



THE ASSAM GAZETTE

অসাধাৰণ

EXTRAORDINARY

প্ৰাপ্ত কৰ্তৃত্ব দ্বাৰা প্ৰকাশিত

PUBLISHED BY THE AUTHORITY

নং 370 দিশপুৰ, সোমবাৰ, 2 জুন, 2025, 12 জেঠ, 1947 (শক)

No. 370 Dispur, Monday, 2nd June, 2025, 12th Jaistha, 1947 (S. E.)

GOVERNMENT OF ASSAM

ORDERS BY THE GOVERNOR

DEPARTMENT OF HOUSING & URBAN AFFAIRS

NOTIFICATION

The 18th November, 2024

DoHUA EcF No. 393727 / 178.— In exercise of the powers conferred by the Sub- Section (2) and (3) of Section 10 of the Assam Town and Country Planning Act, 1959 (as amended) read with Rule 6 of the Assam Town & Country Planning (Publication of Master Plan and Zoning Regulation) Rules, 1962, the Governor of Assam is pleased to publish the following notice regarding the publication of the Final Master Plan for Doboka.

Notice for publication of the Final Master Plan for Doboka

1. It is notified that the Final Master Plan for Doboka is prepared by the Directorate of Town & Country Planning, Government of Assam and adopted by the State Government under sub section (2) and (3) of Section 10 of the Assam Town & Country Planning Act, 1959 (as amended) read with Section 6 of the Assam Town and Country Planning (Amendment) Rule, 1962 for the area described in the schedule below, is hereby published.
2. The Final Master Plan with all relevant papers and maps may be inspected free of cost during the office hours at the office of Director, Town & Country Planning, Dispur, Guwahati-6, Deputy Director, Town & Country Planning, Dist Office –Nagaon, office of the Chairman, Doboka Municipal Board and Doboka & Hojai Circle Office. Copies of the Final Master Plan is also available in the office of the Director, Town & Country Planning, Dispur, Guwahati-6 and Deputy Director, Town & Country Planning, Dist Office – Nagaon for sale on payment.

SCHEDULE**A. Situation and area:**

District	: Hojai
Subdivision	: Hojai
State	: Assam.
Total Master Plan Area	: 27.08 Sq. Km.
Municipal Board Area	: 2.88 Sq. Km.

Apart from the Doboka Municipal Board Area, Doboka Master Plan area covers 9 (Nine) Nos. of nearby villages. The Towns & Villages included in the Final Master Plan for Doboka with Mouzas/ Revenue Circles etc. are as follows: -

Sl.No.	Urban Area	Revenue Circle	Mouza	Panchayat/ MB	C.D. Block
1	Doboka Municipal Board Area	Doboka Circle	Jamunamukh	Doboka M.B.	
Village Area					
1	MikirAti Huagaon	Doboka Circle	Jamunamukh	Sutagaon	Binnakandi
2	Sutargaon			Sutargaon	Binnakandi
3	Nahargaon			Sutargaon	Binnakandi
4	Burigaon			Akasgi Ganga	Binnakandi
5	Doboka Pather			Doboka	Binnakandi
6	Niz Doboka			Doboka	Binnakandi
7	Namati		Namati	Namati	Binnakandi
8	Nam Doboka Pather	Hojai Circle	Jugijaan	Ashi-Nagar	jugijaan
9	Nam Doboka Gaon			Hindi-Block	Jugijaan

B. Description of boundaries:

NORTH	: Bhagiram Gaon, Mikir Para
SOUTH	: Rajbari, Sideswarpur
EAST	: Pachim Jarani, Kachari Para
WEST	: Bhedeoati, Changmaji

KAVITHA PADMANABHAN,
Commissioner & Secretary to the Government of Assam,
Department of Housing & Urban Affairs.

CHAPTER I: INTRODUCTION TO MASTER PLAN AREA

1.1 LOCATION:

Dabaka also called **Doboka** or **Dobaka** is a town in Hojai district (formerly in Nagaon district) of Assam state in India. It is a commercial place situated in the central part of Assam. Dabaka is located at an elevation of 61 m above MSL.¹² It is located 36 KM towards South of Nagaon Town and 18 KM from Hojai Town and 124 KM from State capital Dispur. Its co-ordinates are 26.1165° N, 92.8637° E.

It is one of the prominent trade and commerce centre of Hojai District as well as in the state. It is only the Town of 90 No Jamunamukh LAC, Assam. Dabaka is well connected by road & river with the other parts of the state & the country, NH-36 the famous east west corridor cross the Dabaka town. Dabaka town is a vital corridor linking with Karbi-anglong district & the state of Nagaland to the northern direction & in the western direction with Morigaon, Guwahati, and other districts. More than 230 surrounding villages are connected with Dabaka town by PWD & rural roads. One can journey through waterways from dabaka town to Karbi-Anglong by the river Jamuna towards northern direction and with Doboka, Raha to the southern direction. In the time of British rule one RCC bridge was constructed across the river Jamuna in 1942.



Doboka Town in Google image

1.2 HISTORY:

Davaka was a kingdom of ancient Indian subcontinent, located in current central region of Assam state. The references to it comes from the 4th century Allahabad pillar inscription of Samudra Gupta, where it is mentioned as one of five frontier kingdoms of the Gupta Empire, the Shung-Shu History of the Liu Song dynasty, where the kingdom is named Kapili (now the name of a river); the Gachtal stone pillar inscription written in Kamrupi Prakrit. N K Bhattasali has identified it with Dabaka in modern Hojai district, with the kingdom associated with the Kopili-Kolong river valley.

In 4th-century Davaka was mentioned as frontier kingdom with Kamarupa in the Samudra Gupta's Prayaga stone inscription, which was later absorbed by 6th or 7th century by western kingdom of Kamarupa though later historians like B N Puri (1968) and P C Choudhury (1959) claim that it was absorbed much earlier in the first half of the 5th century during the reign of Kalyana Varman (422-446).

Its capital was located near Kopili River. In the year 428 A.D, an ambassador was sent to China by Davaka king, whose name according to Chinese sources is Yuegnai or Yu Chai.

1.3 CLIMATE, TOPOGRAPHY AND SOIL:

Doboka is a hilly & alluvial plain. Shyam Yadu Pahar (Hill) is situated in the northern site of Doboka town. The Ruin capital of Doboka kingdom is in the Motban area of Doboka. The famous historical Mahamaya Than is located on the Doboka Jamunamukh Road.

TABLE:-1 BELOW TABLES SHOWS THE DIFFERENT PARAMETERS OF WEATHER OF DOBOKA

SL.No.	Parameter	Description
1	Topography	Mostly alluvial Plain
2	Temperature	42 C Degree (Max.) 5 C Degree (Minimum)
3	Extreme Hottest month of the year	July & August
4	Coldest month of the year	December
5	Humidity	85% (Max.)
6	Rainfall	3805 MM (Annually)
7	Monsoon Period	June to August
8	Winter Season	November to February

1.4 CITY INFLUENCE AND ITS CHARACTERISTICS INCLUDING SETTLEMENT PATTERN, RURAL-URBAN SCENARIO, HISTORY OF THE PHYSICAL GROWTH AND EXPANSION OF DOBOKA TOWN:

Rural-Urban fringe is an important concept in settlement geography. The rural-urban fringe is the boundary zone outside the urban area proper where rural and urban land uses intermix. It is the area where the city meets the countryside. It is an area of transition from agricultural and other rural land uses to urban use. Located well within the urban sphere of influence the fringe is characterized by a wide variety of land use including dormitory settlements housing middle-income commuters who work in the central urban area. Over time the characteristics of the fringe change from largely rural to largely urban. Suburbanization takes place at the municipal boundary of rural-urban fringe.

Doboka town is situated in the North-West of Hojai District & on the bank of river Jamunu. The Boundary of Doboka town, the Sutargaon & Nahargaon on the North, Jamuna River on the South, on the east Pachim Jarani, and the west is Niz Doboka. The Deorijaan small rivulet runs into the middle of the Doboka town. The town is divided into ten Nos. of wards. The commercial areas of the town are mainly lying on the state and central Highways. The small villages which are surrounding the town is influenced the trade & commerce of the town, ultimately on the economy of the town. A development plan for overall development of the town has been formulated. The preparation of Master Plan of the town is necessary for the infrastructure development of the town. It is essential to increase the present growth of the economy of the town by removing the weak economic base. The weak economic base is shortage of power, low flow of capital, lack of skill labour etc. Doboka town is a vital place for Hotel business. Flow of people, through Doboka town near about 10 thousand daily(average). Technical Educational institution if set up in Daboka town, the trainers from Karbi-Anglong, Dima Hasou and surrounding areas of Doboka town can find a convenience place. Entertainment centers can play an important role in the growth of the Doboka,s economy. If flood control measure carefully provided in the town, the town economy will be boast.

The private and public sector can establish medium & small scale industries like Hotel business, Technical Institution, vehicle repair and parts making industries, Household utensil industries, Agricultural goods processing industries, Household utensil industries, Agricultural goods processing industries & selling & purchasing center, warehouse of various goods & products, tourist attraction centers like development of Akashi-ganga, development of Buri-Ganga, proper gradation of shyam yadu pahar, proper conservation & development of the ruin capital of Doboka kingdom, development & construction of river front for enjoyment & refreshment center, facilities centers to the mountaineer & tourist to the nearby hills & mountain.

1.5 CONCEPT OF MASTER PLAN:

Master Plan is comprehensive that is it integrates various aspects of planning like housing, transportation, infrastructure etc. All the aspects are considered that affects the quality of life of people and all the interrelationships between various aspects; Multidisciplinary in nature: it encompasses various disciplines of studies like social aspects, economics, environment, engineering, architecture etc.; Master plan is a long term document. It clears out the vision for prospective year for the city and plans out development for future; Master plan focuses on rational use of land that is demarking land for the use most optimal for the activity at a place. It efficiently uses resources to meet the present and future requirements of the citizens; Master plan should consider the environmental and costs related to it.

The proposals for development should be sustainable. Master Plan is based on inclusive planning. It considers all sections of people in society in development proposals and focuses on affordability. ; Master plan gives restrictions on ecologically sensitive areas, on heritage sites and traditional built up areas and gives special norms for these places. ; Master Plan leads to a balanced growth of the city. It prevents concentration of a particular activity at one place and takes into account efficient distribution of facilities, infrastructure, networks and housing and follows neighborhood concept of development.



1.6 NEED OF A MASTER PLAN FOR DOBOKA TOWN:

A master plan or a development plan or a town plan may be defined as a general plan for the future layout of a city showing both the existing and proposed Land use plan. A master plan is prepared either for improvement of an old city or for a new town to be developed on a virgin soil. A master plan is a blueprint for the future. It is a comprehensive document, long-range in its view; that is intended to guide development in the township for the next 20 to 25 years.

It helps in restricting the haphazard and unplanned growth, arranges the pattern of a town in such a way so as to satisfy the present requirements without introduction of future improvements by the coming generations. It also aims at intelligent and economic spending of the public funds for achieving welfare of the inhabitants in respect of amenity, convenience and health.

On the other hand Master Plan also serves as a guide to the planning body for making any recommendations for public improvement. It removes the defects of uncoordinated physical growth of the various components of a town due to the fact that it considers the entire city area or town as planning and development entity.

To offset the evils which have come up due to over-crowding of population such as acute shortage of houses, traffic congestion, inadequate open spaces and insufficiency in public amenities etc, to incorporate the unforeseen development and arranges the pattern of township and in restricting the haphazard and unplanned growth have lead to the thinking of Preparation of GIS based Master Plan for Doboka town.

1.7 DOBOKA AS A URBAN LOCAL BODY:

Initially, Doboka Town was administered by Doboka Town Committee created in the year 1996 and later it was upgraded to Doboka Municipal Board vide Govt. Notification No. UDD (M) 263/2017/13, Dated Dispur the 11th October, 2018.

At present Doboka Municipal Board consists of 10 Nos. of wards with a jurisdiction area of 3.50 Sq. Km with a population of 13,118 which 6,675 are males while 6,443 are females as per census 2011 .



Doboka Municipal Board Office

CHAPTER 2: DEMOGRAPHY

The scientific or more specifically statistical study of population, its size, density, distribution and growth are known as demography. The study of population and its relating characteristics are the basic factor for long range planning works in a town or a city. The study of change in the population and its distribution and composition are also enabling to force the growth of the urban area. The important demographic aspects like housing facilities, urban infrastructure development both for present and future should be thoroughly studied during the preparation of any development plan.

An analysis of demographic features like growth of palpation, its distribution & composition etc. is absolutely necessary to assess the various civic needs like housing facilities, urban infrastructure and other basic services and the amenities. These important aspects of demography both present and future have been thoroughly studied at the time of preparation of Doboka Master Plan.

2.1 GROWTH OF POPULATION:

To better understand the growth of population of the planning area had been calculated from 1971 Census. The population of Doboka town area in 1971 was 5621 and it has increased to 11,058 in 2001 and 13,118 in 2011 as per census of India. The population of Doboka Master Plan area shows a steady growth. Following table shows the growth of population Doboka Town Area as well as the rural area.

TABLE 2: POPULATION GROWTH IN DOBOKA MB & DOBOKA M P AREA, 1952-2011

Year	Doboka MB Population	Growth Rate	Doboka MP Population excluding Doboka MB Population	Growth Rate	Doboka MP Population Total	Growth Rate
1951	866	--	5360	--	6226	--
1961	1647	90.18	7761	44.79	9408	51.11
1971	2494	51.43	11690	50.62	14184	50.77
1991	6316	153.25*	19233	64.53*	25549	80.13*
2001	11058	75.08	21983	14.30	33041	29.32
2011	13118	18.63	26984	22.75	40102	21.37

*Twenty Years Growth Rate

Source: - Census Data

2.2 POPULATION CHARACTERISTICS:

TABLE: 3 EXISTING POPULATION OF DOBOKA M. P. AREA AS PER 2011 CENSUS

Sl. No.	Master Plan Area	Population (2011)	P.C (%)
1	Doboka Municipal Area with 10 wards	13,118	32.71
2.	Village Area	26,984	67.29
	Total Population	40,102	100 %

Source-Census of India

The total population of Doboka Master Plan area as per 2011 census is 40,102 out of which 20,622 were male and 19,480 were female. In municipality area, out of the total population of 13,118, 6675 are male while 6443 were female.

TABLE: 4 TOWN/VILLAGE WISE POPULATION FOR DOBOKA M.P AREA AS PER 2011 CENSUS

DOBOKA MASTER PLAN POPULATION AS PER 2011 CENSUS								
Sl. No.	Name of the Village/MB Area	Area in Sq. Km	Total Households	Total Population of Village	Total Male Population of Village	Total Female Population of Village	Total Scheduled Castes Population of Village	Total Scheduled Tribes Population of Village
1	Doboka M.B	2.88	2375	13118	6675	6443	175	--
	Doboka Urban		2375	13118	6675	6443	175	--
1	Mikir Ati Huagaon	3.27	878	4821	2486	2335	13	184
2	Sutargaon	0.67	166	970	491	479	8	--
3	Nahargaon	2.01	415	2508	1298	1210	19	175
4	Burigaon	1.44	288	1665	816	849	23	--
5	Doboka Pathar	6.11	1073	5841	3007	2834	61	--
6	Niz Doboka	1.79	522	2996	1560	1436	15	12
7	Nam Doboka Pathar	1.54	404	2195	1181	1014	--	--
8	Nam Doboka Gaon	5.97	704	4146	2151	1995	--	--
9	Namati	1.40	340	1842	954	888	--	--
	Doboka Rural	24.20	4790	26984	13944	13040	139	371
	Doboka Urban + Rural	27.08	7165	40102	20619	19483	314	371

Source:-Census of India

TABLE: 5 TOWN/VILLAGE WISE POPULATION FOR DOBOKA M.P AREA AS PER 2001 CENSUS

DOBOKA MASTER PLAN POPULATION AS PER 1991 CENSUS							
Sl. No.	Name of the Village/MB Area	Total Households	Total Population of Village	Total Male Population of Village	Total Female Population of Village	Total Scheduled Castes Population of Village	Total Scheduled Tribes Population of Village
1	Doboka Rev. Town	1010	6316	3322	2994	120	6
	Doboka Urban	1010	6316	3322	2994	120	6
1	Mikir Ati Huagaon	472	2993	1550	1443	--	186
2	Sutargaon	99	639	331	308	15	--
3	Nahargaon	254	1462	741	721	58	176
4	Burigaon	164	1016	536	480	10	58

5	Doboka Pathar	552	3593	1838	1755	--	--
6	Niz Doboka	659	4091	2088	2003	8	--
7	Nam Doboka Pathar	230	1461	772	689	--	--
8	Nam Doboka Gaon	417	2658	1362	1296	141	--
9	Namati	208	1320	682	638	--	--
Doboka Rural		3055	19233	9900	9333	232	420
Doboka Urban + Rural		4065	25549	13222	12327	352	426

Source:-Census of India

TABLE:6 TOWN/VILLAGE WISE POPULATION FOR DOBOKA M.P AREA AS PER 1991 CENSUS

DOBOKA MASTER PLAN POPULATION AS PER 1991 CENSUS							
Sl. No.	Name of the Village/MB Area	Total Households	Total Population of Village	Total Male Population of Village	Total Female Population of Village	Total Scheduled Castes Population of Village	Total Scheduled Tribes Population of Village
1	Doboka Revenue Town	1010	6316	3322	2994	120	6
Doboka Urban		1010	6316	3322	2994	120	6
1	Mikir Ati Huagaon	472	2993	1550	1443	--	186
2	Sutargaon	99	639	331	308	15	--
3	Nahargaon	254	1462	741	721	58	176
4	Burigaon	164	1016	536	480	10	58
5	Doboka Pathar	552	3593	1838	1755	--	--
6	Niz Doboka	659	4091	2088	2003	8	--
7	Nam Doboka Pathar	230	1461	772	689	--	--
8	Nam Doboka Gaon	417	2658	1362	1296	141	--
9	Namati	208	1320	682	638	--	--
Doboka Rural		3055	19233	9900	9333	232	420
Doboka Urban + Rural		4065	25549	13222	12327	352	426

Source:-Census of India

TABLE: 7 TOWN/VILLAGE WISE POPULATION FOR DOBOKA M.P AREA As PER 1971 CENSUS

DOBOKA MASTER PLAN POPULATION AS PER 1971 CENSUS							
Sl. No.	Name of the Village/MB Area	Total Households	Total Population of Village	Total Male Population of Village	Total Female Population of Village	Total Scheduled Castes Population of Village	Total Scheduled Tribes Population of Village
1	Doboka Town	147	882	539	343	--	--
	Sutargaon	195	976	344	483	52	1
	Niz Doboka	91	635	350	284	17	--
Doboka Urban		433	2494	1232	1110	69	1
1	Mikir Ati Huagaon	304	1824	941	883	34	140
2	Sutargaon	125	624	465	308	46	--
3	Nahargaon	94	564	295	269	166	--
4	Burigaon	77	462	229	233	70	--
5	Doboka Pathar	311	1865	989	876	--	--
6	Niz Doboka	333	2334	1284	1042	20	2
7	Nam Doboka Pathar	196	1002	523	479	--	--
8	Nam Doboka Gaon	336	2014	1019	995	--	--
9	Namati	196	1002	523	479	--	--
Doboka Rural		1972	11690	6269	5564	336	142
Doboka Urban + Rural		2405	14184	7501	6674	405	143

Source:-Census of India

NB: It is come to learn during primary survey that the Doboka Town is curved out of villages i) Sutar Gaon(part) & ii) Niz Doboka(part)

TABLE: 8 TOWN/VILLAGE WISE POPULATION FOR DOBOKA M.P AREA AS PER 1961 CENSUS

DOBOKA MASTER PLAN POPULATION AS PER 1961 CENSUS							
Sl. No.	Name of the Village/MB Area	Total Households	Total Population of Village	Total Male Populat ion of Village	Total Female Population of Village	Total Scheduled Castes Population of Village	Total Scheduled Tribes Population of Village
1	Sutargaon Village	232	1180	344	494	--	--
2	Niz Daboka	94	467	256	210	17	--
Doboka Urban		326	1647	600	704	17	--
1	Mikir Ati Huagaon	143	822	441	381	--	91
2	Sutargaon	148	754	781	315	--	--
3	Nahargaon	32	143	88	55	--	24
4	Burigaon	72	389	206	183	--	6
5	Doboka Pathar	633	1225	639	586	--	--
6	Niz Doboka	344	1713	941	773	--	--
7	New Doboka Pathar	152	808	408	400	--	--
8	Nam Doboka Gaon	255	1427	744	683	172	--
9	Namati	85	480	265	215	--	--
Doboka Rural		1864	7761	4513	3591	172	121
Doboka Urban + Rural		2190	9408	5113	4295	189	121

Source:-Census of India

TABLE: 9 TOWN/VILLAGE WISE POPULATION FOR DOBOKA M.P AREA AS PER 1951 CENSUS

DOBOKA MASTER PLAN POPULATION AS PER 1951 CENSUS							
Sl. No.	Name of the Village/MB Area	Total Households	Total Population of Village	Total Male Population of Village	Total Female Population of Village	Total Scheduled Castes Population of Village	Total Scheduled Tribes Population of Village
1	Sutargaon	73	553	344	209	--	--
2	Niz Doboka	65	314	178	78	--	--
Doboka Urban		138	866	522	287	--	--
1	Mikir Ati Huagaon	83	384	221	163	--	--
2	Sutargaon	46	353	219	134	--	--
3	Nahargaon	12	53	32	21	--	--
4	Burigaon	49	253	131	122	--	--
5	Doboka Pathar	173	940	517	423	--	--
6	Niz Doboka	240	1151	654	285	--	--
7	New Doboka Pathar	100	604	348	256	--	--
8	Nam Doboka Gaon	196	1241	671	570	--	--
9	Namati	51	380	214	166	--	--
Doboka Rural		950	5360	3007	2140	--	--
Doboka Rural + Urban		1088	6226	3529	2427	--	--

Source:-Census of India

2.3 DENSITY OF POPULATION:

The number of population and the size of development of the town or city implies the density of population. Generally, the pressure of population from rural to urban area increases in search of better jobs, educational facilities, source of income, trade and commerce etc. The density of population of Hojai District as per 2011 is 550 persons per Sq. Km. whereas the density of population of Doboka M.B is 4554 persons per Sq. Km. Accordingly, the density of Doboka Village area is 1115 person per Sq.km. and Master Plan Area is 1480 persons per Sq. Km.

TABLE: 10 WARD WISE POPULATION DENSITY OF DOBOKA M.B

Ward No.	Area (Sq. Km)	Population			No. of Household	Population Density (per sq. km.)
		Male	Female	Total		
1	0.35	541	491	1032	172	2949
2	0.12	566	541	1107	212	9225
3	0.17	405	396	801	128	4711
4	0.15	365	355	720	151	1309
5	0.35	822	817	1639	262	4682
6	0.06	593	354	1147	227	19116
7	0.20	575	525	1100	197	5500
8	0.14	159	177	336	55	2400
9	0.30	442	397	839	172	2796
10	1.04	2207	2190	4397	799	4227
Total	2.88	6675	6443	13118	2375	4554

Source:-Census of India

TABLE: 11 POPULATION DENSITY OF DOBOKA MASTER PLAN AREA: 2011

Sl. No.	Doboka Master Plan Area	Area in Sq.Km	Population	Population Density /Sq. km.
1	Doboka M.B Area	2.88	13,118	4554
2	Village Area	24.20	26,984	1115
	Master Plan Area	27.08	40,102	1480

Source:-Census of India

2.4 SEX-RATIO AND LITERACY RATE

In Doboka M.B, Female Sex Ratio is of 965 against state average of 958. Moreover Child Sex Ratio in Doboka is around 1021 compared to Assam state average of 962.

The population of Children of age 0-6 years in Doboka (M.B) is 2118 which is 16% of the total population. There are 1048 male children and 1070 female children between the ages 0-6 years. Thus as per the Census 2011 the **Child Sex Ratio of Doboka (M.B) is 1,021** which is greater than Average Sex Ratio (965).

Literacy rate of Doboka M.B is 76.73 % higher than state average of 72.19 %. In Doboka, Male literacy is around 81.38 % while female literacy rate is 71.86 %. Population of Children with age of 0-6 is 2118 which is 16.15 % of total population of Doboka (M.B).

2.5 SIZE OF THE HOUSEHOLD:

The 2011 Census shown that more than half of the household in the region were medium sized with an average member more than 5.5 Nos. According to census 2011, the medium sized households (5-5.5) is predominant because of the increasing trends towards nuclear households densely settled and rapid urbanization are at higher rate, there will be considerable pressure on housing in coming future. The overall household size of Doboka Master Plan Area is 5.59 whereas the Household size is Doboka M.B is 5.52 and Village areas are 5.63.

TABLE: 12 AREA WISE HOUSEHOLD DETAILS DOBOKA MASTER PLAN AREA

Sl. No	Name of Area	Population	No. of Household	Percentage	Household size
1	Doboka M.B	13118	2375	32.71	5.52
2	Villages	26,984	4790	66.28	5.63
Doboka Master Plan Area		40,102	7165	100	5.59

(Source: Census of India, 2011 and T& CP, Nagaon Compilation)

2.6 POPULATION PROJECTION FOR THE YEAR 2045:

Population projections are attempts to show how the human population living today will change in the future. These projections are an important input to forecasts of the population's impact on this planet and humanity's future well-being. Models of population growth take trends in human development, and apply projections into the future. These models use trend-based-assumptions about how populations will respond to economic, social and technological forces to understand how they will affect fertility and mortality, and thus population growth.

Population projection is a scientific/mathematical attempt to peep into the future population scenario, conditioned by making certain assumptions using data to the past available at the point of time.

It is mandatory for Government policy makers and planners to determine the future demand for basic human needs such as food, water, education, health, energy, and other services and to forecast future demography characteristics.

The population projection of Doboka Master Plan area were separately done for Municipal area and rural area has been done by utilizing the maximum possible accuracy. Geometric progression method has been used to determine the future projected population of Doboka Master Plan Area.

Table:-13 STUDY OF DECADEALGROWTH RATE IN DOBOKA MP AREA & ASSUMPTION OF ESTIMATED GROWTH RATE

STUDY OF DECADEALGROWTH RATE	MB area	Village Area
	90.18	51.11
	51.43	50.77
	153.25	80.13
	75.08	29.32
	18.63	21.37
TOTAL SIX DECADES GROWTH RATE	388.57	232.70
AVERAGE GROWTH RATE	64.76	38.78
Last 2 decades Growth Rate	46.86	25.35
Say	40.00	25.00

Source: Census of India and T& CP, Nagaon Compilation

Table:-14 POPULATION PROJECTION OF DOBOKA MASTER PLAN AREA

POPULATION PROJECTIONS by GEOMETRIC PROGRESSION METHOD						
Year	Doboka MB Population	Growth Rate	Doboka MP Population excluding Doboka MB Population	Growth Rate	Doboka MP Total Population	Growth Rate
1951	866	--	5360	--	6226	--
1961	1647	90.18	7761	44.79	9408	51.11
1971	2494	51.43	11690	50.62	14184	50.77
1991	6316	153.25	19233	64.53	25549	80.13
2001	11058	75.08	21983	14.30	33041	29.32
2011	13,118	18.63	26,984	22.75	40,102	21.37
2021	18365	40.00	33730	25.00	52095	29.91
2031	25711	40.00	42163	25.00	67874	30.29
2041	35996	40.00	52703	25.00	88699	30.68
2045	43,195	20.00	59,291	12.50	1,02,486	15.54

20 Years growth rate

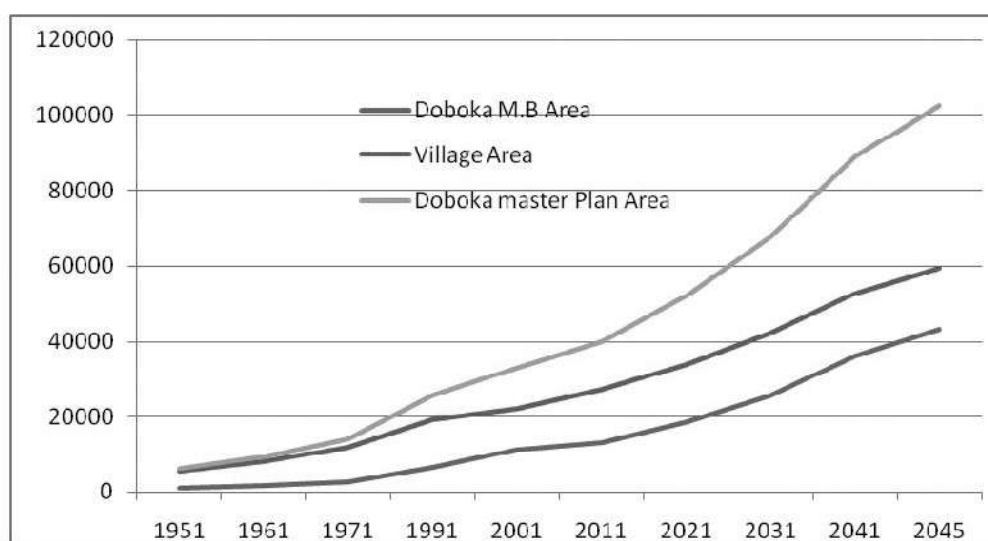
5 years growth rate

Source: Census of India, 1951- 2011 and T& CP Compilation)

Table-15 PROJECTED POPULATION UPTO 2045 FOR DOBOKA MP AREA

Method	2001	2011	2021	2031	2041	2045
Geometric Progression Method	33041	40102	52095(P)	67874(P)	88699(P)	1,02,486(P)

Projected Population of Doboka Master Plan Area is by 2045 is **1, 02,486**



Projected population of Doboka Master Plan in Line Diagram

CHAPTER 3: ECONOMIC BASE AND EMPLOYMENT:

Socio-economic base employment is necessary and important in policy making issues, for the effective development of social policy and for evaluation of the impact of social and economic policies of a town or town.

Doboka as a Municipal Town provides various categories of employment related with both formal and informal sector such as Administrative units, Agriculture, Banks and financial institution, Civil Supply, Consumer affairs, Co-operatives, crime and law, economy, education, Health, Housing, industries, insurance, social welfare schemes, welfare, sports and welfare etc.

Employment comprises all persons of working age who during a specified brief period, such as one week or one day, were in the following categories of paid employment (whether at work or with a job but not at work); or self-employment (whether at work or with an enterprise but not at work).

The working- age population is the population above the legal working age, but for statistical purposes it comprises all persons above a specified minimum age threshold for which an inquiry on economic activity is made.

The classification by economic activity refers to the main activity of the establishment in which a person worked during the reference period. The branch of economic activity of a person does not depend on the specific duties or functions of the person's job, but on the characteristics of the economic.



Figure-6

3.1 FORMAL SECTOR ECONOMY

The economy is categorized under the main three sectors as Primary, Secondary and Tertiary. If we talk about Doboka particularly the Primary sector comprises agriculture, animal husbandry and dairy as subsidiary industries. Manufacturing, household Industries and construction industry are considered in Secondary sector where as trade, tourism, hotels & restaurants, transport, storage & communication, banking, public administration, and informal sector are part of Tertiary sector.

Sector wise economic distribution

Primary Sector	Agriculture, Horticulture and Forestry, Sericulture & Fishing, Mining and Quarrying, Animal Husbandry and Dairy
Secondary Sector	Manufacturing, Household Industries, Construction.
Tertiary Sector	Trade, Tourism, Hotels & Restaurants, Transport, Storage & Communication, Banking, Public Administration and Informal sector

3.1.1 PRIMARY**3.1.1(i) Agriculture**

Doboka has been one of the leading town after Hojai town in International Agar Exportation to Middle Eastern countries, Bangkok, Laos, Singapore etc. Dabaka is one of the developed town of Assam and it ranked 10th position in highest per capita income in Assam. Lower class families are engaged with farming of mostly Rice, Wheat and Sugarcane. Though it has very little land for farming, it has produced huge amount of Rice production. The natural fertility of the soil behind the foothills accelerates the production of farming.

**(ii) Fishing**

Fish is an integral part of the diet of the people of Assam as it gets a lot of rainfall. The local “Rohu” variety is in much higher demand than the other imported fish. Every small and big river, large areas of water bodies, swamps and beel surrounding the town, especially River Jamanu etc. are having a unique potential for development of inland fisheries. There are a few unemployed youths but many of them are opting for fisheries as a livelihood option. There has also been a lot of development in aquaculture technologies.

iii) Animal Husbandry and Dairy

The climatic condition of the district is suitable for poultry farming. Most of the poultry birds are reared in small units. However, the farmers have to depend on other districts/states for supply of chicks. The people in rural surrounding Doboka town have long

tradition of maintaining cows & buffaloes for supply of milk and milk products. The production of milk per local animal is 1.5 litre/day. The low productivity of the dairy animals is apparently due to poor genetic character of the local cows. Considering the demand & supply, there is ample scope for development of this activity, particularly in rural areas adjacent to urban and semi-urban areas. Cattles, Buffaloes, Sheep, Goats, Fowls and Ducks are the livestock and poultry.

3.1.2 SECONDARY

i. Manufacturing

There is good scope for agro-based industries specially Agar industry in Doboka. There is abundance production of jute in Doboka region. But there are identified weaknesses that includes - power shortage, seasonal floods, shortage of industrial labour, lack of practical entrepreneurial development/motivation, lack of practical exposure.

3.1.3 TERTIARY

(i) Trade:- Doboka town is the principal centre of wholesale business in the entire Doboka region . Hojai is the main trade centre in the district wherefrom many of the commodities are imported to Doboka. The commercial areas of the town are mainly lying on the state and central Highways. The small villages which are surrounding the town is influenced the trade & commerce of the town, ultimately on the economy of the town. A development plan for overall development of the town has been formulated.

The weak economic base is shortage of power, low flow of capital, lack of skill labour etc. Doboka town is a vital place for Hotel business. Flow of people, through Doboka town near about 10 thousand daily (average). Technical Educational institution if set up in Daboka town, the trainers from Karbi-Anglong, Dima Hasou and surrounding areas of Doboka town can find a convenience place. Entertainment centers can play an important role in the growth of the Doboka economy.

(ii) Tourism: - Akashiganga Archaeological site, Mikirati Archaeological site, Gachtal Archaeological Site, Na-Nath Archaeological are the important historical sites in Doboka region are important tourist destination.

(iii) Transport and Communication:-

At present Doboka is well connected with the other parts of the district and state by road. The State Transport buses as well as private buses ply regularly in the roads of the town carrying passengers to and from all important places with state and district headquarters.

(iv) Administration:-

Doboka Town was administered by Dobaka Town Committee and latter it was upgraded to Doboka Municipal Board vide Govt. Notification No. UDD (M) 263/2017/13, Dated Dispur the 11th October, 2018.

There are 10 wards in the town. The chairman is the head of the administration. The Doboka Municipal Board has adopted various schemes for the improvement of road, streetlight, drainage etc. Moreover, Dobokaregion is controlled under Doboka Revenue Circle.

3.2 INFORMAL SECTOR EMPLOYMENT:

The majority of urban workers in developing countries earn their livelihoods in the informal economy. Therefore, understanding urban informal employment is critical to promoting inclusive cities and reducing urban poverty. But, many cities around the world are actively undermining or destroying urban informal livelihoods. Practices that exclude informal workers from participating in cities are the norm in many parts of the world: there are daily reports of slum and street vendor evictions and unreported harassment of informal workers by local authorities, including bribes and confiscation of goods, on a daily basis.

In response, organizations of urban informal workers are gaining in numbers, strength and solidarity; and are demanding more inclusive urban policies and practices in support of their livelihoods. Over the past year or more, with support from the WIEGO Network, some of these organizations have jointly sought to integrate a focus on informal livelihoods in the policy discussions before and at the Habitat III summit and in the New Urban Agenda document which will be adopted at that summit.

3.3 OCCUPATIONAL PATTERN:

In census survey, worker is defined as person who does business, job, service, and cultivator and labour activity. The capacity of an urban area to provide variety of jobs, absorb its working population in various sectors of economy is an indicator of the economic viability of the urban area. The participation rate also gives us an idea of the share of gainfully employed persons against the dependent and non-working population. Generally the participation rate in the urban area is high compared to the rural area.

TABLE-16 VILLAGE WISE OCCUPATIONAL PATTERN OF DOBOKA MASTER PLAN AREA

Sl. No.	Name of the Village/MB Area	Total workers	Main workers	Cultivators	Agriculture labourer	Household industries	Other Workers	Marginal workers	Non-Working
1	MikirAti Huagaon	1537	1359	500	167	41	651	178	3284
2	Sutargaon	256	249	63	95	3	88	7	724
3	Nahargaon	709	598	180	94	8	316	111	1799
4	Burigaon	492	452	188	112	5	147	40	1173
5	Doboka Pathar	1631	1449	653	295	27	474	182	4210
6	Niz Doboka	1117	696	216	66	16	398	421	1879
7	Nam Doboka Pathar	919	596	173	161	10	252	323	1276
8	Nam Doboka Gaon	1448	993	498	317	30	157	455	2698
9	Namati	575	258	86	60	17	95	317	1267
	RURAL	8684	6650	2557	1367	157	2578	2034	18310
Sl. No.	Name of the Village/MB Area	Total workers	Main workers	Cultivators	Agriculture labourer	Household industries	Other Workers	Marginal workers	Non-Working
1	Ward No-1	286	249	8	10	6	225	37	746
2	Ward No-2	390	354	1	0	16	337	36	717
3	Ward No-3	214	179	62	5	2	110	35	587
4	Ward No-4	348	215	4	1	1	209	133	372
5	Ward No-5	464	403	126	132	2	143	61	1175
6	Ward No-6	460	317	7	3	4	303	143	687
7	Ward No-7	293	289	9	33	0	247	4	807
8	Ward No-8	97	88	38	4	3	43	9	239
9	Ward No-9	283	255	4	3	0	248	28	556
10	Ward No-10	1199	1023	19	46	64	894	176	3198
	URBAN	4,034	3372	278	237	98	2759	662	9084
	RURAL+URBAN	12,718	10,022	2835	1604	255	5337	2696	27,394

Source: Census of India, 2011 and T& CP Compilation)

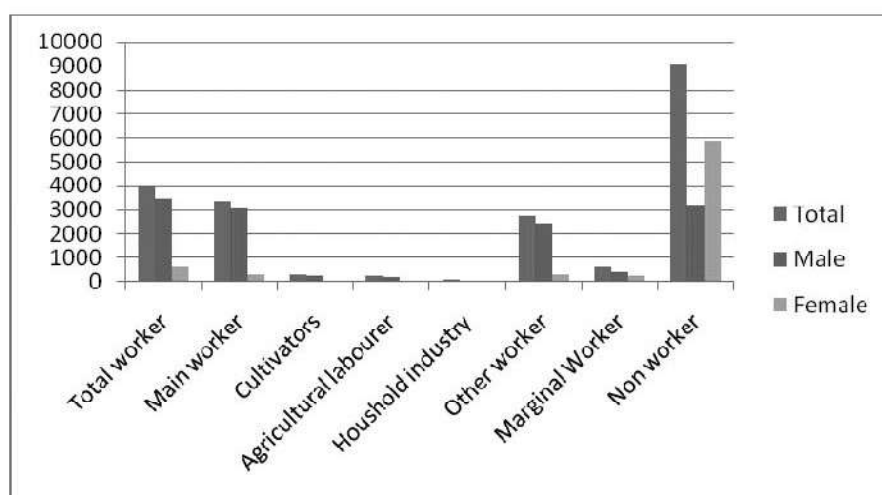
As per census 2011, the total population of Doboka Master Plan area is 40,102 out of which about 12,718 persons are engaged in various sectors. i.e 31.71 %, where 10,691 are Male and 2045 were Female.

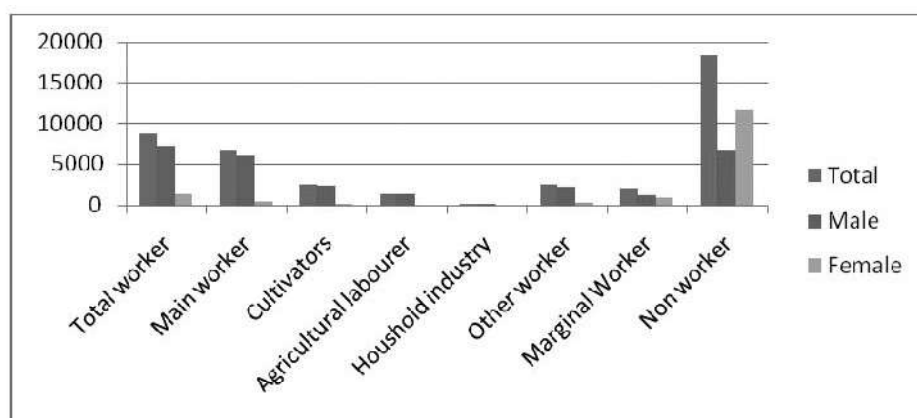
In Doboka Municipal Area, out of total population of 13118,4034 persons were engaged in different sectors. 3372 persons were works as main worker, where 3046 is Male and 326 is Female. While 9084 were Non workers (3220 male and 5864 female). 278 were cultivators while 237 were Agricultural laborers, 69 Household Industry workers and 2759 were other workers. .

Similarly, there are total 8684 workers (7236 M, 1448 F) in village areas , among them 6567 main workers, 2548 cultivators, 1367 agricultural labourer, 57 Household industries, 2578 Other workers, 2034 Marginal workers and 18,300 Non-Working persons.

Gender wise Occupational Pattern of Doboka Municipal Area)								
Gender	Total workers	Main workers	Cultivators	Agriculture labourer	Household industries	Other Workers	Marginal workers	Non-Working
Male	3455	3046	272	220	54	2471	409	3220
Female	597	326	6	17	15	288	253	5864
Total	4034	3372	278	237	98	2759	662	9084
Gender wise Occupational Pattern of Village Areas (Excluding Municipal Area)								
Gender	Total workers	Main workers	Cultivators	Agriculture labourer	Household industries	Other Workers	Marginal workers	Non-Working
Male	7236	6057	2402	1308	105	2158	1117	6708
Female	1448	510	146	59	52	420	917	11,592
Total	8684	6650	2557	1367	157	2578	2034	18,310

TABLE-17 GENDER WISE OCCUPATION PATTERN OF DOBOKA MASTER PLAN AREA

*Source: Census of India, 2011 and T& CP Compilation***Gender-wise Occupational Patter of Doboka Municipal Board in Bar-Diagram****Gender-wise Occupational Patter of Rural Areas (DMP) in Bar-Diagram**



It is evident from the above figure that engagement in Non-working sector is higher compare to working sector and another category in 2011. This can be attributed to the very less opportunities for male and special female residents in municipal area which ultimately leads to higher amount of unemployment. Less number of cultivators, agricultural labourer and household industry works indicates the low agricultural and industrial sectors in urban area. The trend of the exorbitant increase in the employment in tertiary sector is indicative of the engagement of workers mainly in the service sector. There is need to balance this transformation into tertiary sector as well as primary sector for balanced economic development.

3.4 WORKFORCE DISTRIBUTION

Workforce population distribution according to sectors is as mentioned below:-

TABLE-18 WORKFORCE DISTRIBUTION BY TYPE OF WORKERS

Name of Area	Population, 2011	Total worker	Main worker	%	Marginal Worker	%	Non-Worker	%
Doboka M.B	13,118	4034	3372	25.70	662	5.04	9084	69.24
Rural Area	26,984	8684	6650	24.64	2034	7.53	18310	67.85
Total	40,102	12,718	10,022	25.00	2696	6.73	27394	68.31

(Source-Census of India)

The details of the share of main, marginal, and non-working population of the Doboka master Plan area is furnished above. This table reveals that 25% of total population is main workers, very merge 6.73 falls under marginal workers and nearly two third (68.31) is non-workers in Doboka Master Plan Area. The Higher share of non-working population indicates that lack of employment opportunities/infrastructure is prevailing in the system. The Highest percentage of main workers to the total population is in Doboka Municipal Area while the lowest is in rural area. These phenomenon highlights that there is a shift from rural to urban migration i.e urban migration were observed in the system during the year 2011.

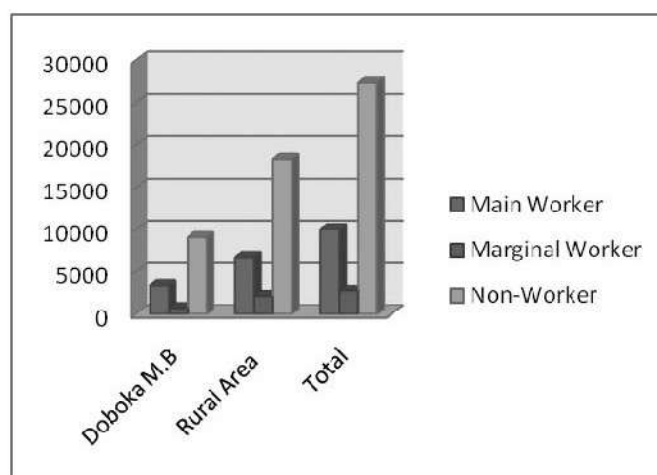
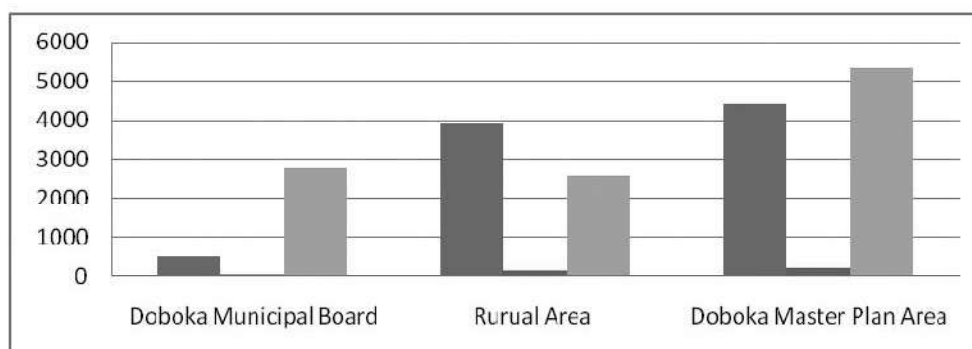
(Distribution of Workforce by Type of workers in Doboka Planning Area) *Figure-9*

TABLE:-19 WORKFORCE DISTRIBUTION BY SECTORS OF ECONOMY

Particulars	Main Workers	Primary Sector		Secondary sector	Tertiary Sector	%		
		Cultivators	Agricultural Labourer	Household Industry Workers	Others workers	Primary sector	Secondary Sector	Tertiary Sector
Doboka M.B	3372	278	237	69	2759	15.27	2.05	81.82
Rural Area	6650	2548	1367	157	2578	59.00	2.36	38.76
Total	10,022	2826	1604	226	5337	44.20	2.25	53.25

(Source-Census of India)

(Distribution of workers by sectors of economy in different region) *Figure-10*

The details of workforce distribution by sectors of economy are described in the above table reveals that out of the total working population of Doboka Planning Area, 44.20 % work in the primary sector, 2.25 in the secondary sector and almost 53.25 in tertiary sector. This composition clearly indicates that there is a higher dependency of working population on tertiary sector, followed by primary sector. However, in rural areas, dependency on primary sector slightly less than tertiary sector. Doboka Municipal area is mainly dependent on tertiary sector as major commercial and activities are concentrated in and around the major roads of the Town. As there is very less processing industrial establishments such as those that take the raw materials produced by the primary sector and process them into manufactured goods and products, the dependency on secondary sector is very less.

TABLE-20 WORKFORCE PARTICIPATION RATE OF DOBOKA MASTER PLAN AREA, 1991 TO 2011

Year	Doboka Municipal Area			Doboka Master Plan Area excluding the Municipal Area			Total Master Plan Area		
	Total Populati on	Total Worke rs	Work Participat ion Rate	Total Populati on	Total Work ers	Work Participat ion Rate	Total Populati on	Total Worker s	Work Participati on Rate
1991	6316	767	12.14%	19,233	5051	26.26%	25549	5818	22.77%
2001	11058	2906	26.27%	21,983	5609	25.51%	33041	8515	25.77%
2011	13118	4034	30.75 %	26,984	8,684	32.18 %	40102	12,718	31.71%

Source-Census of India & T&C.P, Nagaon, Compilation

In 2011, the work-participation rate is 31.71 % compared to 25.77 % in 2001 of Doboka Master Plan Area. More job opportunities to be created by improving of the overall economy and the consequent emergence of more and newer demands for goods and services.

CHAPTER 4: HOUSING AND SHELTER

The word "Housing" means dwelling units in terms of quality and quantity alone. Housing or quality of life is more dependent on some elements of housing areas such as disposition of various working areas, layouts development of land, provision of roads, water supply system, sewerage, drainage and provision of basic amenities like shops, schools, parks and play grounds etc. The urban form and character emerges from the quality of housing areas and inter relationship of housing areas with work centre and other non- residential areas.

The urban housing is mainly restricted to within the Municipal boundaries. The residential areas outside the municipal areas are rural housing. Normally the rate of housing spread of town should range between 3-4 hectare per 1000 persons and the rate of housing spread within The Master Plan Area is around 18 Hectare per 1000 persons.

TABLE-21 WARD WISE POPULATION DISTRIBUTION AND NOS. OF HOUSEHOLDS OF DOBOKA MUNICIPAL AREA AS PER CENSUS 2011.

Ward No.	Population as per 2011	No. of households	Housing size
1	1032	172	6.0
2	1107	212	5.22
3	801	128	6.25
4	720	151	3.4
5	1639	262	4.7
6	1147	227	5.05
7	1100	197	5.6
8	336	55	6.10
9	839	172	4.89
10	4397	799	5.50
Total	13118	2375	5.5

Source: Census of India

TABLE-22 VILLAGE WISE POPULATION DISTRIBUTION AND OCCUPIED RESIDENTIAL HOUSES OF DOBOKA M.P. AREA.

SL No.	Revenue Village Name	Area(in Sq.Km)	Population	No. of Household	Housing size
1	Mikir Ati Huagaon	3.27	4821	878	5.4
2	Sutargaon	0.67	970	166	5.8
3	Nahargaon	2.10	2508	415	6.0
4	Nam Doboka Pather	1.54	2195	404	5.4
5	Nam Doboka Gaon	5.97	4146	704	5.9
6	Burigaon	1.44	1665	288	5.8
7	Doboka Pather	6.11	5841	1073	5.4
8	Niz Doboka	1.79	2996	522	5.7
9	Namati	1.40	1842	340	5.4
	Total	24.20	26,984	4,790	5.6

Source: Census of India

4.1 HOUSING CONDITION:

Housing is a major element of people's material living standards. It is essential to meet basic needs, such as for shelter from weather conditions, and to offer a sense of personal security, privacy and personal space. Good housing conditions are also essential for people's health and affect childhood development.

Housing condition includes the study of housing base on type of structure i.e., permanent/ semi- permanent, physical infrastructure, mass space relationship, condition of the material use for walls and floors etc. It is important to be studied because it indicates the efficiency and sustainability of the housing stocks, whether the houses are livable or not. Based on the above said parameters, the condition of houses has been segregated and the analysis is done as good, livable and dilapidated houses of Doboka Municipal Area comparing with Hojai District.

TABLE NO-23 HOUSING CONDITIONS

Residence (%)				
Area	Total	Good	Livable	Dilapidated
Assam	62,72,151	33%	56%	11%
Hojai District	1,30,577	34.8	57.4%	7.9%
Doboka M.B	2375	56.29 %	34 %	9.71 %

Source: Census of India, 2011 and T&CP, Nagaon Compilation

4.2 CONSTRUCTION MATERIAL OF HOUSE:

The survey carried out by Town and Country Planning, Nagaon in 2020-21 and as per Census of India, 2011, it is found that the overall housing condition in the Doboka Master

Plan area is quite satisfactory but the distance between nearest settlement neighborhood is very less. The settlement pattern is very compact. Though the percentage of Good Housing Condition is high (56.29%) but the livable condition household is needed to be upgraded in the Doboka Municipal Area. The percentage of R.C.C structure is only confined in the Town area, specially the Market stores, Banks, Hotels along the major roads of the town and also some residential Buildings in the town area. Housing condition in the village areas were basically Livable and semi pucca type.

The following table shows the condition of existing housing stocks of Doboka Plan Area

TABLE: 24 MATERIALS USED FOR ROOF

Area Name	Total Number of HHs	Grass/ Thatch/ Wood/ Mud	Plastic Polythene	Handmade Tiles	Machine made Tiles	Burnt Brick	Stone/ State	G.I./ Metal/ Asbestos/ sheets	Concrete	Any other Material
State	62,72,151	18.60%	2.10%	0.70%	0.3%	0.1%	0.80%	74.20%	2.90%	0.20%
Hojai District	1,30,577	24.1 %	0.2 %	0.3%	0.1%	0.1%	1.6%	70.4%	3%	0.2%
DMB	2375	0.14%	0.33 %	1.33%	1.33 %	4.25%	4.32%	73.46 %	13.84%	0.00%

Source: Census of India, 2011

TABLE: 25 MATERIALS USED FOR WALLS

Area Name	Grass/ Thatch/ Bamboo etc.	Plastic/ Polythene	Mud/ Unburnt Brick	Wood	Stone not packed with	Stone packed with	G.I./Metal / Asbestos sheets	Burnt Brick	Concrete	Any other Material
State	66.40%	0.60%	3.60%	1.60%	0.70%	1.40%	1.10%	21.20%	2.90%	0.50%
Hojai District	65.8%	0.5%	5.1%	2.3%	1.5%	4%	0.2%	17.4%	2.7%	0.6%
DMB	49.15 %	4.43 %	5.75 %	2.99%	8.03 %	2.74%	0.78	21.22 %	4.22 %	0.79 %

Source: Census of India, 2011

TABLE: 26 MATERIALS USED FOR FLOOR

Area Name	Mud	Wood/ Bamboo	Burnt Brick	Stone	Cement	Mosaic/ Floor Tiles	Any other material
State	78.60%	2.10	1.20	0.40	16.60	1.00	0.10
Hojai District	83%	0%	1%	0%	15%	0%	0%
DMB	67.24 %	0.23 %	1.36%	4.98%	25.33 %	0.72 %	0.06 %

Source: Census of India, 2011

4.3 AVAILABILITY OF BATHROOM AND LATRINE

As per 2011 Census about 88.8% of households have sanitary latrine and Bathroom and 14.6% of the households have other type of latrine in the Doboka Master Plan Area.

4.4 HOUSING STOCK AND FUTURE REQUIREMENT:

The housing requirement is more in the urban area than that in the rural areas. Almost all people in rural area have got their own house. The total housing stock and future requirement of houses up to 2045 in the Doboka Master Plan Area were calculated based on the city/ town level data on the houseless population and pavement dwellers, the houseless population is derived from the data published as part of Census of India, 2011.

The total requirement of dwelling unit in the planning area as per the planning norms is as follows:-

4.5 HOUSING REQUIREMENT FOR FUTURE POPULATION OF DOBOKA TOWN AREA TILL 2045:

$$43195 - 13,118 = 30,077 \text{ Nos.}$$

Assuming family size of 5 persons, new houses will be required

$$30,077/5 = 6015 \text{ Nos.}$$

4.6 HOUSING REQUIREMENT FOR FUTURE POPULATION OF DOBOKA VILLAGE AREA TILL 2045

$$59291 - 26,984 = 32307$$

Assuming family size of 5 persons, new houses will be required

$$32307/5 = 6461 \text{ Nos.}$$

4.7 HOUSING REQUIREMENT FOR FUTURE POPULATION OF DOBOKA MASTER PLAN AREA TILL 2045

$$102486 - 40,102 = 62,384$$

Assuming family size of 5 persons, new houses will be required

$$62,384/5 = 12476 \text{ Nos.}$$

TABLE:-27 TOTAL HOUSING STOCK AND FUTURE REQUIREMENT OF HOUSES:

Sl. No	Area	Total no. of housing stock as per 2011	Housing requirement up to 2045
1	Doboka M.B Area	2375	6015
2	Doboka Village Area	4790	6461
	D.M.P A	7165	12,476

Source-T&C.P, Nagaon Compilation

CHAPTER5: TRANSPORTATION

Transportation plays a major role in the daily life of human beings. It is necessary for things to be moved around and as transportation systems have developed over time, the speed and efficiency of these systems have improved drastically.

The importance of transportation is showcased in how individuals, businesses, and governments rely on it to access resources. A society cannot function optimally if it does not have measures in place to facilitate transport. From movement to work to travel around the world, being able to arrive at various places or deliver different items on time is vital for overall productivity and sustainable development.

In consideration of healthy growth, economic prosperity and improved living standards of a town or a city, a high- quality transportation network is essential. In addition, transportation and land use are to be integrated to achieve reduction in trip length, increase in public transports usage etc.

5.1TRANSPORTATION NETWORK:

5.1.1 REGIONAL CONNECTIVITY OF DOKOKA:

Doboka is well connected to Assam major cities like Nagaon, Guwahati, Hojai Diphu, Silchar, through PWD roads to State highways via National highways which further connects to rest part of Assam in particular and India as a whole.

5.1.2 INTERSTATE CONNECTIVITY FROM DOBOKA:

Doboka is connected to major cities of Assam and other state of India by road. Table manifests the time taken (in hrs) and distance (in km) from Doboka to important cities of Assam and other state by different modes of transportation.

Hojai is the nearest major city and district headquarters, from which covers minimum distance i.e. 18 km. From state capital Guwahati to Doboka it covers a distance of 153 km. Other, important cities of different states capital like Kohima, Imphal, Shillong, Silchar, Dibrugarh, Jorhat, Tezpur, Itanagar etc, which takes approx. minimum 12 hrs. by road.

TABLE-28 CONNECTIVITY FROM DOBOKA TO OTHER STATE REGIONS.

Connectivity from Doboka	Distance (KM)	Time (hrs.)
		By Road
Nagaon	36.9	43 mins
Guwahati	153	2 hrs 51 mins
Kohima	198	4hrs 39 mins
Imphal	332	8 hrs 52 min
Shillong	213	4 hrs
Silchar	252	8 hrs 16 min
Dibrugarh	352	8 hrs 8 min
Jorhat	214	4hrs 30 min
Tezpur	87	1 hrs 50 min
Itanagar	153	3 hrs 45 min

5.2 NETWORK OF ROAD:

Roads are part of urban and rural infrastructure. These roads are required for both intra-city and intercity movement and render much higher level of service compared to Regional Roads, State Highways and National Highways. Quality of life is depends on efficient and effective road system, of course, with the support of other infrastructural services such as water supply, sewerage, drainage, electricity, telephones etc. in order to perform social, economic & cultural activities.' Urban transportation network is required to facilitate movement of people and goods and therefore efficient network is necessary for their efficient movement.

Importance of Urban roads is increasing on account of the fact that urban areas are increasing in their size and number.

5.3 INTERCITY CONNECTIVITY (FROM DOBOKA):

Doboka has the intercity connectivity by road. The table below shows to various modes of transportation and its connectivity with the nearest cities.

TABLE-29 MODES OF TRANSPORTATION AND ITS CONNECTIVITY WITH THE NEAREST CITIES/ TOWNS.

Urban centers from Doboka	Distance (km)	Duration (In hrs)
		By Road
Lumding	62.6	1 hrs 5 min
Lanka	26	30 min
Hojai	18	26 min
Nagaon	36	44 min
Raha	53	52 min
Jamunamukh	32	17 min
Boithalangso	52	1 hrs 15 min
Hamren	66.6	2 hrs 13 min
Morigaon	75.3	1 hrs 19 min
Diphu	95	1 hrs 57 min
Chaparmukh	57.5	59 min

TABLE-30 ROAD LENGTHS (IN KM) OF DOBOKA M. B. AREA

Total Length	Surfaced			Un-surfaced	
	Black tapped	Gravel	Paver Block Road	Motor able	Non Motor able
8-9 Km (approx.)	3.0	1.0	4.0	8.0	0.5

TABLE-31 ROAD CONNECTIVITY AND DISTANCE:

Sl. No.	Road type	Connectivity	Distance
1	National Highway-27	Doboka Town to Hojai Sankar Dev-Nagar	18.5 Km
2.	Via NH-27 and NH-329	Doboka Town to Diphu	95.8 km
3	PWD Road, Doboka Jamunamukh Road	Doboka Town to Jamunamukh	12. km
4	NH-29	Doboka Town to Akashi Ganga picnic spot.	12.4 km
5	NH-28 and State Highway -18	Doboka to Boithangso	52.2km
6	Doboka Main Road	Doboka town to Mahamaya Than	0.9 Km
8	NH-29 and Howraghat and Parokhowa Road	Doboka Town to Howraghat	29.9 Km

*Source:- Doboka Municipal Road***5.4 OVERVIEW OF CRITICAL ROADS:**

The identification of critical road links is greatly important to the management and control of the transportation system. Existing works fail to fully consider the influence of the distribution of traffic flow and its dynamic characteristics on critical road link identification.

The study of critical roads mainly depends upon several factors like traffic conditions, road geometry characteristics, environmental factors etc. Field traffic surveys were carried out to capture the classified volume count for major arterial, sub-arterial and collector roads spread across Doboka Town. Based on the field survey data and traffic volume survey conducted by the T&CP, Nagaon at some major points were ascertained during peak hours. The critical roads in Doboka town as mentioned below:-

TABLE-32 CRITICAL ROADS OF DOBOKA MUNICIPAL BOARD

Sl.No	Critical Roads	Length	Overview
1	Doboka Main Road	0.9 Km (approx.)	Connects S.B.I interjection and Mazjid Road near Marun Tower Passes through Heart of the Town and always Busy.
2.	Diphu Road	1.11 Km (approx.)	Connects M.G Road, Mondol Road and join Bye-Pass NH-27, One of the busiest Raod of Doboka Town.
3.	College Road	0.99 Km (approx.)	One of the important Raod od Doboka Town connects Doboka main Road near Ambari and joins at BSNL office.
4.	Thana Raod	0.95 Km (approx.)	Always Busy starts from Jame Mazjid and connects college Road.
5	Mazjid Road	1.83 Km (aprox.)	It starts near Marun Tower and connects Rajbari Roads.

Source: Survey, T&CP, Nagaon



TABLE-33 MAJOR TRAFFIC NODES IN DOBOKA IDENTIFIED WHICH ARE DETAILED AS BELOW:-

Source:- Doboka Municipal Board



Traffic Congestion Roads of Doboka Town Area

5.6 BUS AND TRUCK TERMINUS:

Public and Private Bus stands are mostly temporarily located at along the main road sides of Doboaka town which causes the traffic congestion and traffic hindrance. There is no any permanent bus stand at Doboka Town, however there are some stoppages where people catch vehicle for their destination. Doboka Municipal Board is planning to construct a Bus Terminus and Truck Terminus at ward No-10, Niz-Doboka and Nahargaon.

5.7 TRAFFIC VOLUME SURVEY:

The traffic volume survey conducted by the T&CP, Nagaon only at some main points and it is restricted only to peak hour survey from 08:00 a.m to 10:00 a.m, 11:00 A.M to 12:00 P.M, 12:00 P.M. to 01:00 P.M. identify better and efficient traffic operation plan. The following table shows the traffic volume of the main points within Doboka Town.

1. Table-34 MAIN BAZAR POLICE POINT TRAFFIC SURVEY:

Sl. No.	Vehicle	Number	Time
1	Bus	07	11:00 A.M
2	Tempo	15	
3	Rickshaw	03	
4	Thela	07	
5	Bicycle	50	
6	Truck	06	
7	J.C.B	01	
8	Bike	74	
9	Tractor	01	
10	Car	40	
11	E- Rickshaw	25	
12	Magic	13	
13	Tata Mobile	20	
14	Soil Truck	03	

2. TABLE-35 DIPHU ROAD POINT TRAFFIC SURVEY:

Sl. No.	Vehicle	Number	Time
1	E- Rickshaw	20	12:00 P.M
2	Tempo	15	
3	Rickshaw	04	
4	Thela	09	
5	Bicycle	51	
6	Truck	03	
7	J.C.B	02	
8	Bike	61	
9	Car	36	
10	Magic	11	
11	Tata Mobile	26	

3. TABLE-36 MAHATMA GANDHI ROAD POINT TRAFFIC SURVEY:

Sl. No.	Vehicle	Number	Time
1	E- Rickshaw	21	01:00 P.M.
2	Tempo	17	
3	Rickshaw	07	
4	Thela	08	
5	Bicycle	39	
6	Truck	09	
7	J.C.B	02	
8	Bike	73	
9	Car	28	
10	Magic	11	
11	Tata Mobile	16	
12	Soil Truck	07	
13	Tractor	01	
14	Dumper	04	
15	Bus	02	

Source:-T&C.P, Nagaon Survey

5.8 PARKING:

Vehicle parking is a major problem in urban areas. With rapid growth of the urban area, the parking generation rate goes on increasing very quickly which creates major problems of parking in most of the urban areas. In the recent years, with the rapid development of economy and exorbitant increase in the motor-vehicles, parking problems in urban area have become increasingly prominent.

On street parking is found all over Doboka Town, parking usually spills over to other use areas like road carriageway and footpaths, open spaces. In turn they affect safety and environmental quality. Parking characteristics within the town vary by areas, by land use activities and by time period. In residential areas it is by time period.

At present there is no municipal identified parking area designated for public and private parking within Dokoka town as well as Planning Area. As per parking survey conducted by the Town and Country Planning, Nagaon it is observed that on street parking is found all over Doboka town.

On- Street parking is observed to be high on M.G Road, Diphu Road, College Road, Thana Road. On Street parking at different places of Doboka town are observed as below:



On street illegal parking alongside Diphu Road

Therefore, to stop the illegal parking alongside the roads of Doboka Town and to reduce traffic congestion 4 Nos. of systematic parking zone has been proposed within the Doboka Master Plan Area. They are (1) Nagaon Bus Stand Parking Zone (2) Hojai-Lanka Parking Zone (3) Jamunamukh stand Parking Zone (4) Changmazi stand Parking Zone .

5.9 MAJOR ACCIDENT PRONE AREA:

As per records available from the Doboka Municipal Board, there are frequent accidents are being happened in Town due to Non traffic signal points and uncontrolled speed of the vehicles. Major accident prone areas of Town are mentioned as below:

1. Diphu Bye-Pass
2. Near S.B.I Point

5.10 TRANSPORTATION ISSUES AND REQUIREMENTS:

5.10.1 ILLEGAL VENDING ZONE:

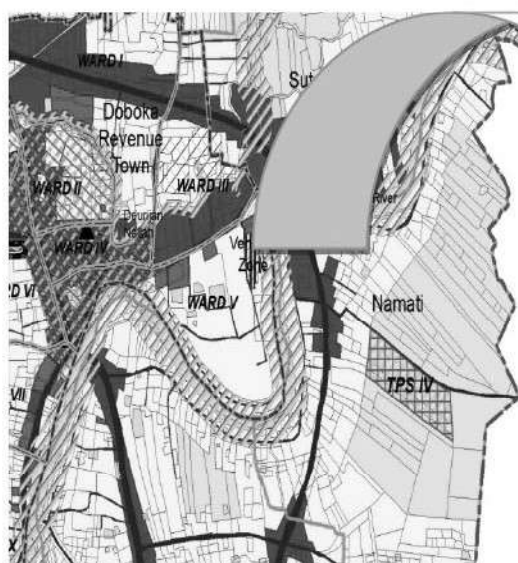
- One of the major issues is of illegal vending on walking shoulders on the main streets.
- Due to illegal vending sometimes the actual accessible patch of road decrease to half lane only.
- If proper spaces are being allocated to street vendors in every zone the issue can be eliminated.
- Due to illegal possession of shoulders the pedestrian come down to road for their local trip and some-time proves unsafe on congested area.
- Narrow road network with restricted capacity, particularly due to the illegal vending, resulting in congestion and loss of productivity.
- The problematic areas include intersection points between MG Road-Diphu Road, Diphu Raod-Mondal Bazar Road and S.B.I intersection point.

The photographs below depict the current scenario of the illegal vending zones which restricted the capacity of road resulting lead to congestion.



Illegal Vending alongside the road of Ward No-4 at Doboka Town

Therefore, to reduce traffic congesting and to stop illegal vending alongside the roads of Doboka Town a suitable permanent Vending Zone has been proposed at Ward No-5.



Proposed Vending Zone at ward No-5



5.10.2 TRAFFIC CONGESTION:

- Traffic congestion is quite common in Doboka Town and it takes a lot of time to commute for the commuters.
- At many places geometry of the town is very less as they have not followed any norms and standards for the road pattern as well as for other related things like road cross sections and railway level crossing etc.
- Observed encroachments on the footpath by vendors, which acutely rise the traffic congestion between include intersection M. Road-Diphu Road, Intersection point between Diphu and Mondol Road, S.B.I intersection points.
- Many vehicles, due to lack of adequate parking facilities, were parked on the Doboka Main Road bazaar road, Thana Road, College causing inconvenience to people who use the field for recreational purpose like walking and playing and people had to face inconvenience as that road leads to many importance place like Higher Secondary School, Police Thana, Doboka CHC, Mazjid etc.

The highlighted light green dots on map within town area shows the frequent congested road patches.

5.10.3 ROAD ENCROACHMENTS:

- Many factors can be listed out for such happenings, but few observations are mentioned below, which are
- Unauthorized parking of vehicle on pavement only.
- Many spots with exposed electric poles on pavement sides which leads to make space dead and potential for parking wheels.
- The town suffers from parking problems due to encroachment by vendors on road and off-street parking. As a result, the road width decreases and there is no space remaining to pass the vehicles or to give space to other vehicles.
- There is no designated space for parking in whole town,
- Due to lack of space, it is difficult for vehicles to pass on.
- Also, Proper facilities are needed for loading, uplifting, and downloading.
- Encroachment on both sides of the road decreases the effective width which may cause road accidents and disturbs the smooth flow of traffic.

5.10.4 TRAFFIC SIGNAL POINTS:

There are no organized traffic signal points in Doboka town. Various junctions without traffic signals are there in the town area like- S.B.I point Doboka, MG Rd-Diphu Rd., Diphu-Bye Pass

CHAPTER 6: INFRASTRUCTURE, PUBLIC UTILITIES & SERVICES

The development pressure on towns and cities is increasing with the rising urban population and growth of urban areas. The development of cities in itself is dependent upon the public infrastructure services. The creation of urban infrastructure is expensive and time consuming. Therefore it requires the Government to play a major role in making lumpy investments.

A country's economic and social development is directly dependent on a country's infrastructure. Many developed countries make a lot of progress because of the enormous growth of economic and social infrastructures. A good infrastructure makes the work process easier, resulting in a positive and high productivity.

Urban infrastructure development is the foundation of every city and remains the key to ensuring basic services like water, sanitation, drainage, energy, and transport. With proper and planned urban infrastructure development, residents can enjoy better living conditions & live healthier lifestyles while benefiting from enhanced environmental sustainability.

Social Infrastructure is a subset of the infrastructure sector and typically includes assets that accommodate social services like Health, Education, Housing, Civic and utilities, Transports etc.

6.1 SOCIAL INFRASTRUCTURE:

Social infrastructure plays an important role to provide quality of life to the residents of the city. The effectiveness of social infrastructure in achieving the objective of city development plan would depend upon its capacity to contribute to improvement in the quality of life, enhanced self-dependency and city's sustainability. The level of social infrastructure shall aim the creation of liveable city through reducing the sense of alienation among the residents with less dependence on other settlements for basic infrastructure.

Social infrastructure refers to the facilities and mechanisms that ensure education, health care, community development, and social security, recreational and social welfare. The development cannot be looked at in isolation without considering the basic needs of the people, and a significant level of investment is needed in this sector. Usually this development referred to as the commitment towards realizing the vision of the city.

6.1.1 EDUCATION

Education is an important factor influencing the quality of life of the people and future development of an area. It empowers them with skills and knowledge and helps them to better lead their life and access best of the employment opportunities available in the market. This in turn will impact the work force participation rate and economy of the area.

There are many government and private schools, colleges in Doboka town. The existing scenario of Primary, Middle school and Higher secondary school and Govt. and private Colleges in Doboka area is shown in the table given below:

TABLE-37 EDUCATIONAL FACILITIES AVAILABLE IN DOBOKA MASTER PLAN AREA

Sl. No.	Category of Educational Institutions	Institutions in DMB Area	Institutions in Village Area	Total Number of Institutions	Enrolment	Teachers
1	Lower Primary Schools	5	17	22	2765	83
2	Middle School	5	10	15	2034	63
3	High School	3	Nil	3	836	26
4	Higher Secondary School	1	Nil	1	864	22
	i) College	2	Nil	2	854	37
	2) Junior Colleges	3	1	4	1256	73
	3) B.Ed College	Nil	Nil	-	-	-
	4) Commerce College	Nil	Nil	-	-	-
	5) Law College	Nil	Nil	-	-	-
	6) Homeopathic	Nil	Nil	-	-	-
	7) Polytechnic	Nil	Nil	-	-	-
	8) I.T.I	Nil	Nil	-	-	-

Source: Inspector of Schools, Elementary and Higher education



Md. Haji Anfar Ali College Doboka

6.1.2HEALTH:

The medical facilities in Doboka town are not sufficient to the needs of the demand of the peoples. Doboka CHC 30 beds civil hospital including maternity section has been providing the medical facilities to the peoples of Doboka area. In addition, one private Hospital namely-Doboka Life care Hospital provides Health provides health facilities to the entire planning area. Therefore Doboka CHC Hospital is always over crowded with patient and needs its immediate expansion.



30 Bedded Rural Hospital, Doboka

6.1.3WATER SUPPLY:

In Doboka town, piped water is supplied to a section of the people by PHE Deptt, Hojai and rest of the population depends upon individual source of water like ponds, ring wells and tube wells. The underground water reserve of the town is in a satisfactory condition hence it is felt that there will not be shortage of water for distribution in the town. Besides this Jamuna river is passes near the town from which water can be trapped for distribution if required in future for the projected population. Population of Doboka Urban Area gets its portable drinking water almost extensively from ground. At present, there are about 623 household get tapped water from treated source, 63 Household from untreated source, 20 Household as covered well and 22 has uncovered well, 2372 Hand pump, within Doboka Urban Area.

TABLE-38 GROUND WATER BY IT SOURCE IN DOBOKA URBAN AREA

SL.No	Source of Water	Household	Population	Percentage
1	Tape Water	686	3430	17.27
2	Well (Covered/Uncovered)	42	219	1.05
3	Hand Pump	2372	11,860	59.69
4	Tube well/ Borale	690	3,450	17.63
5	Tank/Pond	96	480	2.42
6	River/Canal	68	340	1.71
7	Other source	20	100	0.5
	Total	3,970	19,879	100

(Source-Census & T&C.P compilation)

6.1.4 POLICE STATIONS:

The whole Doboka Master plan Area is controlled by Doboka police station which is located in the heart of the Doboka town.

6.1.5 TRADE AND COMMERCE:

The Commercial activities in Doboka Town have potential for growing like other towns of Hojai District. As per data available from the Doboka Municipal Board the total No. of retail shops in the Town Area is 1246 units and 51 No. of wholesale units.

There are several daily markets in the town along the major road of Doboka town for shopping for various items, 1 fish market, and 1 cattle market. Following table depicts the commercial activities in Doboka Town.

TABLE-39 DATA REGARDING TRADE AND COMMERCE WITHIN DOBOKA MUNICIPAL AREA:

Sl. No	Type of business Units	Nos. of business Units	
		Wholesale	Retail sale
1	Grocery	12	155
2	Cloth	10	175
3	Medicine	4	34
4	Cycle shop	-	10
5	Hardware(cement dealer)	-	2
6	Electrical shop	-	45
7	Radio & T.V	-	10
8	Fruit shops	1	2
9	Egg shop		
10	Jeweler	-	40
11	Hardware	-	25
12	Rice	2	5
13	Motor tyre dealer	-	5
14	Fertilizer	1	5
15	Optical shop	--	1
16	Meat shop	-	3
17	Timbers	-	5
18	Radio & Sewing machine	-	
19	Diary	-	2
20	Scooter & Motor cycle dealer	-	5
21	Book stall	-	10
22	2 nd Hand two wheeler showroom	-	5
23	2 nd Hand four wheeler showroom	-	10
24	Pan shop	3	100
25	Shoe shop	-	50
26	Stationary	-	100
27	Utensil	-	10
28	Mobile shop	3	20
29	Industry	-	10
30	Mobile Repairing	-	70
31	Vegetable shop	12	60
32	Tea stall	-	40
33	Hotel & Restaurant	-	25
34	Motor parts shop	-	55
35	Garage	-	37
36	Battery shop	-	13
37	Black smith shop	-	9
38	Fish shop	7	24
39	Beauty Parlour	-	5
40	Barber shop	-	15

41	Banks	-	3
42	Furniture	-	33
43	Gas agency	-	1
44	Nursing Home	-	1
45	Dry fish	-	10

Source:-Doboka Municipal Board

6.1.6 CREMATION /BURIAL GROUND:

There are 1 cremation grounds and 2 (Two) burial grounds and 1 Kabarstan in each of the Revenue Village.

6.1.7 FIRE STATION:

The entire Doboka Master Plan Area is covered by one fire station located at Ward No-6 to take care of fire hazards. Therefore, Alternative solutions of use of smaller fire hydrants for very narrow roads, Market Area, Highly populated Area etc. for fire safety.

Strategies for Fire Hydrant Installation Point

- ☐ Hydrants must be located within three feet of the edge of a fire lane and cannot be located in areas where it may be visually or operationally obstructed (behind fences, walls, in bushes, behind parking spaces, etc.). Clearance shall be provided to a distance no less than three feet from the perimeter of the hydrant.
- ☐ The hydrant outlets must face the fire lane. In areas where the outlets cannot face the fire lane (e.g., the hydrant is located on a landscape peninsula or island in a parking lot; the hydrant has three outlets, etc.), the 4" outlet(s) shall take precedence
- ☐ The hydrant shall be located at least 40-feet from the building it serves. Where it is impractical to locate the hydrant 40-feet from adjacent structures, additional hydrants may be provided, or the hydrant may be located closer if nearby walls do not contain openings and the hydrant is not in a location where it may be rendered inoperable due to damage from collapsed walls, debris, or excessive heat.
- ☐ The concerned agencies shall take approval from Fire Department for fire fighting measures while laying the services for an area.

Proposals for Fire Hydrant in Doboka Master Plan Area

A **fire hydrant**, **fireplug**, or **firecock** (archaic) is a connection point by which fire fighters can tap into a water supply. It is a component of active fire protection. Underground fire hydrants have been used in Europe and Asia since at least the 18th century. Above-ground pillar-type hydrants are a 19th-century invention.

Fire Hydrant Location point: - For fire safety measures in DMPA 4 (Four) Fire Hydrant installation point has been proposed at Ward No-10 near Doboka CHC, Ward No-1, Ward No-4, and Ward No-3. (Exact location shown in the Map)

6.1.8 POST OFFICE:

There are 2(two) post offices within Doboka Master Plan area, one is within Doboka Municipal Area and the another is outside Municipal Area serves the Doboka Planning area .

6.1.9 BANKS/FINANCIAL INSTITUTIONS:

The entire planning area is served by only 4 nos. Banking institution located within the Municipal area, which is not sufficient to serves the planning area.

The banks located within the planning area are shown in the table below:

TABLE-40 BANKS IN DOBOKA MUNICIPAL AREA:

Sl.No.	Name of Banks	No. of banks
1	STATE BANK OF INDIA	1
2	HDFC BANK	1
3	CENTRAL BANK OF INDIA	1

6.1.10 RECREATIONAL FACILITIES:

The Following table depicts the available of recreational facilities in the Doboka Municipal Area as well as the Planning Area.

TABLE-41 RECREATIONAL FACILITIES WITHIN DOBOKA MASTER PLAN AREA:

Sl.No.	Recreational facilities	Nos. along with Name and Location
1	Parks	--
2	Playground	--
3	Stadium	Nehru Stadium (Near Doboka, H.S school)
4	Library	--
5	Museum	--
7	Cinema Hall	--
8	Public Auditorium	M.A.J.C Memorial Hall (Private)
9	Swimming Pool	

Source: Doboka Municipal Board

6.2 DRAINAGESYSTEM:

With the rapid urbanization as well as the expansion of the area of Doboka town, the existing drainage facilities are not sufficient to the needs of the demand of the people. Most of the new residential areas have grown without having drainage facilities. The existing drains both side of the road do not have proper slopes or not properly linked up with the main drains and the alignments of the natural drains are also not properly defined, resulting in water logging at different areas of the town, mainly during the heavy rainy season (June to October) most of the busy roads in the residential area of Doboka town is inundate with the stagnation of rain water.

As the Jamuna River passes near the Doboka town, a major part of the storm water generated in the town flowed out to the Jamuna River. During the rainy season when the Jamuna River is increase in volume than it is not in a position to discharge the rain water and consequently all the low-lying areas within the town causing flood.

6.3 SEWERAGE SYSTEM:

At present there is no sewerage system in Doboka town as well as in the planning area. The mode of disposal is through the septic tanks with soak pits arrangement. Most of the families day to day washables dirty water and the bathroom water is disposes in own soak pits. Some of the families washable water discharge is into the open municipal drains. Almost all the holdings in the town have individual septic tank. There are no dry latrines.

As per the survey done, present wastewater generation by Doboka M.B is approximately 11,082.88 but there is no STP provision done for sewerage generated by town.

TABLE:-42 ESTIMATION OF WASTEWATER GENERATION

SL.No	Area	Population	Water consumption MLD	Sewerage Generation MLD	Nos. of STP proposed	Existing Treatment Capacity	Gaps in MLD
1	Doboka Master Plan Area	102486	13835.61	11,082.88	01	Nil	11,082.88

(Source-T&C.P & DMB compilation)

The total water requirement for the Master Plan Area is 17.84 MLD(by the year 2045). As per CHPEEO guideline, 80% of total water demand is considered as the sewerage flow; therefore, around 14.27 MLD water is expected to go in sewerage lines. As time passes,

the area is expected to grow and along with high water demand, there will be larger wastewater discharge; hence, the project area required systematic sewerage system so the wastewater will not be discharged in the natural drains, which will help in reducing the flood problem.

There should be underground sewerage connection to each household and from where the discharged wastewater should go to sewerage treatment plant before discharging it into the natural drains. While planning for the proposed sewerage system, consideration should be given to the natural drainage pattern. The sewerage system should be planned in such a way that there will be minimum pumping involved in collection and conveyance of sewage. New Sewerage Treatment Plant (STP) sites should be identified depending on considerations such as the quantum of environmentally suitable land, and availability of government land, capital and O&M cost of different options. While the underground sewerage is been planned and implement, the authority needs to make sure that each household in the region has a septic tank installed and is being managed and is fully functioned. Water from commercial and industrial activities wastewater is being treated before discharging in the river.

ISSUES

Absence of sewerage system: there is absolute absence of sewerage system in Doboka planning area resulting in discharge of un-treated waste water in drains and Tolibar Beel.

Mixing of storm water and sewage:In absence of sewerage and improper drainage system, in many parts of planning area, there is discharge of sewage into storm water drains and other water bodies.

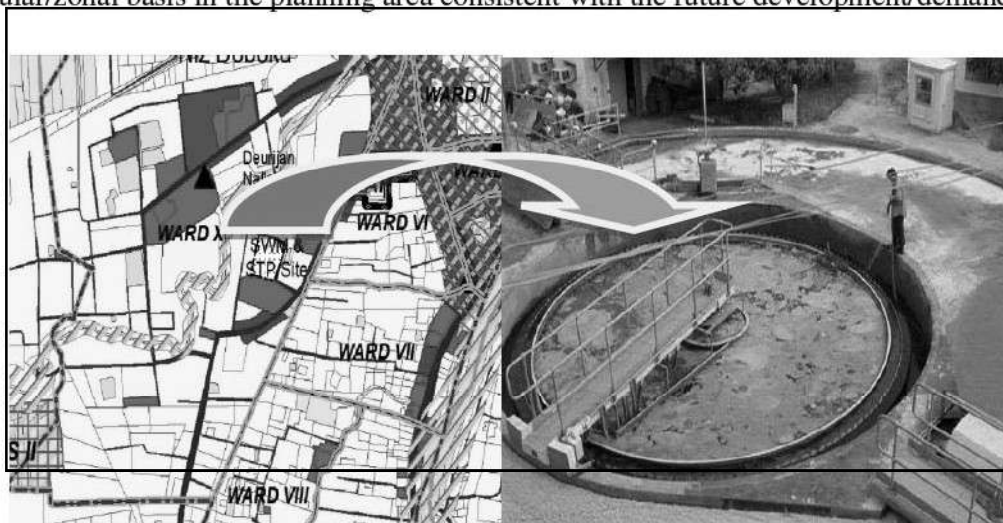
Maintenance of Septic Tank: As per the present practice, the septic tanks are the only mode of disposal of sewage in Dobokahing planning area, which are not frequently cleaned by the Doboka Municipal Board.

In a modern society, proper management of wastewater is a necessity, not an option. A wide range of communicable diseases can be spread through elements of the environment by human and animal waste products, if not disposed properly. The development of effective water and wastewater treatment methods has virtually eliminated major water borne epidemics in developed countries.

Developing countries like ours, where treated water is not available to a majority of the population, still experience epidemics like cholera and typhoid. It is also to be mentioned that as per the report of the Planning Commission for the Tenth Five Year Plan, which emphasizes that all cities, towns and industrial areas should compulsorily have sewage treatment plants and are to be implemented in a time bound manner. Advanced waste water treatment process is currently being so developed that it will produce palatable water from domestic wastewater.

RECOMMENDATIONS

For treatment of waste water generated from the planning area, a decentralized wastewater treatment system would be more appropriate. The centralized sewage treatment system appears inappropriate as it may end up with very huge sizes of sewers and various issues of conveyance in handling this huge quantity of wastewater. The treatment plants and sewers are to be so aligned as to reduce the number of crossings with railway tracks and National Highways of the area. The proximities of natural drains for treated effluent disposal, minimum obstructions for laying sewers, and the possibilities of acquiring land for sewage treatment plants (STPs) turns important in orienting and locating the plants. The possibilities of re-use of treated wastewater effluent for irrigation, gardening etc. should be looked into. The construction of treatment plants could be carried out in a phased manner on a modular/zonal basis in the planning area consistent with the future development/demand



Proposed STP site at Ward No-x

6.4 STORM WATER DRAINAGE:

The existing natural storm water drains in Doboka town are not properly defined and is slow being encroached by the growing population. Presently road side drain carries the rain water. Below table shows the length of drains.

TABLE-43 STORM WATER DRAIN/DRAIN (IN KM) IN DOBOKA M P AREA

	Total Length	Pucca Drain	Kutcha Drain
Storm water Drain	NA	NA	NA
Drain	9-8 (approx.)	9-8	NA

Source: Doboka M.B

6.5 SOLID-WASTE MANAGEMENT:

The collecting, treating, and disposing of solid material that is discarded because it has served its purpose or is no longer useful. Improper disposal of municipal solid waste can create. Unsanitary conditions and these conditions in turn can lead to pollution of the environment and to outbreaks of vector-borne disease that is, diseases spread by rodents and insects. The tasks of solid-waste management present complex technical challenges. They also pose a wide variety of administrative, economic, and social problems that must be managed and solved.

The management of municipal solid waste is one of the main functions of all Urban Local Bodies (ULBs) in the country. All ULBs are required to meticulously plan, implement and monitor all systems of urban service delivery especially that of municipal solid waste. With limited financial resources, technical capacities and land availability, urban local bodies are constantly striving to meet this challenge.

As per data received from Doboka Municipality Board total waste generated per day in Doboka town is approximately 2-2.5 metric tons and collects about 2 tons (65%) from various source like households, commercial establishments , hotel, marketplace, drain cleaning and street sweeping, construction waste etc. Presently, following table depicts the nos. of vehicles and other equipment's used for solid waste management system by the Doboka Municipality Board. Dumping Ground for 11 Bigha within town area at present used by Doboka Municipal Board.

TABLE:-44 VEHICLES AND OTHER EQUIPMENTS USED FOR SOLID WASTE MANAGEMENT SYSTEM.

Sl. No.	ITEM	NUMBER
1	Roller	--
2	Tractor	--
3	Tempo van	--
4	Rog Machine	--
5	Tripper	2
6	Mini JCB	1
7	Water tank	--
8	Hydraulic Dustbin	--
9	Auto Tripper	1
10	Safai Kormosari	19

QUANTITY OF WASTE GENERATED

The quantity of MSW generated depends on numerous factors such as population, food habits, standard of living, degree of commercial activities and seasons. The increasing urbanization and changing lifestyles have increased the waste generation rate of Indian cities. Criteria for assessing waste generation

- Projected populations for the design period

- Existing per-capita waste
- Annual rate of increase of per capita waste generation

SOLID WASTE DEMAND PROJECTION

Based on the CPHEEO standards, following assumption were considered while estimating the volume of the solid waste and required area for the landfill site for the proposed urban population for the horizon year 2045:

- It is assumed, that MSW will be collected by responsible authorities at regular basis
- Characteristic of the collected MSW in the region will be the in consistent with the characteristics mentioned in CPHEEO manual.
- Per Capita Solid Waste Generation-270 Grams per Capita per Day

TABLE:-45 ESTIMATED SOLID WASTE GENERATION IN DOBOKA M P AREA

Sl. No.	Particulars	Demand for 2045
1.	Projected Population	102486
2.	Solid waste Generation (in Urbanized area @ 270 gm./cap/day)	27.67 MT

(T&C.P Compilation)

ISSUES IN PRESENT SYSTEM

Lack of Disposal Site

Presently, there is no engineered landfill, and Municipal Solid Waste is dumped in open area, which can lead to ground water and soil pollution, vector naissance etc.

Lack of Primary Collection System

Solid waste is discharged by establishment into open plots, open drains etc. these un-organized disposal methods have resulted in the accumulation of solid waste on roadsides, vacant plots, and storm water drains. This has resulted in a number of hygiene related problems such as breeding of flies/ mosquitoes and stray animals.

Un-hygienically Solid Waste Transportation

Municipal Solid Waste is transported primarily in open vehicles i.e. trucks, tippers and cycle rickshaw. It is also observed that these modes of transportations are overloaded with MSW, resulting in the littering of roads during transportation. The loading and unloading of waste are carried out manually, and Safai Karmacharis involved in these activities do not use any safety measures.

In-sufficient collection and disposal of construction waste

The construction and demolition waste generated by residents is transported in tractor trolleys and disposed at either secondary collection points or open/low-lying areas in the town vicinity.

Handling of MSW with Slaughter Waste

Waste from the slaughters houses is disposed in open dumping sites, although there are provisions for separately disposing slaughter house waste in Nagaon town / planning area.

Disposed of Bio-medical waste without any treatment

Presently, there is no treatment facility available for bio-medical waste in Doboka and Medical waste is disposed off along with general MSW

Lack of primary Collection points

Unattended waste lying in open areas is common phenomena in the entire town because of non-availability of required numbers of bins in the planning area

Multiple Handling of Wastes

The waste is handled multiple times leading to potential health hazards for the workers as all types of wastes contains hospital waste, human waste etc. are disposed in the same containers.

Lack of Awareness

There is absolute lack of awareness among people w.r.t. handling and management of waste.

PROPOSED STRATEGIES**Decentralized solid waste treatment system:**

The developmental pattern of all the areas, especially Nagaon, demands the implementation of an integrated solid waste treatment system. It is felt that only a decentralized MSW Management System could help solve the seemingly intricate problem of solid waste treatment in this area in an economically viable, socially desirable and environmentally sound manner.

Public Participation:

General environmental awareness and information on health risks due to improper solid waste management are important factors which need to be continuously communicated to all sectors of the population. Building awareness among public and community about the need for a better solid waste management system is as essential as management. Public awareness and attitudes to waste can affect the people's willingness to cooperate and participate in adequate waste management practices. If people keep on throwing waste on the streets indiscriminately, the local body alone cannot keep the city clean in spite of their best efforts. Thus, it is very important to make people understand that the treatment and management of solid waste is a collective responsibility of the local authority and the community. Municipalities or local governments through participatory programs should convey this message to the people.

Collection Enhancement facilities:

- Old dustbins are to be replaced with different types of covered dustbins, which reduces the time of pickup and improves the process of primary collection of wastes.
- Sweepers may be provided with handcarts and detachable containers and be allotted a fixed area or number of houses for door to door collection. They should also be provided with safety gears and proper uniforms.

- It can be made compulsory for the management of societies/complexes to keep covered bins in which waste is to be stored at acceptable locations, to be picked up by the municipal staff.
- The local body may collect waste from community bins by using container handcarts or tricycles whichever may be convenient, for transferring the wastes to the waste storage sites by employing municipality sweepers.
- The collection service can be provided on a full-cost recovery basis using contractor services on a day to-day basis from individual houses.
- The collection service can be provided on a full-cost recovery basis using contractor services on a day to-day basis from individual shops also. The service of rag pickers and part-time sweepers can also be used in agreement with the shop owners.
- Sweeping of all public roads, streets, and lanes, by-lanes where there is habitation or commercial activities on either side of the street should be done daily. A list of such streets and roads together with their length and width should be prepared. The local body, keeping in view the norms of work prescribed should work out a program for their daily cleaning. However, roads and streets where there is no habitation around and do not require daily cleaning may be put in a separate group.

Provision of Solid waste Storage:

One of the immediate measures to revamp the existing collection services structure would involve provision of covered community waste bins at proper distances for the people to deposit domestic waste. This is the first step that will ensure that people do not throw their garbage on the roads and hence do not create open dump sites. This will enable the sanitation workers to transfer waste to the transportation vehicle quickly and efficiently with minimum health risk which will also help to maintain the aesthetics of the surroundings. The Municipal solid waste (Management and Handling) Rules 2000 of the Government of India have prescribed the compliance criteria for waste storage depots as under:\

- Storage facilities shall be created and established by taking into account quantities of waste generation in a given area and the population densities. A storage facility shall be so placed that it is accessible to users.
- Storage facilities to be set up by municipal authorities or any other agencies shall be so designed that waste stored are not exposed to open atmosphere and shall be aesthetically acceptable and user friendly.

Storage facilities or “bins” shall have “easy to operate” design for handling, transfer and transportation of waste. Bins for storage of biodegradable waste shall be painted green, those of recyclable waste shall be painted white and those of other wastes shall be painted black.

Manual handling of waste shall be prohibited. If unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers. So, the storage and handling of SW are extremely important, and hence the steps to be taken by the Municipal authorities for storage of solid wastes are detailed in table below:-

TABLE:-46 ACTIONS PROPOSED FOR SWM IN DOBOKA M P AREA

SL. No	Generation Source	Action proposed
1	Residential	• Not to throw any waste in neighbourhoods, on streets, open space, and vacant lands, in drains or water bodies. • Keep food waste/ biodegradable waste in a non-corrosive bin type-D1 • Keep hazardous waste separately • Keep dry/recycle waste in bin type-D2
2	Multi-storied Building, Commercial complexes, private societies	• 1 to 4 as above. • Provide separate bin type-B large enough to hold wastes generated both biodegradable and recycle. • Direct member of the association/society to deposits waste in bins provided. Sanitary inspectors should vigil the area and fine should be imposed for not following the actions.
3	Slums	• 1 to 4 as above • Use bin type-c
4	Shops, offices, institutions	• 1 to as above • Store the waste in bin type-D1, D2
5	Hotels and restaurant	• 1 to 4 as above • They should arrange their own bins and dispose waste in nearby municipal bins.
6	Vegetables, fruit markets, meat, fish markets, and street vendors	• Keep small baskets with them and transfer waste to large bin type-A • Shops keepers not to dispose of the waste in front of their waste or shops or open space. • Deposit waste as and when generated into bin type-a • Fines should be imposed for not following the action.
7	Marriage Halls, Community Halls	• 1 to 4 as above • Provide a large bin type-B
8	Garden Waste	• Compost the waste in garden itself, if possible. • Store wastes in large bags or bins and transfers it to community bins.

Segregation:

These compositional characteristics of the solid waste underline the need for proper segregation before treatment. Proper segregation of waste into different components and their separate collection can definitely lead to remarkable changes in the entire system.

The segregation of the waste would be a long drawn exercise as it involves attitudinal changes in people and will have to be done with careful planning, in a phased manner. The general public is to be first sensitized towards the whole concept and educated about the need and advantages of doing the segregation. Segregation of waste at the source itself is extremely important as municipal solid waste, which is otherwise environmentally benign on getting mixed with hazardous waste like paints, dyes, batteries, and human excreta turns

hazardous. The recyclables like paper and plastic etc. become unsuitable for recycling as these get soiled by the organic matter.

Although, it would be more fruitful to sort and place different kinds of recyclables in separate receptacles, the waste could be segregated into at least two categories of biodegradable and non-biodegradable initially. The recyclables obtained through segregation could be straightway transported to recycling units which in turn would pay certain amount to the corporations, thereby adding to their income. This would help in formalizing the existing informal set up of recycling units, and this formalization in turn could lead to multi-advantages. The biodegradable matter could be disposed off either by aerobic composting, anaerobic digestion or sanitary land filling. Depending upon land availability and financial resources, either of these disposal methods could be adopted. Though simple land filling is the traditionally practiced system of solid waste management in the planning area, aerobic composting by wind-row method will be an appropriate option. All the non-biodegradable waste which is non-recyclable, non-reusable shall be dumped into sanitary land fill. Biodegradable waste shall be subjected to composting. Area required for composting shall include the area for storage of unprocessed material, processing facilities for composting operation and storage for green compost.

The area required for windrow composting with 15 days composting period with moisture content between 55-60% for aerobic composting, the first turning shall be done at the 4th day and thereafter every third day shall be 1.5 acres to 2 acres per 50 MT per day waste.

Reuse and Recycling:

The concepts of reuse and recycling can well be applied in solid waste management as solid waste is basically a heterogeneous mixture. In typical Indian municipal solid wastes, there is a small percentage of recyclable material and more of compostable and inert materials like ash and road dust. There is a very large informal sector of rag pickers, who can collect recyclable wastes (paper, plastic, metal, glass, rubber, etc.) from the streets, bins and disposal sites for their livelihood.

Thus, the rag pickers can be effectively used for the collection of reusable materials especially because the use of non-recyclable packaging materials like PET bottles for soft drinks, mineral wastes, and soft -foam products and metalized plastic film coated food packing materials are on the rise. During recycling, many of these release toxic gases and ozone depleting products. So it is advisable to educate people to replace these items with eco-friendly packaging materials. The desirable home sorting mechanisms includes dry recyclable materials (e.g. glass, paper, plastic, cans etc.), kitchen and garden wastes, bulky wastes, hazardous wastes, construction and demolition wastes. Sorting can also be done just prior to waste processing or land filling.

Energy from Solid Waste:

Electricity can be produced by burning MSW as a fuel. MSW power plants, also called waste-to-energy (WTE) plants, are designed to dispose of MSW and to produce electricity as a by-product of the incinerator operation. Mass Burn is the most common waste-to-energy technology, in which MSW is combusted directly in much the same way as fossil fuels are used in other direct combustion technologies. Burning MSW converts water to steam to drive a turbine connected to an electricity generator. Burning MSW can generate

energy while reducing the volume of waste by up to 90 percent, an environmental benefit. However, this burning MSW in WTE plants produces comparatively high carbon dioxide emissions, a contributor to global climate change. The net climate change impact of these emissions is lessened because a major component of trash is wood, paper and food wastes that would decompose if not burned. If left to decompose in a solid waste landfill, the material produces methane, a potent greenhouse gas. The concept of producing energy from MSW derives significance as it is given high priority by the Ministry of Non-Conventional Energy Sources (MNES), Government of India.

Treatment options:

The biodegradable portion of the waste is considerably high. So, aerobic composting of SW after proper segregation will be more appropriate. In selected locations especially in rural areas, Vermi-Composting can also be recommended. The manure obtained by these methods can be sold to the local public as fertilizer. Though costly, sanitary land filling can also be practiced at selected urban locations where the recovery from the waste will be very high, serving minimum ecological damage. It appears that the aerobic composting by Windrow method may be a desirable option for the management of the solid waste. The possibilities of generating energy from SW could be looked into on an experimental basis.

Biomedical wastes and its management:

Biomedical waste has been a growing concern because of the awareness in public regarding HIV, AIDS and Hepatitis B and exposure to discarded needles, syringes and other medical waste from municipal garbage bins and disposal sites.

The management of biomedical waste turns important as it has serious bearing on the quality of human life. This becomes more significant especially in the context of the recent trend of establishing multispecialty hospitals in urban centres. Biomedical waste can be regarded as any waste generated during the diagnosis, treatment or immunization of human beings or animals or produced due to activities of biological research, human anatomical waste, animal waste, microbiology and biotechnology waste, waste sharps, discarded medicines and cytotoxic drugs, solid wastes, liquid waste, incineration ash, chemical waste, etc. Medical wastes contain pathological waste (such as human tissues such as limbs, organs, fetuses, blood and other body fluids), infectious waste (soiled surgical dressing, swab material in contact with persons or animals suffering from infectious diseases, waste from isolation wards, cultures or stocks of infectious agents from laboratory, dialysis equipment, apparatus and disposable gowns, aprons, gloves, towels, etc.), sharps (any item that can cut or puncture such as needles, scalpels, blades, saws, nails, broken glass, etc.), pharmaceutical waste (drugs, vaccines, cytotoxic drugs and chemicals returned from wards, outdated drugs, etc.), chemical waste (any discarded solid, liquid or gaseous chemicals from laboratories, cleaning and disinfection) etc.

Implementation of Bio-medical Wastes (Management and Handling) Rules, 1998

The Ministry of Environment and Forests issued the Bio-medical Wastes (Management and Handling) Rules, 1998 which were amended subsequently. These rules provide for segregation, packaging, transportation, storage, treatment and disposal of wastes generated by hospitals, clinics and laboratories. Bio-medical wastes (BMW) have been classified into various categories and the treatment and disposal options for each of the categories are specified. The treatment and disposal should be in compliance with the

standards prescribed in Schedule V, which stipulates standards for incinerators (operating and emission standards), for waste autoclaving, for liquid waste, of microwaving and for deep burial. A schedule for implementation of BMW rules has been laid down in Schedule VI. Imposing segregated practices within hospitals to separate biological and chemical hazardous wastes that will result in a clean solid waste stream, which can be recycled easily. An Advisory Committee is to advise the prescribed authority on the implementation of these Bio-

Processing and disposal of solid waste

Medical wastes (Management and Handling) Rules.

The solid waste can be processed by composting, vermi-composting, anaerobic digestion, sanitary land filling, incineration or any other biological processing for stabilization of wastes. Since it contains a high amount of biodegradable portion, composting may be a cost-effective option for processing. The process of microbial composting or vermi-composting may be adopted with least mechanization to keep the cost low, and to market the compost as fertilizers to adjoining villages. So the concerned municipalities are duty bound to earmark required acres of land to meet the requirement of solid waste treatment.

The areas of existing dumping yards can also be developed. The rejects from these plants and domestic hazardous wastes may be carefully landfilled. The bio-medical wastes may be disposed off as per the Bio-Medical Waste Management and Handling Rules as described above.

A decentralized treatment system will be more feasible option for solid waste treatment. In combination with primary waste collection, composting improves the precarious waste situation in the communities, and residents become less dependent on the poor municipal waste collection service. Decentralized composting can be operated by an appropriate technology and implemented at reduced investment and operating costs. Manual composting in small, decentralized plants is more easily integrated in the prevailing level of development in India and the socio-economic background, as it requires labour-intensive processes. It will create employment opportunities and a source of income to the underprivileged people in the rural Nagaon. Decentralized composting allows reuse of organic waste where it is generated, thereby reducing waste quantities to be transported as well as transport costs. This may drastically reduce the overall cost of

Proposals for Solid Waste Treatment

Municipal solid waste treatment.

The solid waste generation expected in Doboka Planning Area by 2045 is very high, providing compost treatment facilities for this huge quantum of wastes, though essential, may not be practically possible in a single phase. So, it is necessary to propose economically feasible and, technically viable solutions which can be implemented in a phased manner. The densely populated urban areas of NMPA are to be given first priority in providing the composting facilities for solid waste treatment. The area required for solid waste

Disposal of Hazardous Waste

Treatment and disposal facilities will be 8 hectares. The Notification from the Government of India, Ministry of Environment dated 20th July 1998, which deals with the collection of Bio-Medical Wastes entrusts the liability of its disposal with the waste producer

itself. Thus the management of bio-medical waste is not the responsibility of Municipalities. But, however, they can assist in the management of biomedical wastes on a full cost recovery basis without sharing any legal responsibilities. It is advisable to have bio-medical facility for the entire Doboka Planning Area. The bio-medical wastes collected from spots can be stored in selective transfer stations and can be transported to this central treatment facility at Ward No:-10 of Doboka M.B area. If so desired, the authorities can formulate an action plan for implementing this plant through some competent agencies and can suitably charge for the treatment and disposal of bio-medical wastes. The solid waste dumping sites closest to industrial sites will be a more appropriate option



Proposed Solid Waste Management Site at Ward No-x

6.6 SLUM:-

In Doboka town, there are 12 Nos. of identified slum pockets at Ward No-1 and 6.

Source:- Doboka Municipal Board

CHAPTER 7: ENVIRONMENT AND CITY BEUTIFICATION PLAN

7.1 DESCRIPTION OF ECO-FRIENDLY AREAS LIKE WATER BODIES; BEELS; FORESTS; AND ALSO, HERITAGE AREAS

Environment friendly processes, or **environmental-friendly processes** (also referred to as **eco-friendly**, **nature-friendly**, and **green**), are sustainability and marketing terms referring to goods and services, laws, guidelines and policies that claim reduced, minimal, or no harm upon ecosystems or the environment. Companies use these ambiguous terms to promote goods and services, sometimes with additional, more specific certifications, such as ecolabels. Their overuse can be referred to as green washing. To ensure the successful meeting of Sustainable Development Goals (SDGs) companies are advised to employ environmental friendly processes in their production.^[5] Specifically, Sustainable Development Goal 12 measures 11 targets and 13 indicators "to ensure sustainable consumption and production patterns.

The International Organization for Standardization has developed ISO 14020 and ISO 14024 to establish principles and procedures for environmental labels and declarations that certifiers and eco-labellers should follow. In particular, these standards relate to the avoidance of financial conflicts of interest, the use of sound scientific methods and accepted test procedures, and openness and transparency in the setting of standards.

7.2 ECO-FRIENDLY AREAS OF DOBOKA:

7.2.1 Jamuna:- Jamuna River is originated in the Kaunbaman Hills of the green hilly districts of Karbi-Anglong. Initially it is known as chota Jamuna and merges with Langmelt nadi and other streams near Laitul and took the name Jamuna. After travel through hilly regions, it enters the plain area near Manja. During its course Jamuna river flows through many places like charpo teron, Manja, Majhgaon etc. Then it enters Langnit and kaki reserved forest and again flows through Hathipuragaon, shitalmari, Haoraghat, Jamaunagaon, Doboka, Baliramgo etc. and finally merges with kopili River.

After crossing NH-36 near Doboka town, it reaches Bhaluwat and now jamuna River divide into two parts. One part flows North West direction and takes the name Batamari. Another flows in south west direction as Jamuna river and takes Dimaru river near Bhadreswari. This stretch crosses railway line near Majgaon and merges with Kopili River in Jamunamukh. The stretch between Valuwati and jugijan merging point of Jamuna and Dimaru became dry and only become active in monsoon season.



Jamuna River at Doboka

ISSUES

(a) Flood:-

Flood is one of the issues of Doboka region. According to the Assam State Disaster Management Authority (ASDMA), nearly 95,000 people have been affected in Hojai district along with the Doboka Circle. Jamuna River during monsoon season inundated areas of Doboka circle in Hojai district mostly village area, low lying area, pather etc. In 2004 flood even disrupting road communication between Doboka and Diphu road.

(b) Mining:-

Mining of sand took place in River Jamuna at Doboka. Although main flow of the Jamuna River is not flown through the mining area but in monsoon season some amount of transported mineral (sand) is transported by the flow of river water. Excessive sand mining can **alter the river bed, force the river to change course, erode banks and lead to flooding**. It also destroys the habitat of aquatic animals and micro-organisms besides affecting groundwater recharge. Mining contributes to erosion, sinkholes, deforestation, loss of biodiversity, significant use of water resources, dammed rivers and ponded waters, wastewater disposal issues, acid mine drainage and contamination of soil, ground and surface water, all of which can lead to health issues in local and regional level.

(c) Acid contamination due to open cast mining threatens viability of lower course of the river.

(d) Ground water depletion in downstream areas in lower course of the river.

- (e) Environmental issues.

IMPACT ASSESSMENT AND STRATEGIES:

- (a) The Environment Impact Assessment should be done to mitigate damaged controlled of flood of River Jamuna.
- (b) There should be a detail analysis on the impact of changing silt flows downstream from de-silting chamber, from silt flushing in monsoon, on the downstream areas. And also detailed account of how the silt from the dam will be flushed out annually and what will be the impact of this in the downstream.
- (c) Environment impact Assessment also includes a study on the impacts of mining on the people as well on the local environment and thorough analysis regarding ground water depletion and existing wetlands, watercourses and other water bodies in the region. Necessary steps should be taken for the management and conservation of the wetlands, Beel, etc so that degradation of the bio-diversity can be controlled.

7.2.2 DEORI JAAN:-

A **stream** is a continuous body of surface water flowing within the bed and banks of a channel. Depending on its location or certain characteristics, a stream may be referred to by a variety of local or regional names. Long large streams are usually called rivers, while smaller, less voluminous and more intermittent streams are known as streamlets, brooks or creeks, etc.

The flow of a stream is controlled by three inputs – surface runoffs (from precipitation or meltwater), daylighted subterranean water, and surfaced groundwater (spring water). The surface and subterranean water are highly variable between periods of rainfall. Groundwater, on the other hand, has a relatively constant input and is controlled more by long-term patterns of precipitation. The stream encompasses surface, subsurface and groundwater fluxes that respond to geological, geomorphologic, hydrological and biotic controls.

Deorijaan is small stream or rivulets originates from the nearby Hilly tract of Doboka region and passes through the main town ward no-1, 2, 3, 6, 8, 10 of Doboka town. This small stream has been almost polluted by the garbage disposal, plastics, sewerage of the Municipal Area. The stream dried up in the winter season and flow of water increases by the time of monsoon. Earlier, this small stream has been a name for its natural beauty for the local masses. Water of the stream is also used for drinking and other domestic uses. At present, this beautiful stream has been neglected from proper management and conservation. By Proper management and conservation, this small stream should be recycling again for proper utilization.



Polluted Deorijaan at Doboka

7.3 HISTORICAL SITES OR A PLACE:

A historic site or heritage site is an official location where pieces of political, military, cultural, or social history have been preserved due to their cultural heritage value. Historic sites are usually protected by law, and many have been recognized with the official national historic site status. A historic site may be any building, landscape, site or structure that is of local, regional, or national significance. Usually this also means the site must be at least 50 years or older.

As Doboka is ruled by several kingdoms in different time, it has immense historical significance. In Doboka town and its surrounding area, there are so many Archeological sitehaving historical importance and significance. Among them are Akashiganga Archeological site, Na-Nath Archeological site, Gachtal Archeological site, Mikirati Archeological site etc.

7.3.1 REGIONAL LEVEL HERITAGE:

Conservation of Buildings, Artifacts, structures, areas, and Precincts of Historic, aesthetic, architectural, cultural significance will fall under the norms prescribed by the ASI, would need redevelopment and redesign without hampering the fabric of area. Following are the tangible and intangible identified heritage site which falls under the regional and local context.

(1) Akashiganga Archaeological site, Parokhowa, Doboka

Remains of about three temples exist at Akashiganga Archaeological Site. Akashiganga is a rocky spot on a stream surrounded by forests. The beauty of the site is enhanced by a waterfall locally called Akashiganga and this waterfall serves as a natural picturesque background for the temple ruins. A large section of the stone temple remains have been shifted to an archaeological park and a site gallery installed nearby. Besides numerous fragments, carved temple relics, other evidence of the site include stone

pillar capitals, some with carvings, *amalakas*, door frame, doorsills and jambs, pedestals, horizontal lotus moulded architraves and *angasekharas* of temples. Figures of Ganas, dancing ganas and floral designs are also to be found here. It is 12.5 Km from Doboka Town.

The ruins indicate the existence of a Siva temple in the site. Its unique natural beauty, hilly topography and forest attract people and the site remains a place for recreation over the ages.



Archeological site of Akashiganga

(2) Mikirati Archaeological Site, Dabaka

This site is 3 km away from Doboka town. Mikirati Archaeological Site has at least ten brick mounds containing evidence of brick temple structures in them. One such brick mound unearthed in the years 2005-06 reveals the brick-built plinth of a temple with a *pranala*. The evidence is datable to c. 700 – 800 AD. The other brick mounds remain yet to be explored.

The site has evidence of a stone temple. The stone sculptures and temple relics of Mikirati display a lingering trend of Indian Classical Art. Native cultural belief and practices also manifest in the expression of art. A temple plinth with its *mandapa* and *garbhagrha* with a *linga* and *yonipith* are found here. These pieces of evidence point towards the development of a stone temple architecture since 10th-11th century CE.



Mikirati Archeological sites near Doboka

(3) Gachtal Archaeological Site, Dabaka

Gachtal Archaeological Site has two stone temples dedicated to Siva. There is evidence of *agarbhagha* and *mandapa* with at least four doorways. The carvings on the door lintels and jambs consists of Ganesa, worshippers, a figure of Siva standing with a rosary in the right and a trident in the left hand, water vases flanked by vyalas, elephants, flowers, foliage, animals, twisted serpents and vases placed on *amalaka*. Figures of Saivite characters such as doorkeepers holding *sula* and *pasa* are notable. The evidence indicates development of stone temples at the site during 10 -11th century CE. A stone inscription datable to c.1200-1300 CE has been recovered from this site.



Gachtal Archeological sites near Doboka Town

(4) Na-Nath, Archaeological Site, Kenduguri, Near Doboka

This is situated at distance of 31 Km from Doboka Town, an old water channel to the west of the Rajbari and Sankhya Devi Archaeological Sites. The site has eight brick

temples divided in symmetrical plan facing each other in two lines. The temple structures have components of stone pillar posts, bases, door jambs, doorsills, Siva linga and Yonipith.

This group of brick-built temples is unique in Assam for these structures have been found embellished with terracotta plaques laid horizontally on the outer face of the walls. The variety of representation includes diverse aspects of nature, figures of gods and goddesses, human and animal figures, floral designs, scenes from public life, religious life and other aspects -all carved to decorate the brick temple walls.

Such decorative arrangement in walls of temples as seen at Nath Archaeological Site recalls artistic development of temple architecture during the Gupta period. Judging by the style, these pieces of archaeological evidence at Na-Nath can be dated to c.800 CE. The eight brick built Siva temples with one at Kenduguri nearby make altogether nine temples for which the site is known as Na-Nath.



Na-Nath Archeological sites



Point of Interest Tourism Map in and around Doboka Master Plan Area

7.3.2 LOCAL LEVEL HERITAGE:-

True to its historical importance, Daboka is marked by the presence of several ancient temples and monuments. Rock carved statues of Siva, Bishnu and Laxmi have been excavated at 'Math-ban' near Daboka which has its importance in local level also. Mahamaya Than is also one of the ancient Than located near Doboka Town.



Moha-Maya Than, Doboka

ISSUES:

- (a) **Dilapidated condition of structure:** -Most of the Heritage Structure is in dilapidated condition due to the unavailability of conservation, restoration and preservation practices.

These structures need periodic preservatory treatments in order to enhance their cultural and Historical life for coming generations.

(b) **Unavailability of infrastructure and services:** There is an absolute absence of proper infrastructures and services in the immediate areas around the possible Archeological sites as well as tourist spots surrounding Doboka. The basic amenities also lack at these places which have to be planned accordingly.

(c) **Absence of Monitoring:** There is no nodal body responsible for periodic monitoring of the Archeological structure around Doboka. Such nodal bodies are too constituted in order to provide proper jurisdiction to such capable heritage areas so that there's no threat to them in future.

(d) **Lack of awareness among Public:** The Citizens are unaware about the cultural assets owned by them and they are to be made aware in order to have proper public participation in order to preserve such important historic sites. Public participation is an out most important aspect for the conservation of any site.

(e) **Absence of legal Plan:-** There is an absence of a visionary master Plan available specifically for the Archeological sites in around Doboka. Such important sites require a separate space in the administrative framework of the authorities in the legal document which has been prepared after consulting proper stakeholders and experts.

(f) **Documentation of Heritage structure:** The heritage structures of Doboka Region are not documented till date. There is a need of proper listing and documentation of heritage sites. Such sites are to be properly listed under various grades of their importance and documented specifically so that a proper conservation approach can be implemented for such important sites.

7.4 PROPOSED STRATEGIES:

7.4.1 HERITAGE MANAGEMENT AND ORGANIZATIONAL STRUCTURE:

There is a need to setup a Heritage Committee for Doboka Planning Area. The concerned Development authorities/municipalities as well as local stakeholders, NGO,s have significant role to play in successful implementation of strategies proposed for Doboka surrounding Areas. Formulations of special regulations to control or mediate development within the available heritage areas are a prerequisite for effective implementation of the proposed recommendations. Special regulations for all development within heritage areas, including new construction, demolition or modification to existing buildings around historic structures or within historic precincts must be formulated by the concerned authority with the advice of Heritage Committee. Detailed plans must be prepared by respective Municipalities.

It is necessary to prepare an inventory of build, cultural and natural heritage resources of the special areas. The inventory must include both protected and unprotected resources. The cost for most of the new developments in special heritage areas in already

covered in budget allocation for ‘Tourism, Recreation and Culture’ and hence not included in this table. Estimates for projects those are specific for preservation of heritage resources are only included. River Front Development is treated as a separate item of budgetary allocation.

The relevant policy guidelines and management of culture and natural heritage can rejuvenate and revitalize the Doboka region and support the existing cultural identity. It can also promote tourism, boost local economy and contribute a great sense of pride amongst the residents and became a touchstone for future development.

7.4.2 STRATEGIES FOR DEVELOPMENT OF RECREATIONAL AREAS:

Recreation is any physical or psychological revitalization through the voluntary pursuit of leisure time. It is an activity which is relaxing to people and provide diversions from their normal routine. Generally, there are four types of Recreational activities:

Revitalization: Restoration and enhancement of mental and physical health.

Play:-relaxation and exercise

Adventure: - Excitement and challenge

Education: organized and incidental

Indoor Facilities consist of library, clubs, cinema hall, auditorium, multiplex, art and craft centre, shopping mall, food courts, cyber, gymnasium etc.

Outdoor recreation facilities consist of gardens, parks, play ground, golf courses, zoo, and botanical garden, race course, stadium, exhibition ground, water sports complex, green ways etc.

Proposal for augmentation and development of Recrcational Facilities:

Development of green belts, plantation, parks, ghats, plazas, along the salandi riverfront abreast the urban set up and invite nature harsh environment through myriad ways. Amusement parks to be developed along with horticulture, pisi culture, herbal parks etc. Development of eco-tourism with provision of water theme parks, lagoon resorts, weekend resorts, clubs, etc at planning area level.

7.4.3 PROPOSED STRATEGIES TO BOOST TOURISM:

As a service industry, tourism has numerous tangibla and intangible elements. Major tangible elements include transportation, accommodation, and other components of a hospitality industry. Most intangible elements relate to the purpose or motivation for becoming a tourist, such as rest, relaxation, the opportunity to meet new people and experience other cultures, or simply to do something different or have an adventure.

Tourism is vital for every place, due to the income generated by the consumption of goods and services by tourist, the taxes levied on business in the tourism industry, and the

opportunity for employment and economic advancement by working in the industry. For these reasons government and private agencies sometimes promote a specific region as tourist destination, and support the development of advancement by working in the industry. For these reasons government and some private agencies sometimes promote a specific region as tourist destination, and support the development of a tourism industry in that area. The contemporary phenomenon of mass tourism may result in overdevelopment; however alternative forms of tourism such as ecotourism seek to avoid such outcomes by pursuing tourism in a sustainable way.

Doboka Region offer substantial potential for tourism development. According to the existing scenario analysis, it has been observed that the following categories of tourism have immense potential for this region.

(1) Historical Tourism with historically important structures at different archeological sites namely-Mathban, Mikiati, Gachtal, Na-Nath, Akachi-Ganga Archeological sites having ancient rock cutting of Lord Shiva, Bishnu, Earth works, temples etc. These historical places should develop in infrastructure and services facilities for tourist attraction.

(2) Nature based outdoor recreation and eco-tourism for forest, riverfront, hills, River Banks, picnic spots, sightseeing etc. Presence of this entire tourism products cal for the growth of Adventure Tourism. Akashi Waterfall Picnic spot (12 Km), Burhi-Banga (10 Km) and other local picnic spots on the Ghats Jamuna River can be developed for the attraction of tourist. Deorijaan, a small stream should rejuvenate and developed for tourist attraction.

7.5 CITY BEAUTIFICATION PLAN/PROPOSALS:

7.5.1 ROADSIDE PLANTATION:

Roadside plantation acts as a buffer between the people and government- owned forests, and it will help to reduce the extensive indiscriminate destruction of forests. Roadside tree planting can make significant improvements to the quality of roads and the environment and can protect key natural resources, especially in ASAL regions where vegetation is essential in binding the soil with organic matter that aids in enhanced infiltration and water retention in the soil.

Planting trees along the road sides, highways and pathway is known as avenue plantation. Avenue plantation is generally practiced for the aesthetic value, Beautification, shade purpose, control of soil erosion and for its economic use of timber, flowers & fruits. Best trees for roadside plantation are Neem, Krishna Chura, Radha Chura, Sonaru. etc .Trees also give us fresh air as they produce oxygen. Trees are planted along the roadside as they provide shade to the travelers during summers.

TABLE-47 PROPOSAL OF ROADSIDE TREE PLANTATION ALONGSIDE THE MAJOR ROAD OF DOBOKA TOWN AREA.

SL. No	Name of the Road	Length
1	Doboka Main Road	2 Km (Both side)
2	College Raod	2 Km (Both side)
3	Thana Road	1 Km (Both side)
4	Diphu Road	1 Km (Both side)

7.5.2 REQUIREMENTS AND STRATEGIES:

- One Kind of Flowering Trees on Both Sides
- Two Kinds of Flowering Trees Blooming at one Time on both Sides of Road
- Two Kinds of Flowering Trees Blooming at Different Time on both Sides of the Roads
- Shady Trees Only on both Sides of Roads.
- The trees should be planted at least 12 m apart from the centre of the carriageway.
- If the road is constructed on the embankment, the trees should be planted as possible as high on the sides of the embankment.

7.6 URBAN AGRICULTURE AND URBAN FORESTRY:

Urban agriculture, urban farming, or urban gardening is the practice of cultivating, processing, and distributing food in or around urban areas. Urban agriculture is also the term used for animal husbandry, aquaculture, urban beekeeping, and horticulture. These activities occur in peri-urban areas as well. Peri-urban agriculture may have different characteristics.

Urban agriculture can reflect varying levels of economic and social development. It may be a social movement for sustainable communities, where organic growers, "foodies", and "locavores" form social networks founded on a shared ethos of nature and community holism. These networks can evolve when receiving formal institutional support, becoming integrated into local town planning as a "transition town" movement for sustainable urban development. For others, food security, nutrition, and income generation are key motivations for the practice. In both scenarios, more direct access to fresh vegetables, fruits, and meat products through urban agriculture can improve food security and food safety.

7.6.1 TYPES OF URBAN FARMING:

Backyard Gardens: - This is the growing of food on home property.

- (a) Tactical Gardens. This involves using the limited space available to practice agriculture without having to incur hefty expenses.
- (b) Street landscaping.
- (c) Forest gardening.
- (d) Greenhouses.
- (e) Rooftop gardens.
- (f) Green walls
- (g) Vertical farms.

STRATEGIES:

- (a) Allotment gardens: An allotment garden is a plot or parcel of urban or suburban land made available for individual, non-commercial gardening or food growing and recreation.
- (b) Community gardens: Community gardens are an emerging form of urban farming.
- (c) Inventory of your town land (and rooftops)
- (d) Partnerships and Cultivate market access

Urban forestry is the care and management of single trees and tree populations in urban settings for the purpose of improving the urban environment. Urban forestry involves both planning and management, including the programming of care and maintenance operations of the urban forest. Urban forestry advocates the role of trees as a critical part of the urban infrastructure. Urban foresters plant and maintain trees, support appropriate tree and forest preservation, conduct research and promote the many benefits trees provide. Urban forestry is practiced by municipal and commercial arborists, municipal and utility foresters, environmental policymakers, city planners, consultants, educators, researchers and community activists.

The urban forestry comprises all green elements under urban influence such as, Street trees and road plantations, Public green areas, such as parks, gardens, cemeteries, Semi-private space, such as green space in residential areas and in industrial or specially designated parks.

STRATEGIES

- (a) Increase tree planting in neighbor hoods with low urban forest cover.
- (b) Increase Street and park tree diversity.
- (c) Plant trees to support green infrastructure and reduce climate change
- (d) Enhance biodiversity through tree planting.
- (e) Update inventory and data management for public trees.
- (f) Manage public trees for public safety and support tree health.
- (g) Work together with local people and the urban NGO related to forestry.
- (h) Raise awareness of the importance of the urban forest.
- (i) Support volunteers, NGOs, schools, and neighborhood groups in urban forest stewardship.

7.7 PUBLIC RAIN WATER HARVESTING SCHEME:

Rainwater harvesting (RWH) is the collection and storage of rain, rather than allowing it to run off. Rainwater is collected from a roof-like surface and redirected to a tank, cistern, deep pit (well, shaft, or borehole), aquifer, or a reservoir with percolation, so that it seeps down and restores the ground water.

Harvesting rainwater allows the collection of large amounts of water and mitigates the effects of drought. Most rooftops provide the necessary platform for collecting water.

Rainwater is mostly free from harmful chemicals, which makes it suitable for irrigation purposes. There are two ways of harvesting rainwater, namely; surface runoff harvesting and rooftop rainwater harvesting.

There are two major techniques of rainwater harvesting.

1. **Surface runoff harvesting:** In this method, rainwater flows away as surface runoff and can be stored for future use. Surface water can be stored by diverting the flow of small creeks and streams into reservoirs on the surface or underground. It can provide water for farming, for cattle and also for general domestic use. Surface runoff harvesting is most suitable in urban areas.

Rooftop rainwater/storm runoff can be harvested in urban areas through:

- Recharge Pit
- Recharge Trench
- Tube well
- Recharge Well

2. **Groundwater recharge:** Groundwater recharge is a hydrologic process where water moves downward from surface water to groundwater. Recharge is the primary method through which water enters an aquifer. The aquifer also serves as a distribution system. The surplus rainwater can then be used to recharge groundwater aquifer through artificial recharge techniques.

Rainwater in rural areas can be harvested through:

- Gully Plug
- Contour Bund
- Dugwell Recharge
- Percolation Tank
- Check Dam/Cement Plug/Nala Bund
- Recharge Shaft

Although rainwater harvesting measure is deemed to be a desirable concept since the last few years, it is rarely being implemented in rural India. Different regions of the country practiced a variety of rainwater harvesting and artificial recharge methods. Some ancient rainwater harvesting methods which includes Madakas, Ahar Pynes, Surangas, Taankas, etc.

7.8 WATER HARVESTING SCHEMES IN INDIA:

Steps taken by the Central Government to control water depletion and promote rain water harvesting / conservation areas under:

1. Government of India launched Jal Shakti Abhiyan (JSA) in 2019, a time bound campaign with a mission mode approach intended to improve water availability including ground water

conditions in the water stressed blocks in India. Ministry of Jal Shakti visited water stressed districts and to work in close collaboration with district level officials to undertake suitable interventions. In addition, 'Jal Shakti Abhiyan – Catch the Rain' campaign has been launched by Hon'ble Prime Minister of India on 22 March 2021.

2. National Water Policy (2012) has been formulated by Department of Water Resources, RD & GR, inter-alia advocates rainwater harvesting and conservation of water and highlights the need for augmenting the availability of water through direct use of rainfall. It also inter-alia, advocates conservation of river, river bodies and infrastructure should be undertaken in a scientifically planned manner through community participation. Further, encroachment and diversion of water bodies and drainage channels must not be allowed and wherever, it has taken place, it should be restored to the extent feasible and maintained properly.
4. In compliance to the decision taken by the Committee of Secretaries, an 'Inter Ministerial Committee' under the Chairmanship of Secretary (WR, RD & GR) has been constituted to take forward the subject of 'Push on Water Conservation Related Activities for Optimum Utilization of Monsoon Rainfall'.
5. Ministry has circulated a Model Bill to all the States/UTs to enable them to enact suitable ground water legislation for regulation of its development, which also includes provision of rain water harvesting.
6. Master Plan for Artificial Recharge to Groundwater- 2020 has been prepared by CGWB in consultation with States/UTs which is a macro level plan indicating various structures for the different terrain conditions of the country including estimated cost. The Master Plan envisages construction of about 1.42 crore Rain water harvesting and artificial recharge structures in the Country to harness 185 billion Cubic Meter (BCM) of monsoon rainfall.
7. CGWB has taken up Aquifer Mapping and Management Programme during XII Plan, under the scheme of Ground Water Management and Regulation. The Aquifer Mapping is aimed to delineate aquifer disposition and their characterization for preparation of aquifer/ area specific ground water management plans with community participation. The management plans are shared with the respective State governments for taking appropriate measures / implementation.
8. Best practices of water conservation by various entities including private persons, NGOs, PSUs etc have been compiled and put on the web site of the Ministry for the benefit of general public. An interactive link on best practices has also been created for receiving inputs from public, which, after necessary evaluation/validation are put on the website for the benefit of the public.

9. Department of Water Resources, RD & GR has instituted National Water awards to incentivize good practices in water conservation and ground water recharge.
10. Mass awareness programmes (Trainings, Seminars, Workshops, Exhibitions, Trade Fares and Painting Competitions etc.) are conducted from time to time each year under the information, Education & Communication (IEC) Scheme of DoWR, RD & GR in various parts of the Country to promote rain water harvesting and artificial recharge to ground water.
11. The Ministry of Rural Development in consultation and agreement with the Department of Water Resources, RD & GR and the Ministry of Agriculture & Farmers' Welfare has developed an actionable framework for Natural Resources Management (NRM), titled 'Mission Water Conservation' to ensure gainful utilization of funds. The Framework strives to ensure synergies in Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), erstwhile integrated Watershed Management Programme (IWMP) now PMKSY Watershed Development Component and Command Area Development & Water Management (CADWM), given their common objectives. Types of common works undertaken under these programmes schemes are water conservation and management, water harvesting, soil and moisture conservation, groundwater recharge, flood protection, land development, Command Area Development & Watershed Management.
12. Central Government supports construction of water harvesting and conservation works primarily through Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and Pradhan Mantri Krishi Sinchayee Yojana – Watershed Development Component (PMKSY-WDC).
13. Atal Bhujal Yojana (ABHY), a Rs.6000 crore scheme with World Bank funding, for sustainable management of ground water with community participation is being taken up in the identified over-exploited and water stressed areas fall in the States of Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh. This scheme is expected to contribute significantly towards water and food security of the participating states.

STRATEGIES AT LOCAL LEVEL:

At local level, Urban Local Body/Municipal Board in compliance with Rain water Harvesting should strictly follow the Government Guidelines, Circulars, Manual, model circulated time to time. In different Structural construction, Planning, Drawing, there should be the provision of Rain water harvesting system. In this regard, authority related to the permission of construction of Houses, Building, Structure should follow the rules, Byelaws of

Building rules. Regarding rain water harvesting in the Doboka Planning Area, Doboka Municipal Board should strictly follow the Building Rules-2014 Govt. of Assam in issuing Building construction permission and also to create Public awareness among people of the locality in rain water harvesting techniques.

7.9 DEVELOPMENT OF PARKS AND RECREATIONAL SPACES WITH IDENTIFICATION AND DEMARCATION OF OPEN SPACE FOR SPORTS, CULTURAL FUNCTION, FAIRS ETC IN DOBOKA PLANNING AREA:

Due to rapid growth of population, the present recreational facilities are not sufficient to fulfill the needs of the people of the Doboka Town. In Doboka Town there is no any organized Parks for the Children and Playground as well as Stadium available of the people.

TABLE-48 PROPOSAL FOR CONSTRUCTION OF PARKS, PLAYGROUND INFRASTRUCTURE AND OTHER RECREATIONAL FACILITIES IN DOBOKA PLANNING AREA:

SL. No	Name of the Open space	Proposal
1	Nehru Stadium	Development of Playground infrastructure with Spectators Gallery, Pavilion, Indoor Stadium, Gymnasium
3	Suitable Plot of Land within Municipality Area.	Construction of Public Auditorium with all modern facilities
4	Suitable Plot of Land within Municipality Area.	Construction of Open theater with all modern facilities
5	Suitable Plot of land	Proposal of construction of 4 Nos. of Modern Parks out of which 3 for Children parks and 1 for senior citizen within the Doboka Municipal Board.
6.	Suitable Plot of land within the each Revenue Village.	Proposal for construction of 1 Children Parks and 1 Community center at each Revenue village of the Doboka Planning Area.

The sports and youth welfare activities are one of the major sectors of Human Resource Development Programme. Doboka Nehru Stadium is the main playground of Doboka Town which is controlled by Doboka Sports Association.

The other playgrounds are also should be upgraded providing with all modern facilities. Besides, there should be Modern Parks, Community centre in each Revenue Village of the Doboka Master Plan Area. Considering the growth of population in Doboka town and the planning area new parks and play grounds like Mini stadium, Gymnasium Hall, Hockey field are to be created in future.

CHAPTER 8: LAND USE PLAN

8.1 EXISTING LAND USE OF DOBOKA MASTER PLAN AREA

The study of land use holds a very significant place where a particular settlement can be recognized as a town depends on its functional structure. The functional activity can be regarded as the main regions for the growth of urban centre. The main purpose of land use study is to provide framework for the development of a particular area. It gives us an idea about the proportion of various types of land.

Land use gives an accurate picture of an urban area which is having great significance for future planning. The main purpose of land use classification is to provide framework for the development of a particular area. The need for studying the land use aspect is elaborated as follows: To know the arrangement of various parts of town put to different uses such as residential, commercial, industrial etc.

The Existing Land Use pattern of Doboka Master Plan Area was updated based on ground reality on the scientific base map prepared with the help of Satellite and Revenue records like village level cadastral sheets, Field Measurement Book sheets and Town Survey Sheets. The Doboka Planning Area is administratively divided into two entities, Urban and Rural. Urban area comprises of Doboka Municipal Board area of 2.88 Sq. Km and Rural area of 24.40 Sq. Km including 8 Villages. This chapter presents the existing land use analysis, 2021 for the planning area.

As a part of the preparation of GIS Based Master Plan- 2045, the study of the existing Land use pattern of Doboka Master Plan area was carried out by a survey conducted by T&CP, District Office, Nagaon in order to formulate future policies so that a balanced approach can be made in allocating the future land uses. The existing land use in Doboka Master plan area has been grouped into the following 7 (Seven) Categories

TABLE-49 EXISTING LAND USE OF DOBOKA MASTER PLAN AREA

Existing Land use of Doboka Final Master Plan Area				
Sl. No.	Land Use	Area (Sq Km)	% of Total Developed Area	% of Total Area
1	Residential	7.33	79.41	27.07
2	Commercial	0.37	4.01	1.37
3	Public & Semi public	0.25	2.71	0.92
4	Transportation	0.79	8.56	2.92
5	Parks & Playground / Recreation	0.49	5.31	1.81
	Total Developed Land	9.23	100.00	34.08
6	Agriculture	16.60		61.30
7	Water Bodies	1.25		4.62
	Total Master Plan Area	27.08		100.00

Source: Consultant & T&CP, Nagaon compilation

The detailed land use analysis of the Doboka Master Plan Area, gives the picture of the shape of the Urban and Rural land for various activities. From the above table it is seen that out of the total land, Agriculture land use being the predominant land use which occupies 16.60 Sq. Km. (61.30 %) of the total planning area, residential land use is spread over 7.33 Sq. Km. (27.07 %).

Out of the undeveloped land area about 1.25 Sq. km (4.62 %) occupies by water bodies covered by River Jamuna, Deorijaan, Burhi-Ganga, some ponds and wetlands etc. It is also observed that about 0.79 Sq. Km (2.92%) area occupies by transport and communication (only Roads) and 0.25 Sq. Km occupies by public and semi-public use which includes various Physical and social infrastructure like Educational institutes, Government Offices, Hospitals, District and Special jails, Circuit House, Govt. Residential Buildings etc. about 0.37 Sq. Km.(1.37%) occupies by commercial.

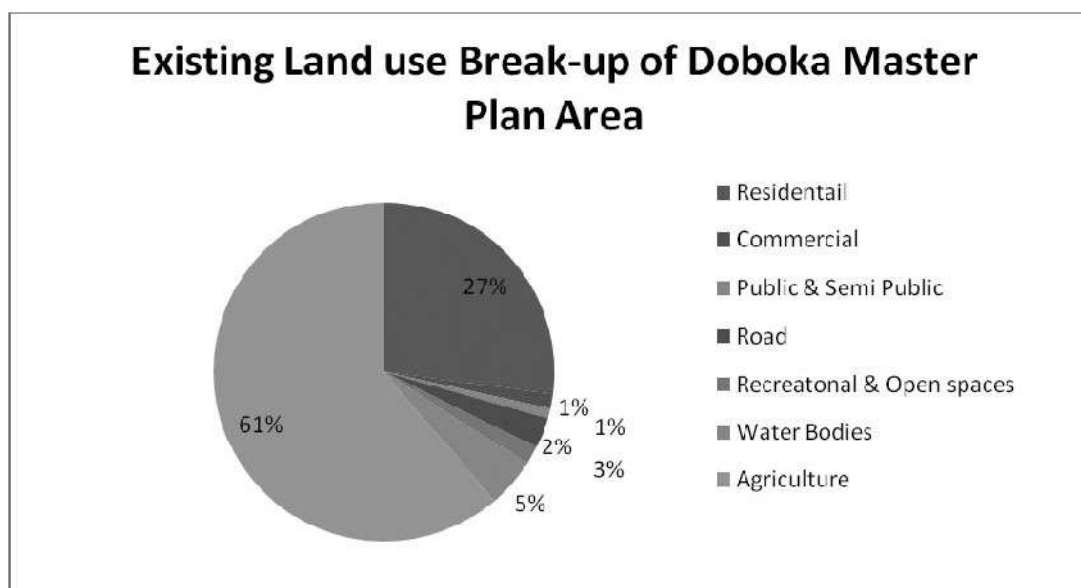


Figure-33

From the table it is seen that there is huge scope of future development of the planning area. The rural area has concentration of good amount of Agricultural land, open space and water bodies and urban area also has large amount of vacant land and open spaces.

Thus, the Planning area has a good scope of development of existing residential buildings and construction of new residential buildings or redevelopment in conformity with the heritage importance and special regulations for the Planning Period up to 2045.

CHAPTER9: PROPOSED LAND USE PLAN:

On the basis of planning policies, techniques, principles and projections, various recommendations and proposals for the future growth of Doboka Master Plan Area have been formulated. As such recommendation and proposals have been translated into land use plan to give them spatial dimension. The land use shown in the map indicates the functional relationship between various urban activities visualized up to 2045 and aims at to provide the most economics use of urban land.

The land requirement for various urban activities have also been proposed on the basis of projected population of 102486 by 2045. The distribution of land into various broad categories of land use have been made keeping in view the minimum desirable standards of development and functional linkages between them. The following table shows the land proposed for various major uses.

9.1 PROPOSED LAND USE FOR DOBOKA MASTER PLAN AREA:

The Proposed Land use in Doboka Master Plan Area for 2045, considering all the above analysis can be summarized as below:

TABLE-50 PROPOSED LAND USE CLASSIFICATIONS FOR DIFFERENT USES OF DOBOKA MASTER PLAN, 2045

Proposed Landuse of Doboka Final Master Plan Area				
Sl. No.	Land Use	Area (Sq Km)	% of Total Developed Area	% of Total Area
1	Residential	9.68	62.69	35.75
2	Commercial	0.9	5.83	3.32
3	Public & Semi public	0.49	3.17	1.81
4	Industrial	0.59	3.82	2.18
5	Composite Use	0.33	2.14	1.22
6	Transportation	1.56	10.10	5.76
7	Parks & Playground / Recreation	1.89	12.24	6.98
	Total Developed Land	15.44	100.00	57.02
8	Agriculture	10.33		38.15
9	Green Belt Proposed	0.06		0.22
10	Water Bodies	1.25		4.62
	Total Master Plan Area	27.08		100.00

Source: Consultant & T&CP, Nagaon compilation

9.2 PROPOSED RESIDENTIAL USE:

To accommodate the projected population of about **102486**, an area of about **9.68 sq. km.** is earmarked for residential use in Doboka Master Plan Area.

The area under Doboka Master Plan 4 (Four) Town Planning Scheme (TPS) project is proposed at Mikir-Ati Hawgaon, Doboka Pathar, Namati , Niz-Doboka and 1 (One) Local Area Project at Ward No 6. While Affordable Housing has proposed at Ward No-10

Town Planning Schemes (TPS):-

The basic concept of Town Planning Schemes is pooling together all the land under different ownerships and redistributing it in a properly reconstituted form after deducting the land required for open spaces, social infrastructures, services, housing for the economically weaker section, and road network. A town planning scheme of the local government made under the Town Planning and Development Act 1928.

Conceptually, town planning scheme is a joint land development project undertaken by the owners. Planning authority steps in as an agent on behalf of owners provides for smooth vesting of lands to planning authorities for public purposes.

The basic concept of the TP Scheme is to pool together all the land (typically ranging from 100 to 200 hectares) under different ownerships and redistribute it in a properly reconstituted form after carving out the required land for open spaces, social infrastructure, services, housing for the economically weaker section etc.

Principles of Town Planning Schemes:

The basic principles of Town Planning Schemes are summarized as mentioned below:

- Lands pooled and reconstituted according to some equitable formula.
- Loss of land because of reservation
- Dispossession kept at bare minimum
- Reconstituted plots: buildable
- Increments, incremental contribution – maximum 50%
- Cost of Scheme: minimum as far as possible
- Urban land should itself resource the cost of development
- Town planning scheme has been provided with an in-built mechanism for arbitration.
- Conceptually, town planning scheme is a joint land development project undertaken by the owners.
- Planning authority steps in as an agent on behalf of owners.
- Provides for smooth vesting of lands to planning authorities for public purposes.
- General opposition to acquisition from owners is not existent, therefore, rightly called as 'land acquisition without tears.'

- For implementation of D. P. proposals

Tentative time-frame for Town Planning Schemes (TPS):

- Making and publishing draft scheme from date of intention declaration 9 months
- Extension that may be granted 3 months Submission of scheme after publish 3 months
- Sanction of Draft Scheme by the State Government 3 months
- Appointment of T. P. O. ½ month Making of Preliminary & final scheme 12 months
- Extension that may be granted 6 months
- Sanction of Preliminary / Final scheme 2/3 months
- Scheme to come into force 1 month
- Approximate time for finalization of a TPS 50 months

Procedure to prepare a Town Planning Schemes (TPS):

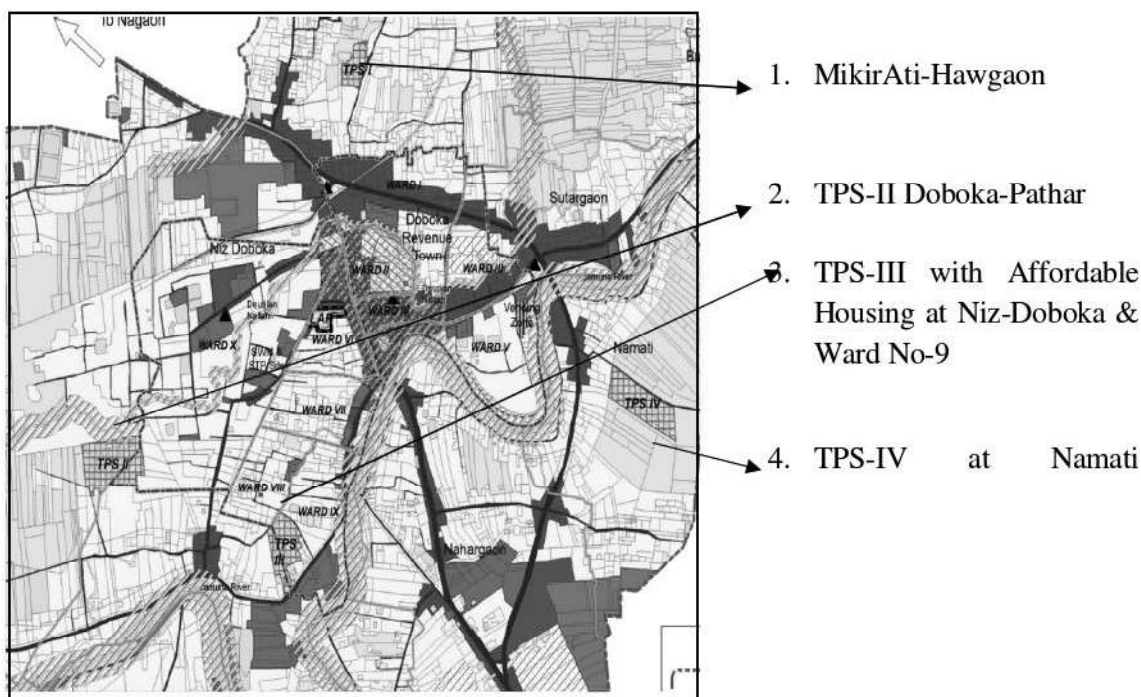
- A TPS (u/s 40(2)) may be made on land which is,
- In the course of development
- Likely to be used as residential, commercial or industrial or building
- Already built upon
- After identifying area for TPS, the authority through board resolution is required to take CTP's consultation u/s 41(1) and declare its intention to make a scheme
- Within nine months, the authority is required to prepare and publish the scheme in official gazette
- After considering the suggestion / objections received within a month of publication, draft scheme is sent to the Government for sanction u/s 48(1)

Appropriate authority can make one or more TPS for the respective development area. TPS may be made in respect of any land which is in the course of development, likely to be used for building purposes and already built upon.

The

Public Planning Authorities/Development Agencies acquire large areas of land under the Land Acquisition Act of 1894 or by agreement. Then a Master Plan of the area is prepared, laying out the roads, plots for social amenities, and plots for sale. Roads and infrastructure are then built, using government funds or loans.

Serviced plots are then sold for urban uses at market rates, which are most often much higher than the rate at which land is acquired. Under the provision of Town & Country Planning and Urban Development Act the Town Planning Schemes (TPS) has been proposed at 4 (four) locations in the Doboka Master Plan, 2045 in consultation with them Doboka M.B.



9.3 PROPOSED COMMERCIAL LAND USE:

With the rapid population growth in Doboka the existing commercial area concentrated along the NH-27 and Doboka Main Road, Diphu, NN-29 and surrounding the town area will not be sufficient to meet the need of future projected population.

Therefore, an additional area of about **0.90 sq. km.** is proposed for commercial purposes in the Doboka Master Plan area.

9.4 PROPOSED INDUSTRIAL LAND USE:

There are good prospects for setting up of forest and agricultural based small and medium industries in Doboka Master Plan area. There are also good scopes for setting up of service and light consumer goods producing industries like agriculture implements, readymade garments, soap making, brick making, bakery, plastic goods, power loom, mineral water Plant etc. In addition to the existing industrial area, an area of about **0.59 sq. km.** of land has been earmarked for setting up of medium and light industries in the Doboka Master Plan Area.

9.5 PROPOSED PUBLIC AND SEMI-PUBLIC USE:

In the Doboka Master plan area land proposed for public and semi-public use is **0.49 sq. km.** which is required for proposed as public and semi-public use. The public and semipublic uses have been proposed on Govt. land of Doboka Master Plan Area.

9.6 PROPOSED CIRCULATION PLAN:

The land is proposed under Road & Transportation will be **1.56Sq.km.** of Doboka Master Plan -2045. The proposals for improvement and widening of roads within Doboka Master Plan Area.

All the major junction points should be developed in a planned manner. Modern traffic signaling system is to be proposed within the Doboka Master Plan Area.

HIERARCHY OF ROAD PROPOSED WITH WIDTH:

- 1) Arterial Road: - 50 to 80 metre width
- 2) Sub Arterial Road: - 30 to 50 metre width
- 3) Collector/Distributor Road: - 12 to 30 metre width
- 4) Local Road:-6.6 m to 15 metre width

9.7 LAND PROPOSED FOR GREEN BELT:

The land is proposed for Eco- Zone is **0.06Sq.km.** of the total Area of Doboka Master Plan.

LANDUSE FOR COMPOSITE PURPOSE

The Land for proposed composite use is **0.33 Sq.Km** of the total Area of Doboka Master Plan

FIXATION OF ROAD LEVEL OF DOBOKA MASTER PLAN AREA

Road levels to be defined at the Local Area Plan level to ensure integrated road levels with drainage system and slope. No roads to have two different road levels without a proper median or a separator. Repeated excavation of roads leads to damage of the underground utilities and disturbed road levels.

While planning, planners face the problems associated with road levels, lying of new pipelines, parking in residential areas, decongestion, fire safety issues, requirement of road widening and lose of heritage façade, provision of land for social infrastructure and sometimes re-planning underground infrastructure.

Proposed Road Level (RL) of the major Roads of the Doboka Master Plan Area shown in the below:

TABLE 51:- PROPOSED ROAD LEVEL (RL) MAJOR ROADS WITHIN DOBOKA M P AREA:

SL No.	Name of the Road	Road Level at Different points (in metre)	Remarks
1	Doboka Main Road	72, 74	Shown in the Circulation Map
2	NH-27	74	-do-
3	Diphu Road	74, 75	-do-
4	Mandal Bazar Road	74, 75	-do-
5	Doboka-Jamuna Mukh Road	73, 75	-do-
6	College Road	69, 73	-do-
7	Thana Road	72, 73	-do-
8	Mikir-Ati Motban Road	76, 70	-do-

9.7 PROPOSE RECREATIONAL FACILITY:

Existing parks and playgrounds are not available within the Doboka Master Plan area to meet the demand of the people and the condition of the existing parks and playgrounds are deplorable condition which are urgently need to be improved. Thus, an area of 1.89 sq.km has been proposed for recreational facilities (park and playground) for Doboka Master Plan 2045.

9.9 PROPOSED NO CONSTRUCTION ZONE OR BUFFER ZONE

To regulate the construction near water bodies and to conserve rivers and canals, buffer zones around them have been proposed in the Doboka Master Plan Area, and the same has been denoted in the proposed Nature Conservation Map. It indicates the buffer areas prescribed for the conservation of water bodies in the town. This area proposal is made based on the buffer distance fixed for each water body. As the primary objective for the zone is conservation, planned green space development can also be attained in this area. Buffer areas have been proposed along the Jamuna River, Deorijaan and water bodies mainly wetland area, ponds, etc. of the Doboka Master Plan Area.

Buffer width of 15 metres has been proposed along the water bodies inside Municipal Area and 50 metres along the water bodies outside the Water Bodies. A Nature Conservation map has been prepared showing No construction zone or Buffer Zone of Doboka Master Plan Area.

9.10 ZERO POINT OF DOBOKA MASTER PLAN AREA

Free Stationing is a method of determining a location of one unknown point in Relation to known point. There is a zero point of reference called a total station. Zero point is

the first starting point from where we can measure distance from one point to another unknown point.

In case of preparing Contour Map of Doboka Master Plan area, the zero point or the starting point has been selected as the “Doboka By-pass.”

Zero point at Doboka by Pass



9.11 TRANSIT ORIENTED DEVELOPMENT ZONE (TOD)

In order to ensure optimum utilization of scarce land resources and to provide opportunities for restructuring through Mixed land-use along the Mass Transit corridors, Transit Oriented Development will be allowed. TOD Zones will be the area in immediate vicinity of the mass transit Corridor i.e within a walking distance and also well integrated with bi-cycle, feeder and transit networks. In case of Doboka Master Plan TOD proposed from Jamuna River Bridge to the junction point of Doboka Main Road with Nagaon-Lumding Road (Bye-pass) with a Buffer of 200 metre both side.



TOD for Doboka Master Plan Area

Proposed along-side the Diphu Bypass point towards Nagaon-Lumding Road to the junction point between Doboka main road and Nagaon-Lumding road with a Buffer of 200 metre.

9.8 INFRASTRUCTURE PROPOSALS:

The availability of existing social / physical facilities and their services of Doboka Master Plan area have been studied. The existing deficits and future requirements are calculated as below:-

9.8.1 EDUCATION:

To accomplish the social and economic upliftment of the society is not possible without the modern and up to date educational system capable of eradicating illiteracy and ignorance and providing skilled and trained up man power required by changing economic condition.

The requirement of educational and socio cultural facilities for Doboka Master Plan area up to 2045 has been estimated considering a higher standard as mentioned in the table below:-

TABLE-52 REQUIREMENT OF EDUCATIONAL AND SOCIO CULTURAL FACILITIES FOR DOBOKA M P AREA UP TO 2045

Sl. No.	Type of Educational Institute	Norms	Existing Numbers	Deficit	Requirement
1	Primary school	1 in 2500 population	22	18	18
2	Middle school	1 in 5000 population	15	5	5
3	High school	1 in 7500 population	3	10	10
4	Higher Secondary school	1 in 90,000 population	3	1	1
5	General college	1 in 1,25,000 population	1	--	--
Health					
6	Intermediate Hospital	1 in 1,00,000 population	1 Nos	1	1
7	Nursing Home , Maternity home	1 in 45,000 population	--	3	3
8	Dispensary	1 in 15,000 population	--	7	7
Socio-Cultural Facilities:					
9	Community Room	1 in 5000 population	--	20	20
10	Community Hall/ Library	1 in 15,000 population	--	7	7
11	Music Dance & Drama	1 in 1,00,000	--	1	1

	etc.	population			
12	Religious	1 in 5000 population	--	20	20
Communication					
13	Post Office	1 for 15,000 population	1	7	7
14	Police Station	1 for 90,000 population	1	1	-1
15	Fire Station	1 for 2,00,000 population	1	--	--

9.8.2 ROAD PROPOSALS:

Within Doboka Master Plan Area total 5 Nos. of roads are proposed for future improvement and widening which are shown in the table below :

TABLE -53 UNDER IMPROVEMENT AND WIDENING OF ROADS DOBOKA MUNICIPAL AREA

Sl. No	Name of Road	Length (appx)
1	Mahatma Gandhi Road, Ward No4	300m
2	Dathuram Bora Path, Ward No-4	150 m
3	Acharjee Road, Ward No-6	250 m
4	Digen Laskar Path, Ward N-9	500 m
5	Bairagitala Path, Ward No-9	300 m

Source:-DMB

TABLE 54 ROADS PROPOSED FOR FUTURE IMPROVEMENT AND WIDENING WITHIN DOBOKA M P AREA

S.L No.	Name of the Road	Length (approx.)
1.	Doboka Diphu Road, Ward No-4	1.50 K.M
2.	Lanka-Nagaon Road (Doboka town main Road, W/No-4)	1.50 K.M
3.	Daturam Bora Path W/No-4	0.15 K.M
4.	Acharjee Road, W/No-6	0.25 K.M
5	M.G Road, Ward No-4	0.30 K.M
6	Digen Laskar Path Ward No-9	0.500 Km
7	Boiragi Dada Path Ward No-9	0.500 Km
8	Raja Chowdhury path Ward No-8	1.50 Km
9	Abdul Kalam Azad Path Ward No-5	2.00 Km
10	Internal Road at Ward No-10	5.00 Km
11	Improvement of Doboka H.S school Road & Fire brigade Road at Ward No-6 &10	2.00 Km
12	Srnagar Path Ward No-9	0.9 Km

Source:-Traffic Survey, T&CP, Nagaon

9.8.3 PROPOSALS FOR WATER SUPPLY:Proposed PWSS

- (1) Pipe Water Supply Scheme (PWSS) Near Nehru Stadium ward no.10
- (2) PWSS at Ward No-1,2,3,4,5,6,7,8,9,10

TABLE-55 PROPOSED PWSS FOR DOBOKA M P AREA

Description	2021	2031	2041	2045
Total Population of Doboka Master Plan Area	52,095	67,874	88,699	102486
Projected Water Demand (MLD)				
Total Water Demand @ 135 LPCD	7.03 MLD	9.16 MLD	11.97 MLD	13.84 MLD
15 % O & M loss	1.05	1.37	1.79	2.27
Sub Total	8.08	10.51	13.76	15.91
2% Fire Fighting	0.16	1.21	0.27	0.31
Total Water Demand	8.24 MLD	8.74 MLD	14.03 MLD	16.22 MLD
Grand Total Water Demand (Say)				
Add 10% extra (Say for defense area, Floating population, Tourism, Service population etc.)	0.82	1.07	1.40	1.62
Overhead Population Water Demand	9.06	11.81	15.43	17.84

Minimum domestic water supply per capita day will be 135 liters. Water requirement for 2045 for Doboka Master Plan Area is 17.84 MLD

Considering supply will be done in two times per day storage capacity will be required: 8.92 MLD

Existing Pipe -water supply capacity has enhance to the all wards of Doboka Municipal Boards under Jal jevan Mission schemes, under PHE, Dept., but still it is not fully operational. Only in ward No-7 water is partially supplied.

Thus, additional water supply schemes or up-gradation of existing water supply schemes will be required for Doboka Master Plan Area-2045

9.8.4 PROPOSAL FOR STREET LIGHT

1. Street Light-1,2,3,4,5,6,7,8,9,10
2. LMV & Motor Cycle Parking
3. 3 Nos. of Automatic Traffic signal at (1) S.B.I Point, (2) Doboka Main Road Town, (3) Diphu Bye Pass
4. 2 Nos of Entry Gate at (1) S.B.I Point (2) Diphu Bye Pass

9.8.5 PROPOSALS FOR DRAINAGE SYSTEM:

TABLE 56: PROPOSED DRAINS FOR DOBOKA MASTER PLAN AREA

S.L No.	Name of the Road	Length (approx.)
1.	Drain on Doboka-Diphu Road, Both side	1.50 K,M
2.	Drain on Both side Doboka Town main road, Ward N-4	2 K M
3.	Darin on Both side Daturam Bora Path W/No-4	0.70 K.M
4.	Drain on Both side Sir Saddullah Path, Ward No-3	2.00 K.M
5	Drain on Both side N.H 54, Ward No-1	2.00 K.M
6	Drain on Both side Abul Kalam Azad Path, Ward No-5	2.00 Km
7	Drain on Both side Acharjee Path Ward No-6	0.30 Km
8	Drain on Both side O.K.A.Ali Path Ward No-7	1.50 Km
9	Drain on Both side Raja Choudhury Path Ward No-8	1.50 Km
10	Drain on Both side Ashraf Ali Path Ward No-8	1,50 Km
11	Drain on Both side of Digen Laskar Path Ward No-9	0.70 Km
12	Drain on Both sides of Srinagar Path Ward No-9 From Doboka-Jamunamukh P.W.D Road to Bairagi Road	0.9 Km
13	Drain on Both sides of Road from Alauddin House (in west direction) to Deurijaan near Abdul Khalique House in ward No-8	0.5 Km
14	Drain on Both sides of the Doboka-Jamunamukh P.W.D road from the juncture of Doboka-Lanka P.W.D and Doboka Jamuna P.W,D Road at Panbazar to the ending point of Doboka M.B at Sankar Shill House.	2 Km

CHAPTER 10: DISASTER PLAN

Disaster is an undesired calamities event that seriously disrupts the functioning of a community or society and causes human, material and economic or environment losses that exceed the community's or society's ability to cope using its own resources. Disasters are usually caused by nature but in some cases, it can be caused by human actions as well. Disaster can be broadly classified into water and climate related geology related and accidental related. Assam has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Flood, drought, cyclones, earth quakes and landslides have been recurrent phenomena.

At national level, the ministry of Home affairs is the nodal Ministry for all matters concerning disaster management and at state level State Disaster Response force under Ministry of Home, Govt. of Assam is the responsible agency to tackle any disasters within the State.

Doboka in Hojai district comes under Brahmaputra valley and one of the town located on the banks of Jamuna River, a tributary of River Kopili. After entering Assam kopili separates the karbi Anglong district from the Dima Hasao Hill District up to Diyung river confluence and enter Nagaon District flows North-Westerly direction. Nagaon district has got very high reserves of Glass sand. Thus, it can be unanimously vouchsafed that the geology of Assam depicts a rich repository of minerals with its diversified geographical structure.

10.1 Flood:-

The Jamuna River, the main tributary of the Kopili originates from the Khanbamun hills in Karbi Anglong District and flows from east to west for a length of 120 Kilometers and falls in the Kopili near Jamunamukh. The river is fed by several small tributaries namely the Lenghit, Disama, Disa, Dighalpani, Dikharu, Buriganga, Dimaru etc.

At Jamunamukh in Hojai district it is met by its eastern tributary the Jamuna and flows past Raha after taking a westerly turn. Here it is joined by a branch channel with the Kolong River and at Jagi, It finally meets the main stream of the Kolong after a course of 262 Kms. from its origin. As Doboka is situated on the Bank of River Jamuna, it is vulnerable to flood during the monsoon season. During this period, River Jamuna inundated the areas in Doboka circle of Hojai district disrupting road communication between Doboka and Diphu.



Flood Affected Doboka Village

10.2 EARTHQUAKE:

The Major consequences of any earthquake are widespread human and material losses, excessive damage to infrastructure and services. According to the geological survey of India, seismic Zoning map of the country, silchar region lies in zone-V which is said to be the most active seismic zoning Map of the country. Like rest of Assam, the Nagaon district has always been subject to earthquake as it lies in the zone of seismic disturbances. The Great earthquake which occurred on june 12, 1897 had its epicenter in the shilling plateau. It had a magnitude of 8.5 Richter scale and was probably one of the greatest earthquakes ever recorded. The shock was felt over an area of 1,750 km² and destruction of stone buildings was almost universal in an area of 30,000 km² including shilling, Goalpara, nagaon and sylhet area of Bangladesh. Land slips and an earth fissure was very abundant over the whole of the epicentral area.

In Nagaon, most of the government buildings including the circuit house, Court building and the Deputy Commissioner's Bungalow were rendered unfit for habitation. Part of the District jail wall collapsed. The earthquake of August 15, 1950 had its epicenter at 28.5 E N and 96.7 E L and had a magnitude of 8.6 Richter. The estimated area of North-Eastern Assam over which extensive and heavy damage occurred was 1900 sqmt.

Kopili Fault line: In recent studies done in the river kopili basin it is found that the kopili fault extends from western part of Manipur up to the tri-junction of Bhutan, Arunachal Pradesh Assam, covers a distance of about 400 km. During the last 140 years, the kopili fault has experience 2 earth quakes of magnitudes greater than 7 in R.s and several of magnitude 4.5 to 6 in R.S. The study concludes that the North East region, more specially the kopili fault area is a geologically unstable region, surrounded by faults and lineaments and seduction zones in the east.

TABLE-57 HISTORY OF EARTHQUAKE IN THE DOBOKA M P AREA

SL No.	Disastrous	Year of occurrence	Area Affected	Name of localities
1	Earthquake	1897, 1950	Nagaon, Hojai District	All the Revenue Circle of the Districts.

Sources:-Department of Disaster Management, Nagaon

10.3 DROUGHT:

The Luming, Hojai, Doboka in central Assam valley and adjoining parts of Karbi-Anglong form a rain Shadow zone where annual rainfall is as low as 800-1200 mm. Water scarcity is a potential constraint for the people living in these areas. Absence of effective irrigation systems or water harvesting practices adds to the Vulnerability of the people.

TABLE-58 HISTORY OF DROUGHT IN THE DOBOKA M P AREA

SL. No	Disastrous	Year of Occurrence	Area affected	Name of the localities
1.	Drought	2009	Hojai District	All the circles of District

Sources:-Department of Disaster Management, Nagaon

10.4 RIVER EROSION:

River erosion took place on the Jamunu River in the time of monsoon due continuous downpour the volume of water increase beyond its carrying capacity leads to corrosion and river bank erosion. Moreover, continuous mining of sand from the rivers leads to river erosion.

10.5 SEASONAL HAZARD ANALYSIS:

TABLE-59 SEASONAL HAZARD ANALYSIS

Hazards	Janua ry	Fe b.	Marc h	Apr il	Ma y	Jun e	Jul y	Augu st	Sep t	Oc t	No v.	De c.
Cyclone	X	X	X	X	X	X	X	X	X	X	X	X
Flood					←	←	→					
Drought					←	←	→					
Earthqua ke	←	←	←	←	←	←	←	←	←	←	←	←
Fire		←	→									
Lightenin g				←	←	←	→					
Epidemic	←	←	←	←	←	←	←	←	←	←	←	←

Source: Department of Disaster Management, Hojai

10.6 VULNERABILITY (RISK AND HAZARDS ANALYSIS)**TABLE:-60 RISK AND HAZARDS ANALYSIS FOR DOBOKA M P AREA**

Types of Hazards	Potential	Vulnerability	Vulnerable areas
Cyclone	Nil	-	-
Flood	Loss of crops, Human lives and animals and properties damage	Communication facility, Agriculture & Horticulture, Private infrastructure Houses, Irrigation sources, Electrical installations, Drinking water sources, Educational institution, and livestock	All the Revenue Villages of Doboka Circle
Drought	Drought human life and pets	Loss of Human lives & pets	Entire Doboka circle
Earthquake	Human lives & Structures both public & Pvt.	Loss of Human lives & structures both public & pvt.	Entire Doboka Circle
Fire	Lives and property	Loss of Human lives & structures both public & pvt.	Entire Doboka Circle
Epidemic	Human lives & Pets	Loss of Human lives and pets	Entire Doboka Circle
Lightening	Human lives	Loss of Human lives	Entire Doboka Circle

*Source:-District Disaster Management Plan, 2020, DDMA, Nagaon***10.7 INFRASTRUCTURE VULNERABILITY AGAINST HAZARDS:****TABLE:-61 INFRASTRUCTURE VULNERABILITY AGAINST HAZARDS FOR DOBOKA M P AREA**

Vulnerability	Flood		Accident		Fire	
	Population	Area	Population	Area	Population	Area
Road network	15, 00,000 appx.	Total 2800 sq k.m including Doboka circle	6,25,000 appx	Doboka and Diphu Road	---	---
Water Supply	15, 00,000 appx.	Total 2800 sq k.m Including Doboka circle	-----	-----	-----	---
Hospital	50,000 appx.	All Development block areas	-----	-----	1500 appx.	
Food stocks & Supplies	15, 00,000 appx.	Total 2800 sq. km including Doboka circle	-----	-----	15,00,000	Total 2800 sq. km including Doboka Circle
Communication (system)	15, 00,000 appx.	Total 2800 sq. km including Doboka circle	----	-----	----	-----
Embankments	15,00,000 appx	Total 2800 sq. km including Doboka circle	----	----	----	-----
Bridges	15,00,000 appx	Total 2800 sq. km including Doboka circle				

Source:-District Disaster Management Plan, 2020, DDMA, Nagaon

10.8 MITIGATION PLAN:

Any disaster management plan or emergency management plan consists of four phases, namely: Mitigation, Preparedness, Response and Recovery. The Mitigation component in an emergency management plan is aimed at reducing the risk, impact, effects of a disaster. Hence careful planning eliminate the phase is important to reduce or eliminate the long-term risk to human life, property from natural and manmade calamities. It's important to have mitigation plans led by local community, working together to identify, plan for in the event of a disaster and reduce vulnerabilities and promote long term personal and community resilience and sustainability. Mitigation Plans can concentrate on both pre-disaster and post disaster efforts to reduce the impact of the disaster.

Pres-disaster Mitigation should focus on projects and interventions to address natural and man-made disaster to reduce risk to the population and property. This is mainly achieved by strengthening the resilience of National/state infrastructure. Post- disaster Mitigation efforts are primarily designed to reduce future damage in an affected area and decrease the loss of life and property and life due to the incidents following the disaster. The essential steps of hazard mitigation are:

- (1) Hazards identification
- (2) Vulnerability Analysis
- (3) Defining a Hazard Mitigation Strategy.
- (4) Implementation of Hazard Mitigation Activities and projects

Doboka region is prone to floods than any other natural disasters hence the disaster vulnerable area mitigation plan focuses on flood related eventualities and how can it be mitigated and have better preparedness. It is important to note that disaster management is an integrated task involving various government departments of region and the plan should focus on prevention, preparedness, mitigation, response, and measures.

10.9 PREVENTION:

As part of the said natural disasters the following measures can be adopted by concerned govt. departments to avoid and minimize the impacts of natural disasters.

= The public work department should monitor the major water bodies like river, streams lakes for constant flow of water, rising level and identify potential areas along the water bodies which need additional embankment or revetments, and these works should be implemented on priority before the onset of the season.

= Power and communication should carry out through inspection of power lines, communication lines for defects and rectify them. Trees and branches which may damage power and communication lines should be trimmed or removed.

=Health department should ensure the primary and community health centers are equipped with medicines and medical staff. Preventive vaccines for epidemics should be stocked in

adequate quantity. Chlorination of drinking water should be ensured to avoid the outbreak of epidemics in the event of cyclones and floods.

= The department of disaster management is the nodal agency in the Nagaon region and has already handled several flood and cyclone situation in the region. From this experience, it should be able to identify the low lying and vulnerable areas and the population of such places must be warned to be alert and to be ready to safer areas or to the relief camps in case of warning disaster.

= The department of civil supplies & consumer affairs should decide for creation of buffer stock of food grains by making required withdrawal from the food corporation of India. Also, adequate quantities of kerosene and diesel should be procured and made available through the fair price shops.

=Department of Agriculture should take steps to publicize precautionary measures to be taken to save the standing crops in the vulnerable areas. Farmers should be encouraged to have platforms in their fields to stock the crops. De-silting of the public and private irrigation canals should be ensured for quick drainage of paddy fields.

=Fisheries Department shall alert all the people residing on river bank villages and hamlets about the impending natural calamities and advice the fisherman not to venture into sea till normalcy is restored.

=Department of School education shall keep all schools ready for accommodating the evacuees and keep the central kitchens to function around the clock with in charge of the centers. NCC and NSS students shall also be grouped to send them for relief works.

=Department of Animal Husbandry should store fodder, cattle feed, and poultry food etc. and also carries out the inoculation of animals against epidemics. The Key village units should harbor stray cattle with shelters.

=Transport Department should keep ready the list of sufficient numbers of earthmoving vehicles, transportation vehicles such as trucks, tractors, tippers, proclams, mini buses etc. Further, all the listed vehicle allocated in connection with calamity has to be kept in roadworthy condition for using them in emergency.

=Local Urban Bodies/Municipal Board shall make rearrangement for availability of Generators and pump sets at short notice. For areas with water logging and artificial flood local bodies should clear the L & U type drained which normally clog due to plastic materials and silt.

=Police department shall set up a Search & Rescue Team which shall contain at least 20 police personal for each jurisdiction of the superintendent of police.

=Similarly, the fire services department shall set up search & Rescue Team consisting of at least 6 members of each fire station.

10.9.1 MITIGATION AND PREPAREDNESS:

Pre-disaster planning consists of activities such as disaster mitigation and disaster preparedness. Disaster mitigation focuses on the hazard that causes the disaster and tries to eliminate or drastically reduce its effects. The best example of mitigation is the construction of embankments and construction of proper drainage system in flood prone areas to avoid floods. The other example includes retrofitting of weak buildings to make them earthquake resistant. And preparedness focuses on plans to respond to a disaster threat or occurrence. It takes into account estimation of emergency needs and identifies the resources to meet the needs.

The first objective of the preparedness is to reduce the disaster impact through appropriate actions and improve the capacity of those who are likely to be improving the capacity of those who are likely to be affected most. The second is to ensure that ongoing development continues to improve the capacities and capabilities of the system to strengthen preparedness efforts at community level. Finally, it guides reconstruction so as to ensure reduction in vulnerability. The best example of preparedness activities are the development of community awareness and sanitization system through community education and administrative preparedness by way of stockpiling of supplies, developing emergency plans for rescue and relief. For successful mitigation plan it is necessary to identify short- medium-long term mitigation measures risks and damages.

The following steps can be taken to reduce the risk in the unfortunate event of the said natural disasters.

=Restore communication networks

=The task force in association with reach and rescue teams of police and fire should thoroughly search the affected area for survivors and injured.

=In case of heavy flooding and inundation, vehicular access may be restricted and hence suitable rafts/boats should be used to rescue and evacuate the people affected by the floods

=Water logging in low lying residential areas should be pumped out and the pump out water could be let out through the nearest natural drain or canal. Also fire engines can be deployed to pump out water from affected areas during emergencies.

=Any breach in rivers, streams or natural drains should be protected with adequate sand bags or creation of temporary embankments to avoid further damage to property and human life

=In case of heavy storms, power supply to areas which are in the primary path of the storm can be disconnected to avoid hazards due to breakage of power lines. Provisions should be made to provide generators for temporary power supply to storm affected areas.

=Relief camps should be opened in appropriate location where a large number of people are affected.

TABLE 62 MITIGATION

Type of Sector	Sub-sector	Mitigation Measures	Responsible Dept.	Time frame
Infrastructure Development	Road	Repair, Restoration of vulnerable points on roads before onset of monsoon	PWD/DRDA	During Normal time and immediately
	Embankments	Repair of vulnerable points in river/canal embankment during free flood period	Water Resources/Irrigation	During Normal time and immediately
	Bridge	Repair, restoration of vulnerable points on bridge before onset of flood	PWD, NH	During Normal time
	Communication	Ensure maintenance and proper functioning of electronic communication system	BSNL	Round the year
	Drinking water	Replacement of tube well/pipe water	PHE/ Health Deppt.	During Normal time and immediately
	Power	Immediate response for repair of electric line and supply	PWD, ASEB	Round the year
Health	Vaccination	Adequate stock piling of vaccines should be ensured	CMO, DVO, NGO,s	During Normal time and immediately
	Training	Training Programme of common people should be programmed for Health care, sanitation and first aid from village level to district	CMO, DVO, NGO,s	During Normal period
Livelihood	Awareness	Creating awareness among general public during normal time to insured human life	Leading NGO,s	During Normal time
	Agriculture	Alternant cropping pattern/flood resistance crops/crops insurance etc.	Dy. Director Agriculture	During normal time and immediately after disaster.
Planning and Response	Relief/Rehabilitation	Regular up-dation of departmental contingency plan, Community awareness and involvement of NGO,s Regular conduct of mock drill	Line Departments	During Normal time

Source:-District Disaster Management Plan, 2020, DDMA, Nagaon

10.9.2 RESPONSE PLAN:

Response measures are those taken immediately prior to and following disaster impact. It is important to have clear organizational chart structures with established line of authority within the Government mechanism to handle the response plan in case of natural calamities. Response plans include formation of functional teams and providing plans for the transportation, evacuation, search and rescue and rehabilitation. Survey and assessment part should be the part of response activity. Coordinated IEC activities should be initiated well in advance.

- =Mock Drill should carry out twice a year.
- =Make separate plan of operation and list of required materials, tools, machineries for each kind of disaster.
- =Train the rescue team with equipments
- =Train the panchayat leaders, Municipal leaders, Volunteers etc.
- =Approach to NDMA and SDMA for any kind of assistance.
- =Incident Command Officer shall organize regular coordination meeting with all DM committee members, Head of Offices, Public leaders, NGO,s and Senior citizen in consultation with the chairman
- =The RRT,s (Medical & Police) will be alerted by the incident Command Officer.

10.9.3 AIM OF DISASTER RESPONSE:

- = To ensure the survival of the maximum possible number of victims, keeping them in the best possible Health in the circumstances.
- = To re-established self-sufficiency and essential services as quickly as possible for all population group.
- =To repair or replace damaged infrastructure and regenerate viable economic activities.
- =In situation of civil conflict the aim is to protect and assist the civilian population.
- =In case involving population displacement the aim is to find durable solutions as quickly as possible.

10.10 RELIEF:

10.10.1 DURING THE DISASTER

- =Disseminate the warning of disaster from DDR & IC to all concerned destination in single attempt by using mass sms, announcement through radio, social media, print media and ask the people who are likely to be affected, to take shelter in safer places.
- =Immediate deploy the forces to clear the route of search & rescue and also to clear the traffic from the route of rescue
- =Command to the forces, NGO,s. SHG,s & volunteers to rush immediately to the affected area for search and rescue with all pre listed tools, equipment for disaster.

10.10.2 CITY DISASTER MANAGEMENT PLAN:

The points mentioned above should be part of a city or region level disaster management Plan. The Disaster Management Act, 2005 has brought a change from response & relief oriented approach. This has encouraged many cities to formulate a city disaster management plan,the same should be worked for Doboka MPA as well to enable it to be better prepared in case of natural disasters in the future. As part of Master Plan 2045 the authority feels there is a need for a CDMP for the Planning area covering the following general principles-

=Risk & Hazard Assessment
 =Planning
 =Organization
 =Resource Utilization
 =Need for Specialist
 =Training

Generally, the CDMP prepared for the planning area should include sectoral plans covering the following aspects of disaster & emergency management:-

=Overall Preparedness
 =Emergency Response
 =Prevention
 =Mitigation
 =Recovery
 =Reconstruction
 =Capacity Building Plans

10.11 SECTOR -WISE INVESTMENT PROPOSAL:

The sector wise requirement of implementation of various projects of Doboka Master Plan Area is detailed as table below:

Table-63 SECTOR WISE DEVELOPMENT PLAN

SL. NO.	Location	Project Name
Neighborhood Centre		
1.	Mikiati Huagaon	Neighbourhood Centre(1 Hac)
2.	Doboka Pather	Neighbourhood Centre (1 Hac)
3.	Niz Doboka	Neighbourhood Centre (1 Hac)
4.	Burigaon	Neighbourhood Centre (1 Hac)
5.	Nahargaon	Neighbourhood Centre (1 Hac)
6.	Sutargaon	Neighbourhood Centre (1 Hac)
Solid Waste management		
7.	Doboka Planning Area	Improvement and Modernization of Solid Waste Collection, Transportation and Disposal System of Doboka
8.	Ward No-10, DMBA Dag No-150	Development of Solid Waste Engineering Landfill Site on 11 Bigha of Land.
Drainage System		
9.	Doboka Planning Area	Preparation of DPR for Drainage System for Doboka Area
10.	Doboka M.B	Construction and Improvement of Existing Storm Water Drains

11.	Doboka M.B	Cleaning and Maintenance of existing Drains
12	Doboka M.B	Proposal for STP at Ward No-x
Water Bodies		
13	Doboka Planning Area	Rejuvenation and recycle of Water Bodies in Planning Area specially Deorijaan.
14	Doboka Planning Area	Development of Green Belt around all water Bodies
15	Doboka Planning Area	Development of Jamuna River front as recreational zone
Traffic and Transportation		
16.	Doboka M.B, Ward No-10	Bus Terminus, Truck Terminus
17	Doboka Town Area	Construction of Cycle Parking
18	Doboka Town Area	Construction of street Parking
19	Doboka Town Area	Construction of Traffic Signals Point at SBI point and Diphu Bye Pass
Recreational Facility		
20	Doboka Planning Area	Improvement of Parks and Playgrounds
21	Doboka Town Area	Improvement of Existing Nehru Stadium
22	Doboka Town Area	Development of Eco-Tourism Park at Burhiganga
23	Near AkashiGanga	Park & Recreational Centre on the outskirts of Doboka Town near Akashi Ganga
24	Doboka M.B	Proposal for Construction of Greenwood Park at ward No-1
Industrial Area		
25	Doboka Planning Area	Development of industrial estate Nam Doboka Gaon and Nahargaon
Infrastructure		
26	Construction of 3 storied Modern Fish Market	
27	Proposal for Construction of RCC Bridge on the side of the RCC bridge over river jamuna	
28	Proposal for widening of the Doboka-Diphu Road and Lanka-Nagaon Road and construction of Entry Gate at the entrance of the two roads.	
29	Proposal for construction of another RCC bridge over Deorijan canal near cattle market.	
30	Proposal for construction of another 30 bedded hospital at College Road near RCC bridge and up-gradation of the existing CHC to Doboka PHC	
31	Proposal for construction of Drain from Doboka Hospital to RCC Bridge of College Road.	
32	Proposal for Town Planning scheme (TPS)	
	Proposal for Town Planning Scheme at Mikirat Hawgaon, Doboka Pathar, Niz-Doboka and Namati.	
33	Proposal for Local Area project (LAP) at Ward No-6	

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