, water body and other. The sub-classes include forest, grass, shrubs, river, lakes/ponds, bare-ground, snow, rock, sand and others.

2.2.7 Buildings

Buildings contain footprints of building with its yard and structures used for human habitation, financial/commercial activities, recreational activities and other activities.

2.2.8 Religious Buildings

Buildings specifically related to religious activities are represented separately as Religious Building feature class. Such buildings include temple, stupa, monastery, church, mosque etc. these buildings are represented by footprint polygon as well as locating points with associated annotation class.

2.2.9 Other Structures

Other structures include buildings not used for human residence or religious or other activities are categorized under this feature class. Landmark features such as statue, city gate, fountains, clock tower, other monuments etc also falls under this feature category. These features are represented by polygons as well as points for locations with associated annotations.

Mapping Standards

The mapping standards followed are in accordance with the specifications and guidelines of the “Specifications for Geographic Information Service and National Topographic Database” and the “Specification for National Urban Geographic Information Service in Nepal” prescribed by the Survey Department. The standards for digital photogrammetry, data capture, and mapping, GIS database and map production works are in accordance with the aforementioned specification documents. Certain modifications and extensions have been made as required for the current scale of mapping and digital data products. International metadata standards ISO have been adopted for metadata management.

All the mapping and GIS works have been done adopting internationally recognized best practices and methods using industry standard software and hardware platform. The digital data products are stored in the standard interoperable data formats. The standards adopted described here in brief.

2.3.1 Coordinate Reference System

The coordinate reference system used for the mapping and GIS is as prescribed in “National Map Projection and Coordinate System” in the aforementioned specification document. The details of the coordinate system used are presented in the following table:

Table 42 Details of the standard coordinate reference system

• **Projection**	• **WGS 1984 UTM Zone 45N**
• Spheroid	• WGS 1984
• Semi-Major axis	• a=6378137.0m
• Semi-Minor axis	• b= 6356752.314
• 1/f	• 295.257
• Central Meridian	• 87° E, 0° N
• False Coordinate	• 500,000 m E, 0 m N
• Scale Factor at Central Meridian	• 0.9996

The reference of the vertical datum is the Indian Mean Sea Level (MSL).

2.3.2 Ground Controls

Digital photogrammetric mapping method requires certain number of ground control points in order to relate photogrammetric block with the actual terrain geometry. These points are further used for establishing required numbers of ground control points for aerial triangulation, stereo model and ortho- rectification of aerial and satellite imagery.

Survey Department has established a national network of ground control points of different order. These ground control points forms the reference on which new control points shall be established as required.

Methodology

The approach methodology adopted for the preparation of digital base map is described in the following sub-sections.

2.4.1 Acquisition of Primary and Secondary Data

The study is based on both primary data from various sources and collected in the field and secondary data/information collected from various sources and agencies. The primary data sources include the followings:

- High resolution Arial imagery
- Topographical maps of 1:25,000 scale published by the Survey

Department The secondary data/information collected from various concerned agencies for the study are:

- Electricity network single line diagram from NEA
- Telephone network design maps from NTC
- Water supply and sewerage network design drawings from KUKL
- Various other municipal profiles, documents and digital data from Nagarjun Municipality.

2.4.2 Digital Compilation of Secondary Data

The secondary maps acquired in analogue format were scanned using wide scanner at 300 dpi resolution. The scanned maps were appropriately geo-referenced and vectorized in GIS environment.

Digital maps and design drawings acquired from various sources were converted to compatible CAD and/or GIS formats. These maps and drawings were geo-referenced appropriately and attribute data were attached to crate GIS datasets.

2.4.3 Satellite Imagery Orthophoto

Satellite imagery 'Multi-spectral(2m)/Panchromatic(0.5m)' resolution latest available on Archive covering the entire Municipal area is acquired. The imagery is then pansharpened to 0.5m spatial resolution in Erdas Imagine ver. 2014 Software with Modified Intensity Hue Saturation pan

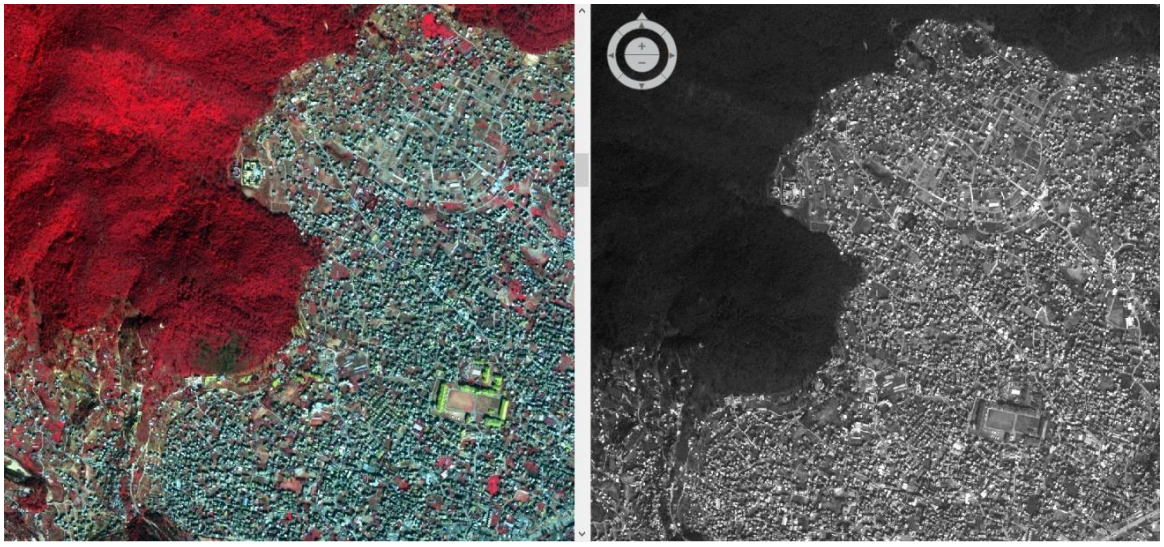


Figure 5: Panchromatic and Multispectral Image

sharpening technique. The imagery is then orthorectified in worldview RPC Model. GCP collected from the DGPC surveys works in addition with the references from previously created aerial ortho-photos were used as control points along with the above created DEM. The image-to-image registration method correlates already corrected pixel coordinates of orthorectified aerial images to uncorrected satellite imagery pixels. This helps perfect spatial correlation between corrected aerial and satellite ortho-photos.

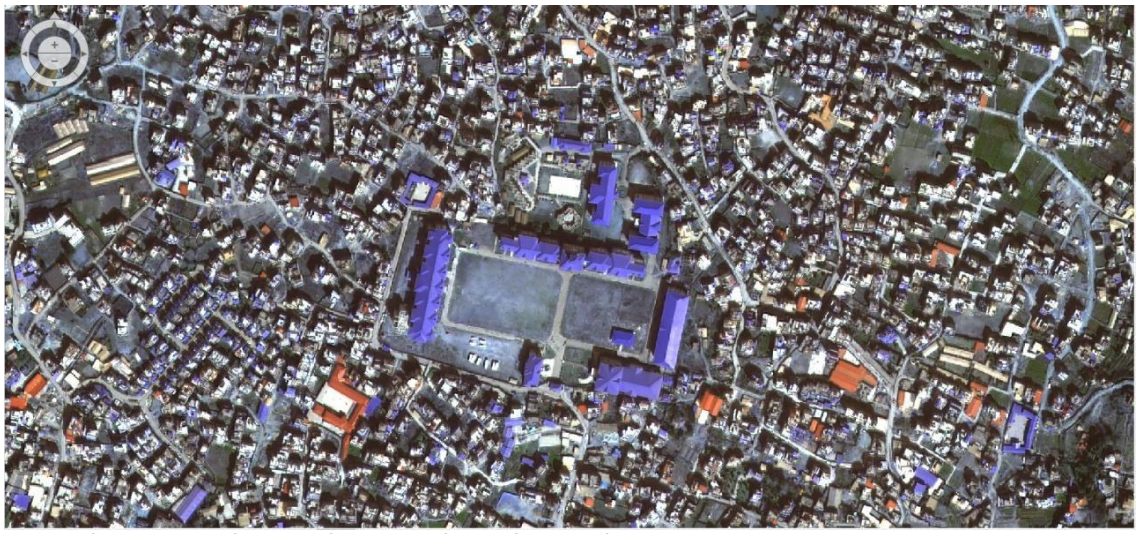


Figure 6: Pansharpened Image Using Erdas Imagine Ver. 2014

2.4.4 Updating from Satellite Imagery

The base map is prepared using the satellite imagery of Digital Globe worldview-4 which is then orthorectified and features are digitized over it. The figure below shows the vectorized features over aerial photo, updated vectorization over the arial ortho image.

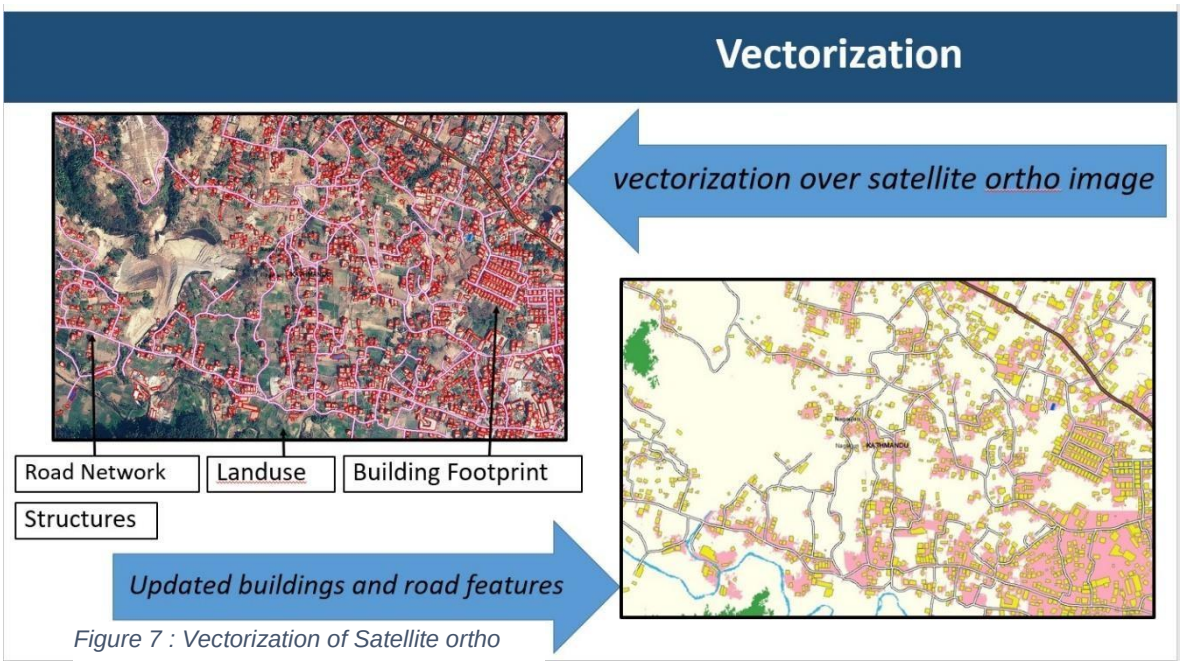


Figure 7 : Vectorization of Satellite ortho

2.4.5 GIS Database Creation

The vectorized features were cleaned to remove redundant objects such as sliver lines, short objects, crossing breaks, dangling objects, undershoot and overshoot; clustered nodes were simplified. The cleaned feature vectors were used to create respective topologies (point, line or polygon).

Attribute databases were created for each feature class following the data model presented in chapter 2.

Digital Base Map GIS Database

GIS database for all the base map features was developed based on the data model presented in *Chapter 2* in accordance with the "Specifications for Geographic Information Service and National Topographic Database" and the "Specification for National Urban Geographic Information Service in Nepal" prescribed by the Survey Department. The feature and attribute codes were adopted following these standard specifications. The detailed topographic base map data model is presented in *Chapter 2.*

Topographic Base Maps

Topographical base maps were prepared at 1:2,500 scale for Urban area and 1:5000 for Rural area. The topographic base maps were prepared with appropriate cartographic representations using "database driven cartography" technique in ArcGIS 10.5 platform. The maps were composed with appropriate legends, cartographic layouts and elements, symbology and descriptive notes. The maps were printed/published in A1 size paper in colour. Digital "press-ready" versions of maps were produces in TIFF image format.

GIS DATA MODEL

2.7.1 GIS Data Model

The GIS Database contains six data themes representing and modelling various aspects of urban land, environment, physical infrastructures, socio-economy and demographics and topography. The components of GIS Database model are represented in the figure below.

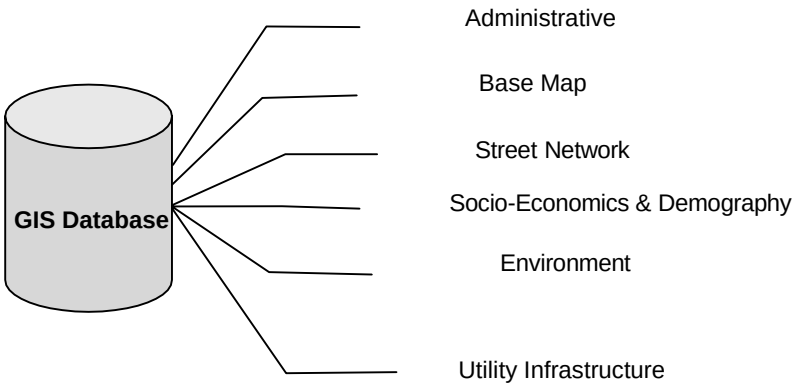


Figure 8 : Municipal GIS Data Model

These data themes contain feature classes that physically represent the real-world scenario (objects). These feature classes contain feature types and sub-types to represent the categorical hierarchy of the objects. The attributes of feature classes distinguish physical or abstract properties of the real world objects. The digital representation or the model of the data themes and their feature classes are presented in the following sub-sections.

2.7.2 Administrative

Administrative data theme contains administrative units in the municipality. The administrative units are the municipal boundary, ward boundaries within the wards.

The descriptions and data model of feature classes in administrative area data theme is presented below.

- Municipal Area
- Wards
- Locations

Municipality Area

Municipality Area feature class include the area extent covered by the municipality and the boundary line bounding the municipality area.

• **Feature Class Category**	• **Description**	• **Feature Geometry**	• **Feature Attributes**
• Municipal Boundary Line	• Municipal areaboundary line	• Line	• Feature Code: <integer> • Municipality Name:<string> • Municipality Code:<integer> • Length:<double>

• Municipal Area	• Municipal coverage area	• Polygon	• Feature Code: <integer> • District Name:<string> • District Code:<string> • Municipality Name: <string> • Municipality Code:<integer> • Area:<double> • Perimeter:<double>

Ward Area

Ward Area feature class include the area extent covered by the wards and the boundary lines bounding these wards.

• **Feature Class Category**	• **Description**	• **Feature Geometry**	• **Feature Attributes**
• Ward Boundary Line	• Ward boundary line	• Line	• Feature Code: <integer> • Length:<double>
• Ward Area	• Ward coverage area	• Polygon	• Feature Code: <integer> • Municipality Name: <string> • Municipality Code:<integer> • Ward Number:<integer> • Area:<double> • Perimeter:<double>

Locations

The locations represent the tentative center of designated place without any administrative boundary. For instance, a community, which do not have an administrative unit and as such do not have specifically designated administrative boundary. Such locations for example, community, road junctions/chowks, common designated places comes under this feature class.

• **Feature Class Category**	• **Description**	• **Feature Geometry**	• **Feature Attributes**
• Locations	• Location of designated places	• Point	• Feature Code: <integer> • Location ID:<integer> • X Coordinate: <double> • Y Coordinate:<double> • Designated Name:<string>
• Annotations	• Annotations of location names	• Annotation	• Annotation ID: <integer> • Text String: <string> • String Parameters: (list of annotation class parameters)

2.7.3 Base Map

Base map datasets are the fundamental datasets, which are used to derive other secondary datasets. Base Map data theme contains feature data sets related to fundamental topographic features, planimetric and vertical control points, building footprints, land cover, river system, characteristics areas and raster images and derived raster datasets. These data sets form the base for any Municipal GIS functions and related applications. The Base Map theme contains following fundamental feature classes.

- Aerial and/or high resolution satellite imagery
- Terrain topography-contours and spot level, digital elevation model (DEM)
- Characteristics topography (embankment, escarpment, cliff, quarry, pit, peak etc)
- Geodetic control
- Hydrography (watershed area, rivers, streams, water body)
- Land Cover
- Building
- Other Structure
- Land Use for Specific Purposes (industrial zone, army/police barrack, parking lot, cremation ground, cemetery, temple compound periphery, institutional compound periphery etc)

Orthophoto

Orthophoto is geometrically corrected high resolution aerial or satellite imagery. Orthophoto is digitally corrected for terrain relief displacement, camera/sensor distortions, radiometric distortions as well as corrected for coordinate reference system. Orthophotos are fundamental reference data used for feature extraction and database creation. Orthophotos in Nagarjun Municipality are satellite imagery of 0.5m spatial resolutions.

• Feature Class Category	• Description	• Feature Type	• Metadata Attributes
• Arial Orthophoto	• Orthophoto of HR Arial Imagery	• Raster	• Image Type:<string> • Acquisition Date:<date> • Acquisition Organization:<string> • Processed Date:<string> • Processed Organization:<string> • Spatial Resolution:<float> • Processed Method:<string> • Accuracy Level:<float> • Projection System:<string>

Terrain Topography

The terrain topography features contain the terrain represented by contour lines, elevation spot levels and digital elevation model (DEM). Derived datasets from digital elevation models such as slope, aspect and landform are also included in terrain features.

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• Contours	• Elevation contour lines	• Line	• Feature Code: <integer> • Elevation:<float> • Contour Type:<string><*Subtypes*>
• Spot Level	• Elevation spot levels	• Point	• Feature Code: <integer> • Elevation:<float>

<Subtype>

• Feature Class	• Feature Attribute	• <Subtypes>
• Contours	• Contour Type:<string>	• Index • Intermediate •

• Feature Class	• Description	• Feature Type	• Feature Attributes	• Metadata Attributes
• DEM	• Digital elevation model	• Raster	• Grid Value:<float>	• Spatial Resolution:<float> • Processed Date:<string> • Processed Method:<string> • Projection System:<string>
• Slope	• Terrain slope data derived from DEM	• Raster	• Grid Value:<float>	• Spatial Resolution:<float> • Processed Date:<string> • Processed Method:<string> • Projection System:<string>
• Aspect	• Terrain aspect derived from DEM	• Raster	• Grid Value:<float>	• Spatial Resolution:<float> • Processed Date:<string> • Processed Method:<string> • Projection System:<string>

Hydrography

Hydrography feature classes are related to watercourses, water bodies, water related structures and other water related features. The feature categories in hydrography include

- River/stream
- Lake/pond/reservoir
- Glacier
- Canal
- Natural Spring
- Hydrological structures

River/Stream represents the natural flowing watercourse system. If the watercourse is perennial and has width greater than 5m, it is categorized as a river. River is represented by both the Flow Line, which is, in general the centre line representing the deepest line of flow and the polygon, bounding the limiting edges of the flow. The network of Flow Lines represents the hydrological pattern (i.e. river system of an area). In the cases, where such bounding polygon include river banks with sand during low flow period, sand bars forming as islands in the middle of the flow, the river polygon includes them as attribute subtypes. In this case, the main river course, during the time of mapping is represented as water body. If the river has multiple flow lines, each of the flow lines are represented as Flow Line as well as water body polygon. Streams which are not perennial and have width less than 5m, are termed as rivulets (Kholsi) and are represented only by flow line, generally the centreline of the flow.

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• River Flow CL	• The center line of flow representing the	• Line	• Feature Code: <integer> • River ID: <integer>

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
	deepest flow of river and rivulets.		• River Type:<string><*Subtype*> • Name:<string> •
• River	• River/stream watercourse polygon	• Polygon	• Feature Code: <integer> • River ID:<integer> • Feature Type:<string><*Subtypes*>

<Subtypes>

• Feature Class	• Feature Attribute	• <Subtypes>
• River Flow Line	• River Type:<string>	• River • Rivulet (Kholsi)
• River	• feature Type:<string>	• Waterbody • River Bank • Sandy area

Lake/Pond/Reservoir

Lake/Pond/Reservoir is a natural or manmade body of standing water. It is represented by its bounding line and area extent.

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• Lake/Pond boundary	• Boundary of natural or manmade standing water body	• Line	• Feature Code: <integer> • Waterbody ID: <integer> •
• Lake/Pond Waterbody	• Area occupied by lake/pond water body.	• Polygon	• Feature Code: <integer> • Waterbody ID:<integer>> • Waterbody Type: <string><*Subtype*> • Name:<string> • Usage:<string><*Subtype*>

<Subtypes>

• Feature Class	• Feature Attribute	• <Subtypes>
• Lake/Pond Waterbody • River Edge	• Waterbody Type:<string>	• Lake • Pond • Reservoir • Pool
	• Usage:<string>	• Natural • Conservational • Recreational • Fishery • Others

Canal

Canal is manmade watercourse for conveyance of irrigation or hydropower generation purposes. Canal is represented by flow line. If the width is greater than 5m, it is represented by flow line, flow edges and water body area.

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• Canal Flow Line	• Centerline of canal	• Line	• Feature Code: <integer> • Canal ID: <integer> • Canal Name: <integer> • Ward Served: <String> • Command Area: <string> •
• Canal Edge	• Edge of canal flow	• Line	• Feature Code: <integer> • Canal ID: <integer>
• Canal	• Area extent of canal	• Polygon	• Feature Code: <integer> • Canal ID: <integer>

Land Cover

Land cover is the characteristics of the physical material on the ground surface. Land cover, in general, includes cultivation, vegetation, built-up, water body and other. The sub-classes include forest, grass, shrubs, river, lakes/ponds, bare-ground, snow, rock, sand and others. Land cover types may have hierarchical sub-types such as a forest may be coniferous, deciduous or mixed and further classified as dense, sparse or degraded. Similarly, a plantation may be a coffee or tea plantation. To represent such sub-types and sub-sub-types, a hierarchical approach is adopted. It should be noted that higher the hierarchy, land cover tends to represent land use. Hierarchical classification is only done in case of vegetation land cover (forest, plantation, nursery, orchard) only.

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• Land Cover	• Surface cover characteristics of land	• Polygon	• Feature Code: integer • Land Cover ID: <integer> • Class1: <string><*Subtype*> •

<Subtypes>

• Feature Class	• Feature Attribute	• <Subtypes>
• Land Cover	• Class1: <string>	• Agriculture • Forest • Orchard • River/Stream • Canal • Lake/Pond • Sandy Area • Barren Land • Orchard • Park • Sports Ground • Residential Area • Institutional Area • Industrial Area •

Besides, land cover, for larger scaling mapping purposes, vegetation land cover includes individual or scattered trees as points (if and only if trees are not in cluster mappable as a polygon).

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• Tree (standing)	• Standing or scattered tree	• Point	• Feature Code: integer • Tree ID:<integer> • Species: <string>

Building

Buildings contain footprints of building structures used for human habitation, financial/commercial activities, recreational activities and other activities. Buildings are represented by building footprint polygons. In addition to polygons, buildings locations represented by points may be used to represent certain kind of buildings for specific purposes. These specific buildings also contain associated annotation feature class.

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• Building	• Foot print of building	• Polygon	• Feature Code: <integer> • House No: <integer> • Functional Category:<string><*Subtype*> • Functional Use:<string><*Subtype*> • Functional Name:<string>
• Building Point	• Location of building	• Point	• Feature Code:<integer> • House No:<integer> • Functional Name:<string> • Use:<string><*Subtype*> • Category:<string><*Subtype*>

<Subtypes>

• Feature Class	• Feature Attribute	• <Subtypes>
• Building	• Functional Category:<string>	• Residential • Residential/Commercial • Commercial • Industrial • Financial • Public Services • Educational • Cultural • Institutional • Health Services • Security Services • Recreational • Tourism • Others
	• Functional Use:<string>	• School • College • University • Hospital • Health Post • Clinic • Customs • Police Station • Post Office • Telephone Office

• Feature Class	• Feature Attribute	• <Subtypes>
		• Electricity Office • Fire Station • Factory • Bus Terminal • Residential • Commercial • Residential/Commercial • Industrial • GO/NGO/INGO • Power Station • Petrol Pump/Service Station • Bank • Hotel/Lodge • Restaurants • Information Center • Cinema halls • Stadium • Department Stores/Malls • Others

Religious Buildings

Buildings related to religious activities are represented separately as Religious Building feature class. Such buildings include temple, stupa, monastery, church, mosque etc. These buildings are represented by footprint polygon as well as locating points with associated annotation class.

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• Religious buildings	• Foot print of buildings used for religious activities	• Polygon	• Feature Code: <integer> • House No: <integer> • Religious Use:<string><*Subtype*> • Designated Name:<string>
• Religious Building Point	• Location of religious building	• Point	• Feature Code:<integer> • House No:<integer> • Designated Name:<string>

<Subtypes>

• Feature Class	• Feature Attribute	• <Subtypes>
• ReligiousBuilding	• Religious Use:<string>	• Temple • Church • Mosque • Stupa • Monastery • Others

Land Use for Specific Purposes (Characteristics Land)

Land units that are used for specific purposes (not completely land use class but land patches used for specific use that requires to be mapped for urban mapping and Municipal GIS) such as compound area of specific institution, religious buildings, cremation ground, cemetery, industrial area, housing/planning area, army/police barracks etc. These lands are termed as “characteristics land” and are represented by polygon with related attribute types.

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• CharacteristicsLand	• Land patch used for specific purpose	• Polygon	• Feature Code: <integer> • Land ID: <integer> • Functional Use: <string><*Subtype*> • Designated Name: <string>

<Subtypes>

• Feature Class	• Feature Attribute	• <Subtypes>
• CharacteristicsLand	• Functional Use:<string>	• Crematorium/Cremation Ground • Cemetery • Industrial Area • Housing Area • Planning Area • Army/Armed Police Barrack • Temple Compound • Stupa/Monastery Compound • Institutional Compound • Others

Utility Infrastructure

Utility Infrastructure data themes contains feature classes related to the urban utilities such as water supply, sewerage system, electricity system, telephone system, wireless/mobile services system and cable TV network. The Municipal GIS for the project includes water supply and sewerage, electricity and telephone system infrastructures only.

Water Supply

This utility category contains infrastructures related to water supply. The feature classes represent storage reservoir, pipeline network, junctions, valves and other features. Other water sources such as artesian well, shallow/deep tube wells and others are included under this category.

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• Water Supply Scheme	• Water supply scheme	• Polygon	• Feature Code:<integer> • Scheme ID:<integer> • Name: <string> • Capacity:<float> • Ward Supply:<string> • Scheme Type:<string><*Subtype*> • Treatment Type:<string><*Subtype*> • Organization:<string>
• Reservoir	• Water supply storage reservoir	• Point	• Feature Code:<integer> • Reservoir ID:<integer> • Capacity: <float> • Name: <float>
• Water Tank	• Water tank for drinking water supply	• Point	• Feature Code: <integer> • Water Tank ID: <integer> • Capacity: <float> • Type: <string><*Subtype*>

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
			• Installed Date :<date> • Maintenance Date: <date>
• Water Pipe Line	• Water supply pipe line	• Line	• Feature Code:<integer> • Pipe ID:<integer> • Length:<float> • Diameter:<float> • Type:<string><*Subtype*> • Material:<string><*Subtype*> • Pressure:<float> •

<Subtypes>

• Feature Class	• Feature Attribute	• <Subtypes>
• Water Supply Scheme	• Scheme type:<string>	• Pipe Gravity • Surface Pumping • Underground Overhead Pumping • Others
	• Treatment Type:<string>	• Untreated • Roughing Filter • Plain Sedimentation • Slow Sand Filter • Rapid Sand Filter • Plain Chlorination • Pressure Filter • Iron Removal • Others
• Water Tank	• Type:<string>	• Underground • Overhead
• Water pipe Line	• Type:<string>	• Mains • Sub-mains • Distribution
	• Material:<string>	• GI • PVC • Others

Electricity

Electricity network and infrastructures are included in this category.

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• Electricity Line	• Electricity supply line	• Line	• Feature Code: <integer> • Line ID:<integer> • Type: <string><*Subtype*> • Voltage:<string> •
• Electricity Substation	• Electricity Substation	• Point	• SS name: <integer> • Description:<integer> •
• Electrical Transformer	• Electrical transformer mounted	• Point	• Feature Code: <integer>

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
	on support tower/pole or placed on ground		• Transformer ID: <integer> • Type: <string> • Capacity: <integer • Placement: <string>
• Electricity Pole	• tower/pole or placed on ground	• Point	• Feature Code: <integer> • Type: <string> • Description: <string> • Placement: <string>

<Subtypes>

• Feature Class	• Feature Attribute	• <Subtypes>
• Electricity Line	• Type:<string>	• Transmission Line • Distribution Line

Telephone

Telephone line and infrastructure are included in this category

• Feature Class Category	• Description	• Feature Geometry	• Feature Attributes
• Telephone Line	• Telephone connection line mounted on poles or buried underground	• Line	• Feature Code: <integer> • Line Id:<integer> • Length: float • Size:<string> •
• Telephone Cabinet	• Telephone connection cabinet	• Point	• Feature Code: <integer> • Cabinet ID:<integer> • Location: <string> • Installed Date: <date> • Maintenance Date:<date>
• Telephone Exchange	• Telephone exchange	• Point	• Feature Code: <integer> • Name:<string>

2.7.4 Street Network and Transportation

Street network feature classes and associated database includes road network datasets and associated geocoding database. Road networks in municipality are multi-represented by lines as well as polygons. This multiple representation is used for data management as well as for cartographic model for road mapping purposes. In multi-representation, road centerlines form a road network with associated road attributes, the edge line represents the edges of road that can be mapped as double line at the give scale and us used for cartographic works, the road polygon is the area within the edges of mappable wide road and is used for cartographic purposes.

This data theme also contains other transportation infrastructures including airport, railway, ropeway, bridge, river crossings and others.

Road Networks

• Feature Class Category	• Description	• Feature Geometry/Database	• Feature Attributes
• Road Centerline	• Road network centerline	• Line	• Feature Code: <integer> • Road Code: <integer> • Road Name: <string> • Category Type: <string><*Subtype*> • Street Type:<string><*Subtype*> • Surface Type: <string><*Subtype*> • Length: <float> • Width: <float> • Road Number: <integer> • Status: <string><*Subtype*> • Traffic Type:<string><*Subtype*>
• Road Edges	• Road Edges	• Line	• Feature Code: <integer> • Road Code: <integer>
• Road Polygon	• Road Polygon	• Polygon	• Feature Code:<integer> • Road Code:<integer> • Type:<string>
• Road Annotation	• Annotations of road names	• Annotation	• Annotation ID: <integer> • Feature ID:<integer> • Text:<string> • Parameters: (list of annotation class parameters)

<Subtypes>

• Feature Class	• Feature Attribute	• <Subtypes>
• Road Centerline	• Category Type:<string>	• Highway • District Road • Feeder Road • Other Road • Cart track • Major trail • Footpath
	• Street Type:<string>	• Path • Sadak • Marg • Galli
	• Surface Type:<string>	• Black Topped • Graveled • Earthen • PCC • Stove Paved
	• Status:<string>	• Planned • Under Construction • In use • Disuse
	• Traffic Type:<string>	• One way • Two Way

Bridge

Bridge over river/stream and rivulets is represented both by centerline of the crossing structure and polygon in the cases of wide bridges in the main roads. Bridges over main trail and trails are represented by centerline only.

• Feature Class Category	• Description	• Feature Geometry/ Database	• Feature Attributes
• Bridge Line	• Bridge centerline	• Line	• Feature Code: <integer> • Bridge ID:<integer> • Road Code:<integer> • Name:<string> • Structure Type: <string><*Subtype*> • Crossing Type:<string><*Subtype*> • Width:<string>
• Bridge	• Bridge Polygon	• Polygon	• Feature Code: <integer> • Bridge ID:<integer> • Road Code:<integer>

<Subtype>

• Feature Class	• Feature Attribute	• <Subtypes>
• Bridge Line	• Structure Type:<string>	• Suspension Bridge • Truss Bridge • Girder Bridge • Cantilever Bridge • Bailey Bridge • Rope Bridge • Wood Bridge • Others
	• Crossing Type:<string>	• HighwayBridge • Feeder Road Bridge • District road Bridge • Other Road Bridge • Cart track Bridge • Trail and Track Bridge • Railway Bridge • Others

River Crossings and River Transportation

This category includes transport system used for river navigation and crossings where there are no bridges.

• Feature Class Category	• Description	• Feature Geometry/ Database	• Feature Attributes
• Other Crossings	• River crossings	• Line	• Feature Code: <integer> • Crossing Type: <string><*Subtype*> • Operated By: <string>

<Subtype>

• Feature Class	• Feature Attribute	• <Subtypes>
• Other Crossings	• Crossing Type:<string>	• Causeway • Ford • Ferry • Other

Appendix 1

Presentation Slide of Base Map in Nagarjun Municipality

Annex

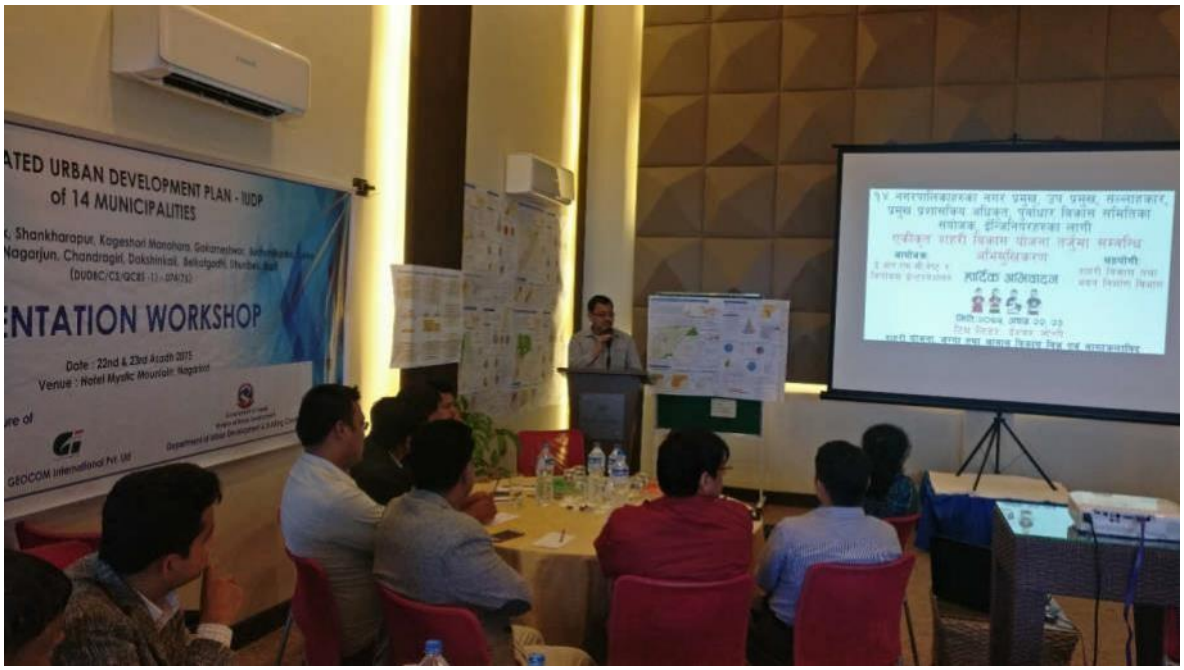
PHOTOGRAPHS

Photograph 1 Introduction workshop Day 1

Photograph 2 Introduction workshop Day 1

Photograph 3 Introduction Workshop Day 1

Photograph 4 Welcome speech by Deputy Team Leader-Yogesh Purna Shrestha



Photograph 5 Project briefing by Senior Divisional Officer of Municipality Section Mr. Kishore Shrestha

Photograph 6 Introduction from Municipal Representatives

Photograph 7 Introduction from Municipal Representatives

Photograph 8 Introduction from Municipal Representatives

Photograph 9 Breakfast with Municipal Representatives on Day 2

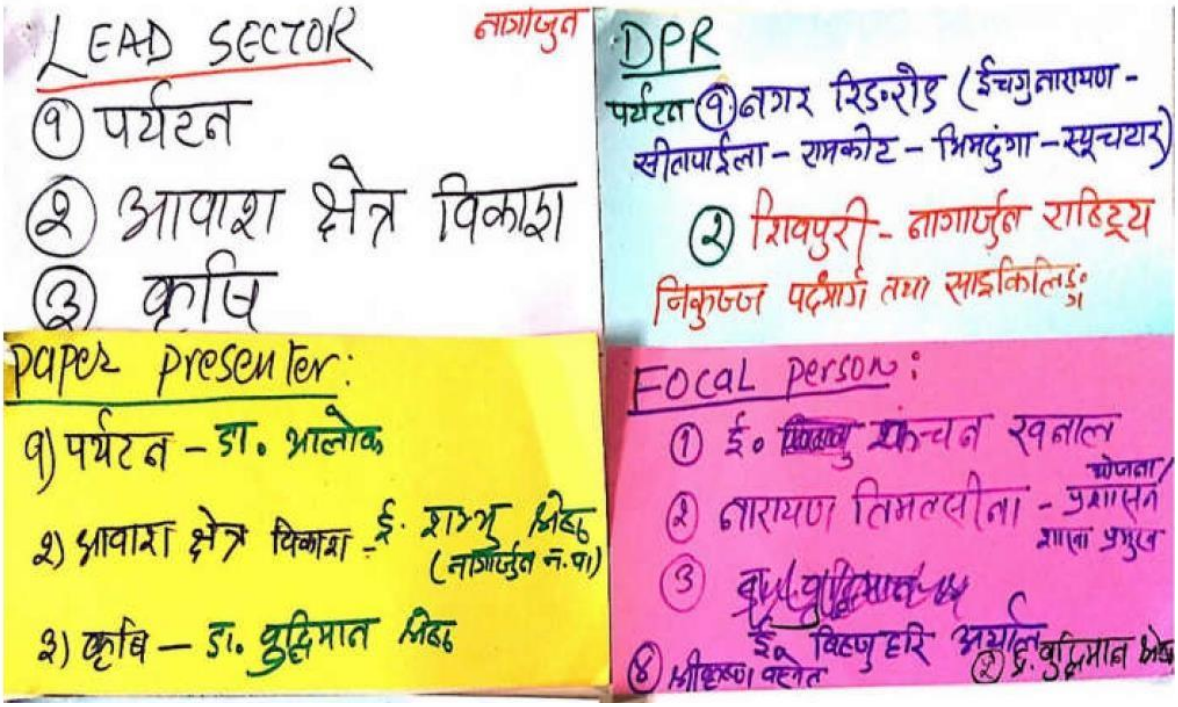
Photograph 10 Orientation by Team Leader Ishwar Lal Joshi on Day 2 of Workshop Day

Photograph 11 Orientation by Deputy Team Leader Yogesh Purna Shrestha on Day 2 of Workshop Day

Photograph 12 Group Discussion with Executive Municipal Representatives of Nagarjun Municipality

Photograph 13 Concluding remarks from Team Leader Ishwor Lal Joshi

Photograph 14 Concluding Remarks by Senior Divisional Officer of Municipality Section, Mr. Kishor Shrestha



Photograph 15 Output of Orientation Workshop

Photograph 16 Ward Consultative Workshop of Nagarjun Municipality

Photograph 17 Presentationon progess by
Deputy Team Leader BK Maharjan

Photograph 18 Presentation on IUDP by Team Leader Ishwar Lal Joshi

Photograph 19 Presentation on writing of SWOT, Problems, Reasons and Solution

Photograph 20 Opening Speech by Mr. Krishna Prasad Sapkota, Chief Executive Officer of Nagarjun Municipality

Photograph 21 Registration Process

Photograph 22 Participants in the Ward Consultative workshop Nagarjun Municipality

Photograph 23 Group Work ward number 2

Photograph 24 Group Work Ward Number 3

Photograph 25 Group Work Ward number 1

Photograph 26 Group Work Ward Number 4

Photograph 27 Group work ward 6

Photograph 28 Group work ward 7

Photograph 29 Group work ward 8

Photograph 30 Group work ward 5

Photograph 31 Group work ward 9

Photograph 32 Group work ward 10

Photograph 33 Discussion on Sectoral Problems

Photograph 34 Discussion on Sectoral Problems

Photograph 35 Discussion on Sectoral Problems

Photograph 36 Discussion on Sectoral Problems

Photograph 37 Discussion on Sectoral Problems

Photograph 38 Discussion on Sectoral Problems

Photograph 39 Discussion on Municipal SWOT

Photograph 40 Discussion on Municipal SWOT

Photograph 41 Deputy Mayor of Nagarjun Municipality presenting Municipality SWOT

Photograph 42 Mr. IShwor Lal Joshi (team leader of the project) presenting the orientation on vision workshop

Photograph 43 Presentation on the SWOT analysis of one of the lead sectors, Tourism of Nagarjun Municipality

Photograph 44 Participants involving in lead sectoral SWOT analysis (agriculture)

Photograph 45 Participants involving in lead sectoral SWOT analysis (Tourism)

Photograph 46 Participants involving in lead sectoral SWOT analysis (Housing)