

CHAPTER 3 : DEMOGRAPHY

3.1 Overview

Demography is the study of growth, change, and structure of the human population. Understanding a society's demography is an essential tool in determining its current and future needs. As per Census of India, 2001 data the population of DNH was 220,490 persons out of which, males were 121,666 persons while females were 98,824 persons. As per Census of India, 2011 data the population of DNH was 343,709 persons out of which, males were 193,760 persons while females were 149,949 persons. Of the total population the tribal population constitutes 62.24% share. The main tribes are Dhodia, Kokna and Varli with small groups of Koli, Kathodi, Naika and Dubla scattered over the territory. Of the total population in 2001, the urban population is 50,463 persons i.e. 22.89%.

3.2 Population Growth

The population growth rate of the Union Territory has shown a steady from 1961 to 1991 (refer Table 3-1). The growth rate in 1991-2001 has been exceptionally high even in comparison to the progressive states of Maharashtra and Gujarat where the decadal growth rate for 1991-01 was 22.57% and 22.48% respectively.

Table 3-1: Population growth in Dadra Nagar Haveli 1961-2001

Particulars	1961	1971	1981	1991	2001
Population (total)	57,963	74,170	103,676	138,477	220,490
Decadal Growth Rate (%)	-	27.96	39.78	33.57	59.22
CAGR (%)	-	2.50	3.41	2.94	4.76
Urban Population			13,535	24,608	50,463
Rural Population			90,141	113,869	170,027

(Source: Report on Socio-economic development of Dadra & Nagar Haveli)

The significant rise in urbanization from 13% in 1981 through 17.7% in 1991 to 22.89% in 2001 can be attributed to industrialization boosted by the Industrial Development Promotion Policy of DNH that came into force in 1993.

3.3 Migration

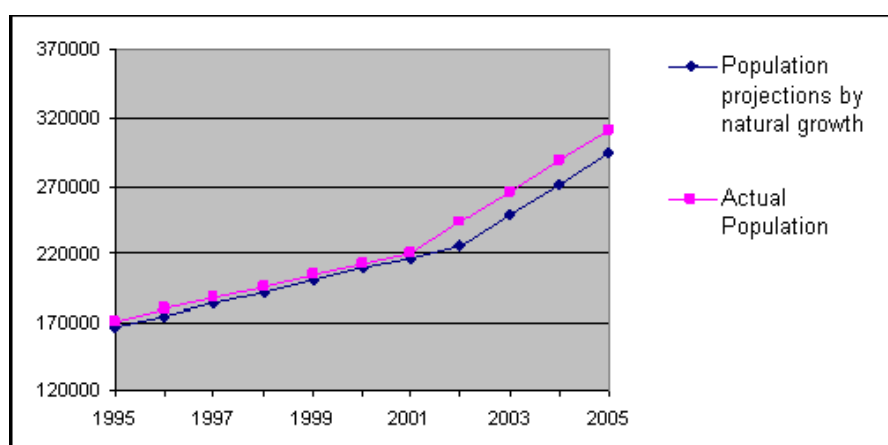
Dadra & Nagar Haveli has shown a very high natural growth rate of 28.26% as against the India's growth rate of 17.3% during the year 1999-2000. The average natural growth from the year 2000 to 2005 is 20.87%.

Table 3-2: Natural Growth Rate in DNH

Year	Birth rate (per 1000)	Death rate (per 1000)	Natural Growth Rate (per 1000)
1995	24.93	5.58	19.35
1996	26.50	5.97	20.53
1997	27.04	6.58	20.46
1998	27.76	5.58	22.18
1999	27.77	5.41	22.36
2000	33.21	4.95	28.26
2001	24.11	4.00	20.11
2002	26.46	3.78	22.68
2003	28.76	4.63	24.13
2004	22.69	4.26	18.43
2005	23.50	4.50	19.00

Source: Department of Planning & Statistics, DNH

The population increase by natural growth rate from 1995 to 2005 when plotted against the total population growth indicates significant migration (refer Figure 3-1).



Source: Department of Planning & Statistics, DNH and Consultant's analysis

Figure 3-1: Migration Trend in DNH

3.4 Population Distribution

3.4.1 Patelad-wise Population Distribution

The patelad wise growth of population can be seen from table 3.3 below and the settlement wise population can be referred at Annexure V.

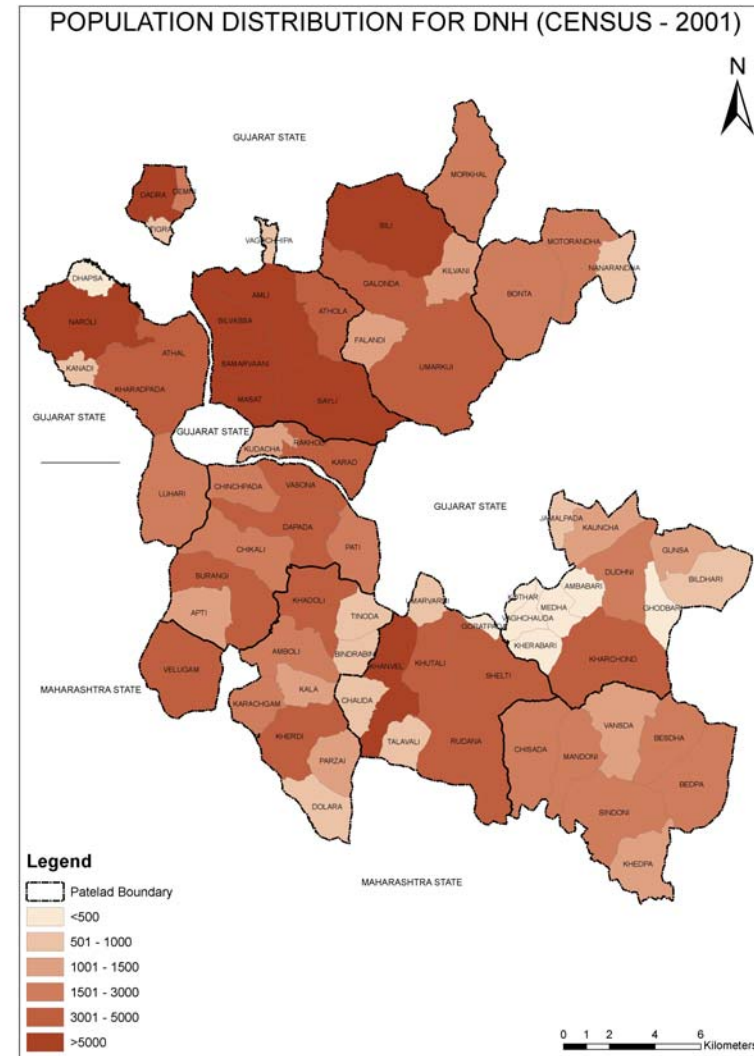
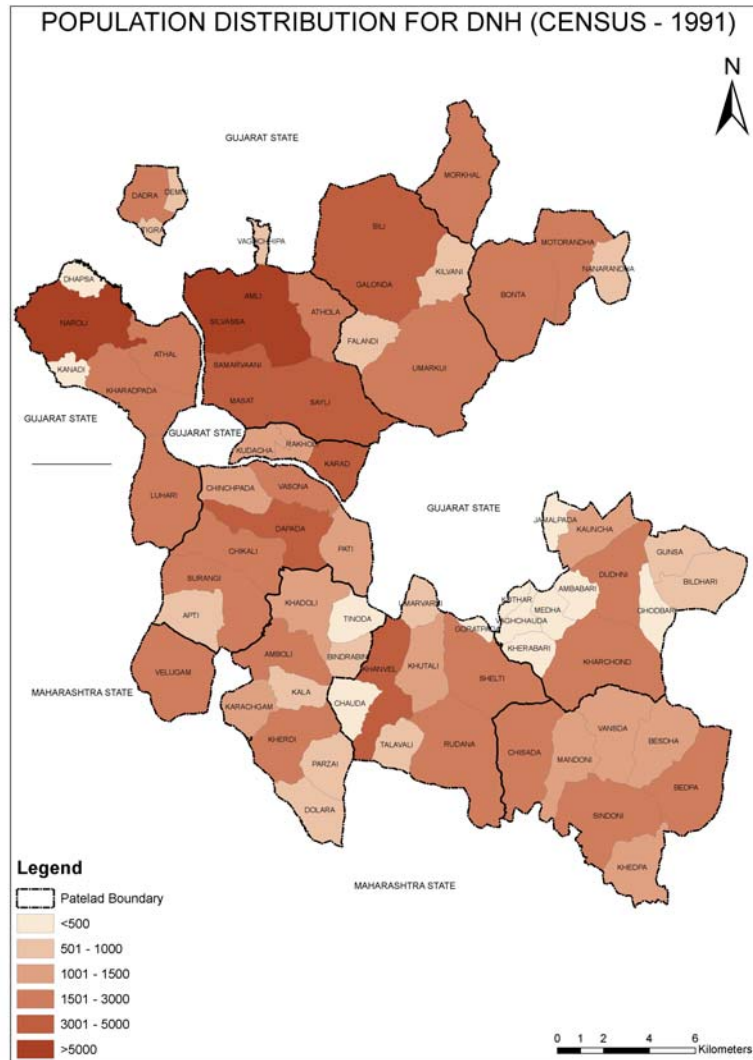
Table 3-3: CAGR of Population at Patelad level for DNH (1981-2001)

S. No.	Patelad	1981	1991	CAGR % (1981-91)	2001	CAGR % (1991-2001)
1	Dadra	3,126	4,237	3.09	9,175	8.03
2	Naroli	10,575	13,352	2.36	20,152	4.20
3	Silvassa	23,132	38,475	5.22	74,348	6.81
4	Rakholi	9,321	5,901	-4.47	9,571	4.96
5	Randha	5,184	6,801	2.75	9,177	3.04
6	Kilavani	8,908	11,978	3.01	16,382	3.18
7	Dapada	10,840	14,005	2.59	19,595	3.42
8	Amboli	8,753	13,076	4.1	18,925	3.77
9	Khanvel	8,498	11,320	2.91	18,012	4.75
10	Mandoni	7,560	9,859	2.69	13,191	2.95
11	Dudhani	7,779	9,473	1.99	11,962	2.36
	Total	103,676	138,477	2.94	220,490	4.76

Source: Consultant's Analysis on Secondary Data on Population

Refer Map 3-1 that illustrates the comparison between the population distributions in DNH as per Census of India, 1991 and 2001 data.

Map 3-1: Comparative Village-wise Population Distribution of DNH in 1991 and 2001



3.4.2 Analysis of Settlement Structure as per Cumulative Functional Index (CFI)

In order to provide sufficient facilities, and to assure that they are located in such a manner, that they are accessible to all (albeit at different level of provisions), it is necessary to formulate a proper settlement hierarchy. The following parameters have been identified to classify the settlements based on CFI method of analysis:

- Educational facilities
- Health facilities
- Availability of water – Tap or Bore Well
- Communication – Post and Telegraph services
- Other non-quantitative facilities – Bus Stop facility, Railway Station facility, Power Supply and Bank facility
- Access by paved roads

Cumulative Functional Index (CFI) is a technique employed in a settlement level study in an effort to analyse the overall rank of settlements in a system. It is a prelude to identification of settlement hierarchy. It is assumed that the availability of amenities is pre-requisite for sustaining specified population in a settlement. The better the position of settlement vis-à-vis provision of basic amenities, better it is assumed to be capable of sustaining a growth momentum and therefore, higher is its position in the hierarchy.

The weightage of each amenity for every village has been calculated as follows:

$$\text{Weightage of particular Amenity} = \frac{\text{Total No. of Settlements}}{\text{Availability of Amenities or Facilities (in absolute numbers or based on range code)}}$$

The weightage thus calculated is multiplied to the particular amenity in all the settlements to arrive functional index of an amenity. Each of the settlement with CFI values has been classified into suitable ranges to determine its position in the hierarchy.

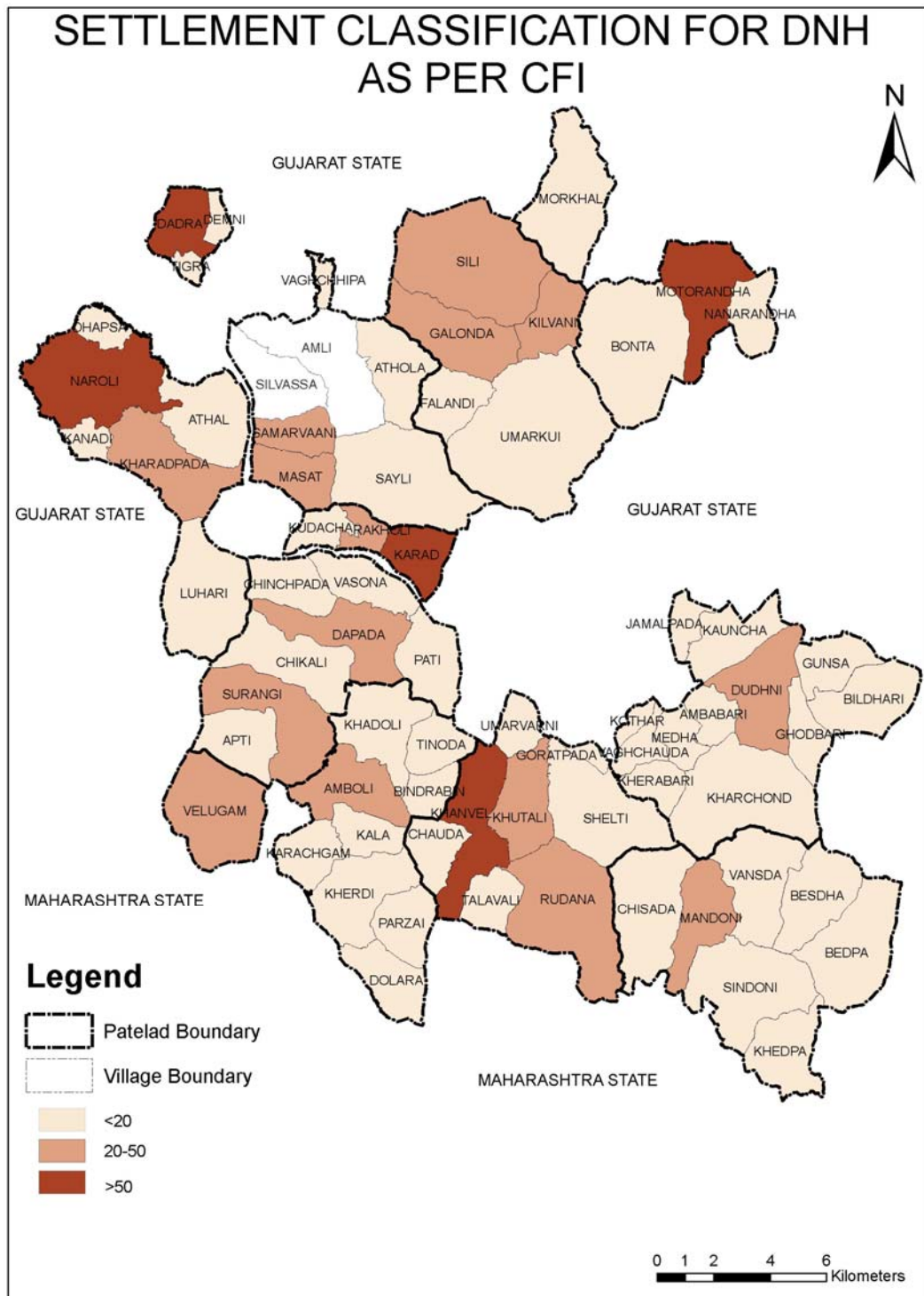
Refer Table 3-4 and Map 3-2 for the ranking of the settlements in DNH as per CFI and their spatial coverage. Annexure - VI gives the CFI ranking of all the village settlements.

Table 3-4: Ranking of Village Settlements in DNH based on CFI

CFI	Villages
50+	Karad, Khanvel, Dadra, Naroli and Mota Randha
20-50	Samarvarni, Masat, Rakholi, Dudhani, Rudana, Khutali, Sili, Galonda, Kilavani, Mandoni, Amboli, Velugam, Kharadpada, Dapada and Surangi
less than 20	Athal, Vaghchhipa, Athola, Saily, Kudacha, Ghodbari, Medha, Ambabari, Gunsar, Jamalpada, Kauncha, Karchond, Kherarbari, Bildhari, Vaghchauda, Umbervarni, Goratpada, Talavali, Shelti, Chauda, Falandi, Umarkui, Bensda, Vansda, Bedpa, Chinsda, Sindoni, Khedpa, Kherdi, Kala, Khadoli, Parzai, Dolara, Tinoda, Karachgam, Bindrabin, Tighra, Demani, Luhari, Kanadi, Dhapsa, Pati, Chinchpada, Vasona, Aпти, Chikhali, Nana Randha, Morkhal, Bonta and Kothar

Source: Consultant's Analysis on Secondary Data of DNH, 2008

Map 3-2 : Spatial Distribution of Settlements in DNH by CFI Range



Source: Consultant's Analysis on Secondary Data, DNH, 2008

3.4.3 Overall Population Distribution by Gross Density in DNH

The overall population density has shown a significant rise from 282 persons per sq.km. in 1991 to 449 persons per sq.km. in 2001. Silvassa Patelad has the highest density of 1,561 persons per sq.km. followed by Dadra with a density of 1,401 persons per sq.km., and Rakholi being third with 1,085 persons per sq.km. of population density. However, since the development planning exercise for DNH ODP-2021 is only for the DNH PA, the planning area based population density would be little higher and would vary depending upon the impact of excluding the forest areas (except Dadra). Refer Table 3-5 for the population density distribution in DNH.

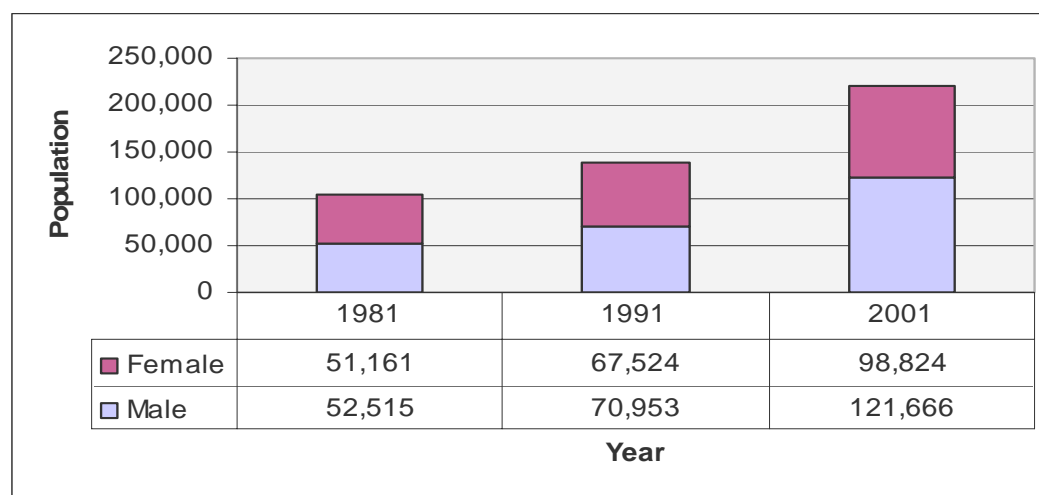
Table 3-5: Population Density of Patelads in DNH (2001) - Gross Area & Planning Area based

S. No.	Patelad	Population 2001	Area (sq.km.)	Gross Density (Persons per sq.km.)	Planning Area (sq.km.)	PA-based Density (Persons per sq.km.)
1	Dadra	9,175	6.55	1,401	6.55	1,401
2	Naroli	20,152	45.95	439	33.60	600
3	Silvassa	74,348	47.62	1,561	42.53	1,750
4	Rakholi	9,571	8.82	1,085	7.62	1,256
5	Randha	9,177	40.63	226	21.52	426
6	Kilavani	16,382	59.84	274	30.90	530
7	Dapada	19,595	48.59	403	28.81	680
8	Amboli	18,925	58.14	326	36.98	512
9	Khanvel	18,012	53.22	338	28.20	639
10	Mandoni	13,191	62.80	210	24.36	542
11	Dudhani	11,962	58.84	203	26.72	448
	Total	220,490	491.00	449	287.79	766

Source: Census of India, 2001 for Population figures, and Patelad Area adopted from existing land use map & distribution (refer Chapter 2 for details of area), and Planning Area worked out on the basis as notified by The Dadra & Nagar Haveli Gazette Notification related to Town & Country Planning Department (TCPD), Silvassa vide No. ATP/P&DA/T&CP/06-07/108/824 dated 7th December 2006 and as mentioned in RP-2021, DNH.

3.5 Age-Sex Ratio

The sex ratio of DNH if seen from the absolute population figures of males and females has dwindled from 974 in 1981 to 952 in 1991, further to 812 in 2001 (refer Figure 3-2:). This trend is a clear indication of low sex ratio on account of male migration in search of employment in the industries. Refer Table 3-6 for change in sex ratio distribution by rural and urban areas from 1981 to 2001 as per Census of India data.



Source: Socio-economic Development of DNH Report, Department of Planning & Statistics, DNH

Figure 3-2: Population by Male & Female Gender in DNH (1981-2001)

Table 3-6: Sex Ratio in Rural and Urban Areas in DNH (1981-2001)

Year	Rural			Urban		
	Male	Female	Sex-Ratio	Male	Female	Sex-ratio
1981	48,846	47,916	981	3,669	3,245	884
1991	64,499	62,253	965	6,454	5,271	817
2001	91,832	78,195	852	29,834	20,629	691

Source: Census of India, 2001

The age-group wise categorization of the population indicates that almost 61% of the population falls in the working age group of 15 to 59 years (refer Table 3-7).

Table 3-7: Distribution of Population by Age-group (2001 & 2008)

Age Group	Census 2001		Percentage (2008) based on Primary Survey data
	Persons	Percentage	
0-4 years	29,421	13.34	4.37
5-14 years	48,337	21.92	19.15

Age Group	Census 2001		Percentage (2008) based on Primary Survey data
	Persons	Percentage	
15-59 years	133,814	60.69	70.89
60 years and above (incl. A.N.S)	8,918	4.04	5.60

Source: Census of India 2001 and Primary Survey conducted in May 2008

3.6 Household Size

As per the Census of India data, the total number of households has increased from 26,237 in 1991 to 43,973 in 2001. The household size has decreased from 5.2 in 1991 to 5.0 in 2001. The decreasing household size is again a function of the large scale migration happening in Dadra & Nagar Haveli.

3.7 Literacy

The literate population in the year 2001 was 57.63% of the total population out of which 69% were male and 31% are female. The literacy rate of DNH is lower than the overall national literacy rate of 64.80% in 2001 (Table 3-8:).

Table 3-8: Literacy Rate for DNH (1981-2001)

Year	Rural		Urban		Total
	Male	Female	Male	Female	
1981	34.32	14.91	62.91	44.28	26.67
1991	50.04	23.30	86.34	68.42	40.70
2001	64.50	30.86	90.84	74.54	57.63

Source: Report on Socio-economic Development of Dadra & Nagar Haveli, DNH

3.8 Socio-Economic Profile of DNH

As per the Census of India, 2001 data 77.11% of the total population of DNH is rural in nature with agriculture as their principal occupation. 48.80% of the total workforce of DNH is involved in agricultural activities as cultivators and agricultural labourers i.e. in the primary sector of occupation (*Census of India, 2001*). The DNH region is socio-economically backward with 62.24% of total population being scheduled tribes - ST (adivasis / backward) and 1.86% is under scheduled castes – SC category as per Census of India, 2001, and around 41.4% of the region is designated under forest land (*Regional Plan 2007-2021*). Thus there exists a huge potential for the economic activities related to forestry, animal husbandry, agriculture and allied activities that

are being carried out in traditional way and the opportunities in the agriculture sector remain under explored.

DNH enjoys the locational advantages of being in proximity to the industrially developed States of Maharashtra and Gujarat. DNH is located at almost equal distance from Mumbai, an Economic Capital of the country and Surat a Business/Economic Capital of Gujarat State. The region is in close vicinity to well developed industrial estates in Vapi, Sarigam and Surat. This in turn has resulted into origin of industries in the DNH region. The incentives offered by the Government of India through DNH Administration for establishing industrial units along with the availability of land have further resulted into spurt in development of industrial estates in the DNH. 29.03% of the workforce is engaged in secondary sector in DNH (*Census of India, 2001*) that accounts to the industrial employment.

Tertiary sector is an inevitable part and plays a vital role in economic development of a region as it caters to the retail trade and all non-traded activities such as construction, transportation, distribution, credit and insurance. Similarly, growth in income increases the market for services and expands the size of the service sector. As per Census of India, 2001 data at present 22.16% of the total workers are engaged in tertiary sector in DNH.

3.8.1 Workforce Participation

Workforce participation rate (WFPR) in DNH as per 2001 Census of India data is 51.76% (i.e. covering main and marginal workers), which is higher than the national WFPR of 39.1% during the same period. This figure is quite high, and if the trend is observed in DNH specific data, it is in gradual declining mode.

Table 3-9: Work Participation Rate in DNH (1981-2001)

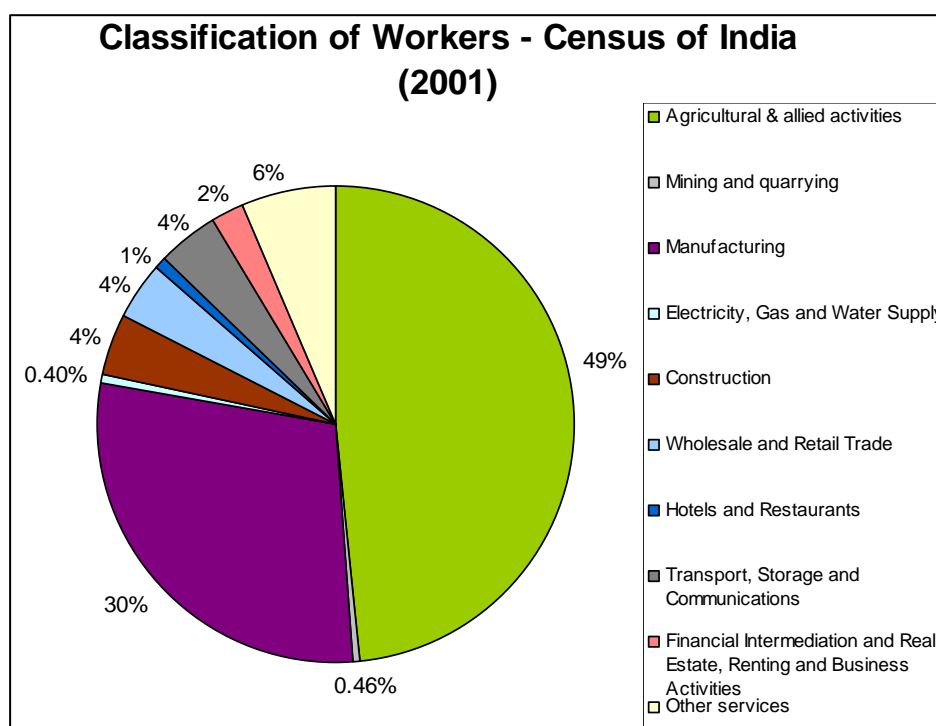
Worker Category	1981	Percentage	1991	Percentage	2001	Percentage
Main Workers	42,315	40.81	60,801	43.91	96,184	43.62
Marginal Workers	8,404	8.11	12,938	9.34	17,938	8.14
Non Workers	52,957	51.08	64,738	46.75	106,368	48.24
Total	103,676	100.00	138,477	100.00	220,490	100.00

Source: Report on Socio-economic Development of Dadra & Nagar Haveli, Department of Planning & Statistics, DNH and Census of India, 2001

3.8.2 Occupational Structure

Though agriculture is the main economic activity of the rural DNH as mentioned earlier, the secondary and tertiary sectors contribute to 51.19% of the total employment (*Census of India, 2001*). The occupational structure can further be subdivided into 10 sub-heads as per Census of India classification given below.

Figure 3-3: Classification of Workers in DNH



Source: *Census of India, 2001*

The percentage of cultivators and agricultural labourers has conspicuously declined since 1981. On the other hand the percentage of other workers comprising of industrial workers has more than doubled from 1981 to 2001 (refer Table 3-10).

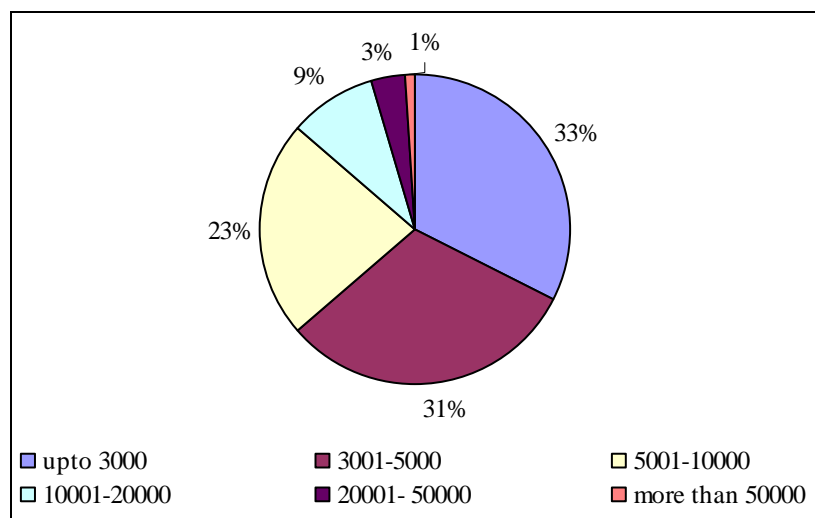
Table 3-10: Shift in Occupation Pattern in DNH

Workers	1981	1991	2001
Workers in Agriculture activities (Primary Sector)	30736 (60.60%)	42511 (57.65%)	54185 (48.80%)
Industrial Employment (Secondary Sector)	19983 (39.40%)	8000 (10.85%)	34507 (29.03%)
Others (Tertiary Sector)		23228 (31.50%)	25430 (22.16%)
Total Workers	50719	73739	114122

Source: *Census of India, 2001 and District Industries Center, DNH*

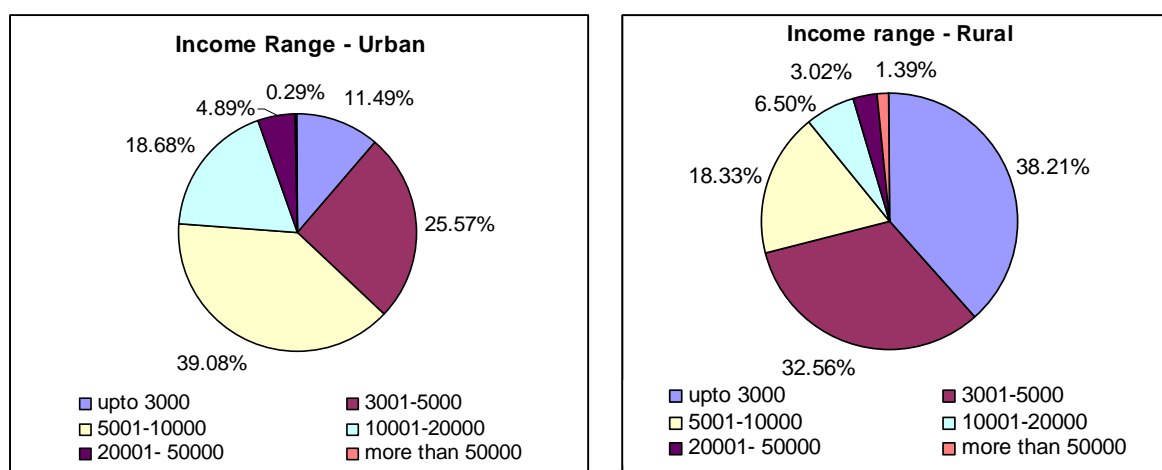
3.8.3 Income Pattern

The DNH region is predominantly rural-cum-tribal in nature with low household income. As per the data obtained from the Primary Survey, 2008 the modal income range is Rs 3,001-5,000 which constitutes the 31% households, whereas the mean average income range is Rs. 5,001-10,000 which constitutes 23% households, while 33% households were observed to be in the category which earned upto Rs 3,000 per month. Household monthly income distribution pattern (income figure is in Rs) is shown in the Figure 3-4: below. The modal income range for urban areas is Rs. 5001-10000 whereas for rural areas is Rs.3001–5000 as shown in **Error! Reference source not found..**



Source: Consultant's Analysis on Primary Survey Data, 2008

Figure 3-4: Household Income Distribution Pattern in DNH



Source: Consultant's Analysis on Primary Survey Data, 2008

Figure 3-5: Urban & Rural Household Income Distribution Pattern in DNH

Since the housing mix data based on income categories is reportedly not available in DNH, referring to the income category as above, the following housing mix may also

be roughly observed for an idea on the status of said aspect in DNH (rounded off percentage figures) based on socio-economic survey, 2008 i.e. assuming that upto 5,000 income range as Economically Weaker Sections (EWS) of population, Rs 5,001 – 10,000 income range as Lower Income Group (LIG), Rs 10,000 – 20,000 income range as Medium Income Group (MIG), and Rs 20,001 & above in Higher Income Group (HIG):

- Overall Households: EWS – 64%, LIG – 23%, MIG – 9%, HIG – 4%
- Urban Households: EWS – 37%, LIG – 39%, MIG – 19%, HIG – 5%
- Rural Households: EWS - 71%, LIG – 18%, MIG – 7%, HIG – 4%

3.9 Population Projections

Projections for population are based on a number of assumptions, and in case of DNH are subject to also a lot of factors like industrial policy and the criteria presumed in the revision of Regional Plan 2007-2021 emphasizing an accelerated economic growth based on industrial activities. In order to avoid an absolute mismatch in the figures and the actuals, various population projection scenarios have been worked out based on different assumptions.

The Regional Plan for DNH for the year 2007-21 proposes a population of 449,119 in 2011 and 771,580 in the year 2021. The same population figures have been adopted for the Outline Development Plan till the year 2021. Population beyond 2021 is expected to grow at the natural growth rate as generation of new jobs will considerably reduce. The population for 2031 based on annual natural growth rate of 2.8% for rural areas and 2.0% for urban areas works out to be 970,602 persons (the average annual natural growth rate from 2001 to 2005 works out to be 2.2%).

The existing infrastructure gap assessment would be based on the availability of infrastructure and the current population. Following methods have been employed to realistically estimate the population figures for 2008:

1. The population for 2001 and the projected population for 2021 as adopted in the RP-2021 were linearly extrapolated to get the estimates for the year 2008 and 2011. The population by this method works out to be 380,000 and 415,000 respectively.
2. The second method was based on the workforce participation ratio or WPR for DNH. The WPR has increased from about 49% in 1981 to 53% in 1991 and 52% in 2001 as per census data (WPR is worked out on main and marginal workforce).

Table 3-11: WPR comparison between India and DNH

	1981	1991	2001
National WPR	36.8	37.5	39.1
WPR of DNH	49.0	53.0	52.0

The working population has increased at a rate of 45% in 1991 and 55% in 2001. Carrying forward the same increase, the expected population in 2011 with a WPR of 50% (stabilized trend from 1981-2001) works out to be 353,778 persons.

3. The Industrial Development Promotion Policy came into force in Dadra & Nagar Haveli from April 1993 giving rise to industrialization. The employment in the secondary sector has increased by more than 4 times from 8,000 to 34,507 workers.

Table 3-12: Sector wise work force in DNH

Workers	1981	1991	2001
Workers in Agriculture activities (Primary Sector)	30,736	42,511	54,185
CAGR		3.20	2.40
Industrial Employment (Secondary Sector)	19,983	8,000	34,507
CAGR	(39.40%)		14.7
Others (Tertiary Sector)		23,228	25,430
CAGR			0.9
Total Workers	50,719	73,739	114,122

Considering a WPR of 50% as mentioned above, the population estimates for the year 2008 works out to be 309,778 persons and that in 2011 is 353,102.

4. The population growth upto the year 2005 based on natural growth rate works out to 294,572. Assuming the same natural growth rate upto year 2008, the population figure comes out to be 311,684. Considering that 50% of the jobs generated in the secondary sector attracted migrant workforce, **the total number of migrants between 2001 and 2008 works out to 27,810** (assumption is based on the fact that the number of jobs has increased phenomenally since 2001). Assuming that 50% of the migrants are bachelors and the rest 50% migrate along with their families, the total population works out to 388,160 persons.

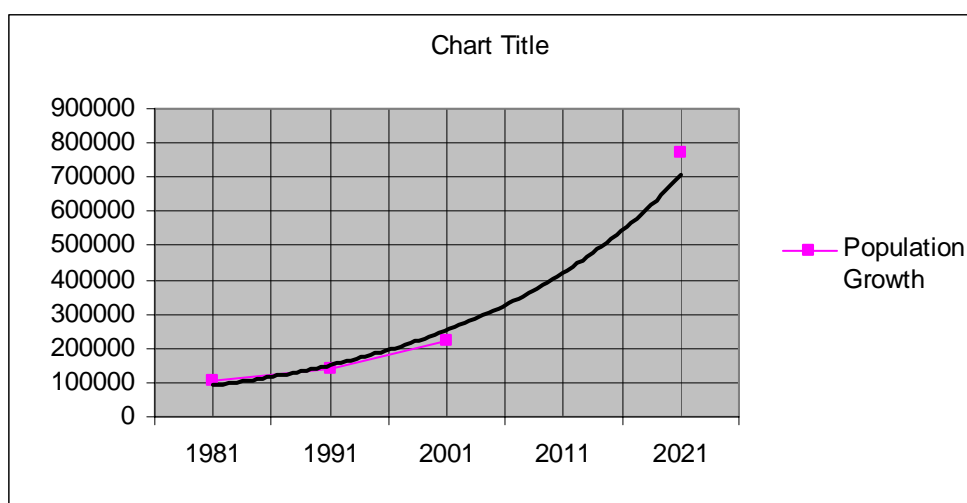
With the same reasoning, projected population in the year 2011 works out to be 4,53,713.

- The National WP rate for India was 40.4 in 2001 (census of India). The WPR in DNH was as high as 52% in 2001. The trend forecast shows that the WPR in 2008 would be approximately 50%. It is assumed that the local workforce is 40% of the total population and attribute the additional 10% to migrant workforce.

Assuming the same natural growth rate upto year 2008, the population figure comes out to be 311,684. Migrant workforce @ 10% works to be 31,168. Considering that 50% of the migrants migrated with families, the migrant population works out to be 87,270.

Hence the estimated population in 2008 is 398,954.

- The number of persons enlisted in the voters list in 2008 is 146,000. Let us assume that 2 persons from each house. The average household size as per our socio-economic survey conducted in 2008 is 4.6. Hence, the population works out to be 335,800.
- The population figures for 1981, 1991 and 2001 along with the revised Regional Plan's projected population for 2021 have been plotted as given below:



The graph above clearly indicates that the population in the year 2008 is not expected to cross 400,000 in the absence of a strong policy initiative. A trend line drawn on the graph indicates that the expected population in the year 2011 will be 425,000.

- Another scenario has been worked out based on the number of structures under residential use and the family size. As per the housing stock observed in the land use survey conducted by the consultants in May 2008, the no. of houses is 26,612 (including structures put to residential and residential-cum-commercial use). With a household size of 5.2 for rural areas and 4.5 for urban

areas as observed in the socio-economic survey conducted by the consultants in May 2008, the population works out to be 267,491 persons.

In light of the above scenarios, the population in the year 2011 can be assumed to be 400,000 persons.

3.10 Industrial Growth Potential Method

Special incentives offered to establish industrial units in DNH Region from April 1, 1993 have attracted fairly large number of small and medium scale units in the last few years, and the Revised Regional Plan 2007-2021 also considers the aspect of accelerated economic growth based on industrialization. Industries create direct as well as indirect employment and that in turn, attracts people from other regions, specially the skilled labourers. Population of the DNH Region is thus bound to increase with resultant in-migration besides the natural increase. Assessing the future volume of industrial growth, employment potential and participation rate thus would be helpful in producing estimate of population.

This method as adopted in the Revised Regional Plan 2007-2021 is further extended as Scenario 4 for population projection till horizon year of 2031. Two key elements in this method are:

- 1) The amount of land under industrial use, and
- 2) Quantum of employment generated by the industrial units.

The entire industrial area is expected to be developed by the year 2021 (*Regional Plan 2007-2021 of DNH*). Though the said document mentions that 23.83 sq.km. area is already under industrial development (i.e. 44.0% of total industrial area proposed as 54.09 sq.km.), the existing land use survey in 2008 indicated (based on the industrial premises with construction coverage on ground that exist) that the industrial area developed *per se* is only 15.47 sq.km. (i.e. 28.6% of proposed industrial use broad zoning). Hence, job generation due to new industries has still good enough scope to continue in the next decade, till it may tend to slow down by the end of 2021 or in post 2021 period. Hence, the population growth beyond this is presumed to be mostly due to the natural growth rate, and thus may move towards population stabilization as the developable area of the Planning Area would remain limited.

The natural growth rate for the year 1991-2001 of the rural population in DNH was 27.7% and that of the urban population was 20.4% (*Office of the Registrar General of India, New Delhi*). The same has been adopted for obtaining the projected population figures for 2031 in this method, which also assumes some trend of population stabilization.

The Regional Plan for DNH for the planning period 2007-2021 assumes that the urban component of the population would drastically increase from 22.89% in 2001 to 42.60 in 2011 and finally 62.23% in 2021 on account of the heavy urbanization. The rural-urban population distribution has been worked on the same basis. The village-wise distribution has been carried out based on the present share of each village to the total population. Refer Table 13-3 later for the detailed distribution of population till 2031 as horizon year of this ODP work.

3.11 Comparison with various growth scenarios

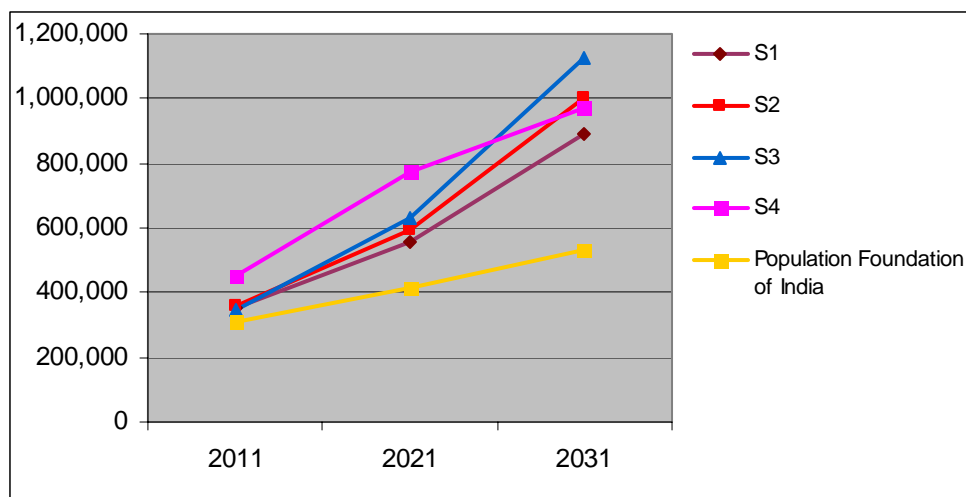
The population projections worked out under various scenarios has been summarized in Table 13-2 and Figure 13-1 below.

Table 3-13: Summary of population projections for horizon year 2021 for DNH

Scenarios	2011	2021	2031
S1	351,030	558,854	889,720
S2	357,488	591,819	733,936
S3	347,029	632,759	1,125,488
S4	449,119	771,550	970,561
Projections by Population Foundation of India along with the Population Reference Bureau ¹ (Scenario A which is a little higher than Scenario B is considered here for comparison)	308,000	412,000	534,000

Source: Consultant's Analysis (2008) as in above sections

¹ The Future Population of India – A Long-range Demographic View (August 2007) by Population Foundation of India, New Delhi and Population Reference Bureau, Washington DC



Source: Consultant's Analysis (2008)

Figure 3-6: Population Scenarios for DNH (2011 to 2031)

Projections under Scenarios 1 and 2 have been based on past population growth trends (at a fixed rate of CAGR and separate rates of rural & urban growth rates), while Scenario 3 projection was based on assigned CAGR to villages following in a certain range of CAGRs.

As mentioned earlier, the Revised Regional Plan 2007-2021 for Dadra & Nagar Haveli has adopted the projected population figure of 771,580 (corrected figure comes to 771,550 persons after a minor correction observed to be made) based on the industrial growth potential method and was extended as Scenario 4 for 2031 horizon year.

Though S1 & S2 and S3 expectations on population growth show a lower end and higher end respectively of the various population projection figures, S4 seems to be the most dependable projection, being in the middle range and with the assumption that population by then would be on the path of stabilization as both the industrialization would almost have been completed while the developable area of the Planning Area would remain limited. Though, Scenario S3 gives a very high population figure in the year 2031, it is not likely to be achieved as the number of jobs expected to be generated to support this population is much less.

The other projections through two Scenarios A & B by Population Foundation of India along with the Population Reference Bureau seem to be very conservative figures of 534,000 population by 2031 in Scenario A (based on total fertility rate of 2.10), while Scenario B (based on total fertility rate of 1.85) projects a little lesser figure of 411,000 by 2021 and 531,000 by 2031 with population in 2011 remaining the same as in Scenario A. The growth rate in this Scenario A decreases gradually from 3.4% in 2001-11 to 2.95 in 2011-21 and finally to 2.63 in the decade 2021-31.

The industrialization is bound to trigger off growth at a faster rate or at least at a sustained rate over the next two decades.

Also, based on another check on the developable area available out of Planning Area (as per RP-2021 land use distribution table) and the maximum range of the gross density for medium sized urban areas as per UDPFI Guidelines, 1996 (i.e. 100-150 persons per hectare for a medium town or 125 persons per hectare as maximum density for a small town), and some minor population in rural areas getting accommodated over time in agricultural area, it is observed that the limit of population that could be accommodated gradually in DNH would thus be as follows:

- 97.79 sq.km (i.e. 9779 Ha.) of developable area considered as available for development, which includes urbanisable area, area under industrial zone and roads.
- An average high of 125 persons per hectare of gross density is considered as per UDPFI Guidelines, 1996. Population threshold based on such gross density criteria on developable area works out to 12,22,375 persons.
- The remaining agricultural area (including command area) balance is 165.94 sq.km. If it is also considered to accommodate some rural habitation over time, even at the current average gross density range of 4.5 persons per hectare in DNH, any such population threshold would be about 74,673 persons.
- Thus, the overall population threshold in DNH could be 12,90,748 persons, say 13 Lakhs of population.

This could be a sort of stabilized population state that the DNH region may achieve beyond year 2021 or so in the next few decades to come.

Since, Scenario S4 directly relates to the number of jobs generated, it is the most dependable scenario. And hence, the Scenario S4 has been adopted for further framing planning and infrastructure proposals as part of the ODP.

Table 3-14: Extension of Population Distribution based on Industrial Growth Potential Method till year 2021 (Scenario 4 continued)

S. No.	Name of Settlement	TRU	Total Popln	Census Area	2001		Percentage Population		2011		2021	
					2001	sq.km.	Density	Rural	Urban	Rural	Urban	Rural
1	Dadra	Rural	6,614	4.57	1447	3.89	-	10,028	0	11,336	0	
2	Demani	Rural	1,927	1.25	1542	1.13	-	2,913	0	3,293	0	
3	Tighra	Rural	634	1.04	610	0.37	-	954	0	1,078	0	
1	Athal	Rural	3,320	8.44	393	1.95	-	5,027	0	5,683	0	
2	Dhapsa	Rural	284	2.17	131	0.17	-	438	0	495	0	
3	Kanadi	Rural	615	1.89	325	0.36	-	928	0	1,049	0	
4	Kharadpada	Rural	3,575	9.61	372	2.10	-	5,414	0	6,120	0	
5	Luhari	Rural	2,362	11.48	206	1.39	-	3583	0	4,051	0	
6	Naroli	Rural	9,996	12.79	782	5.88	-	15,158	0	17,135	0	
1	Amlī CT	Urban	28,570	10.52	2716	-	56.62	0	108,328	0	271,853	
2	Athola	Rural	3,740	6.54	572	2.20	-	5,671	0	6,411	0	
3	Masat	Rural	6,566	4.95	1326	3.86	-	9,951	0	11,249	0	
4	Saily	Rural	7,163	14.50	494	4.21	-	10,853	0	12,269	0	
5	Samarvarni	Rural	5,535	3.64	1521	3.26	-	8,404	0	9,500	0	
6	Silvassa CT	Urban	21,893	6.70	3268	-	43.38	0	82,997	0	208,283	
7	Vaghchhipa	Rural	881	1.13	780	0.52	-	1,341	0	1,515	0	

S. No.	Name of Settlement	TRU	Total Popln	Census Area	2001	Percentage Population		2011		2021	
			2001	sq.km.	Density	Rural	Urban	Rural	Urban	Rural	Urban
1	Karad	Rural	3,697	4.54	814	2.17	-	5,594	0	6,324	0
2	Kudacha	Rural	1,499	2.37	632	0.88	-	2,269	0	2,564	0
3	Rakholi	Rural	4,375	2.58	1696	2.57	-	6,625	0	7,489	0
1	Bonta	Rural	2,461	15.80	156	1.45	-	3,738	0	4,226	0
2	Morkhal	Rural	2,765	11.68	237	1.63	-	4,202	0	4,750	0
3	Mota Randha	Rural	2,996	8.14	368	1.76	-	4,537	0	5,129	0
4	Nana Randha	Rural	955	3.93	243	0.56	-	1,444	0	1,632	0
1	Falandi	Rural	1,367	4.66	293	0.80	-	2,062	0	2,331	0
2	Galonda	Rural	4,537	8.53	532	2.67	-	6,883	0	7,781	0
3	Kilavani	Rural	1,131	4.98	227	0.67	-	1,727	0	1,952	0
4	Sili	Rural	5,745	16.77	343	3.38	-	8,713	0	9,850	0
5	Umankui	Rural	3,602	23.88	151	2.12	-	5,465	0	6,178	0
1	Apti	Rural	1,314	5.41	243	0.77	-	1,985	0	2,244	0
2	Chikhali	Rural	2,597	7.97	326	1.53	-	3,944	0	4,459	0
3	Chinchpada	Rural	2,326	4.78	487	1.37	-	3,532	0	3,992	0
4	Dapada	Rural	4,746	8.56	554	2.79	-	7,192	0	8,130	0
5	Pati	Rural	1,506	6.44	234	0.89	-	2,294	0	2,594	0

S. No.	Name of Settlement	TRU	Total Popln	Census Area	2001	Percentage Population		2011		2021	
			2001	sq.km.	Density	Rural	Urban	Rural	Urban	Rural	Urban
6	Surangi	Rural	3,224	10.13	318	1.90	-	4,898	0	5,537	0
7	Vasona	Rural	3,882	5.66	686	2.28	-	5,878	0	6,644	0
1	Amboli	Rural	2,616	6.96	376	1.54	-	3,970	0	4,488	0
2	Bindrabin	Rural	902	2.72	332	0.53	-	1,366	0	1,544	0
3	Dolara	Rural	912	5.14	177	0.54	-	1,392	0	1,574	0
4	Kala	Rural	1,046	3.40	308	0.62	-	1,598	0	1,807	0
5	Karachgam	Rural	1,961	4.26	460	1.15	-	2,965	0	3,351	0
6	Khadoli	Rural	3,350	7.75	432	1.97	-	5,079	0	5,741	0
7	Kherdi	Rural	3,148	8.16	386	1.85	-	4,769	0	5,391	0
8	Parzai	Rural	1,260	4.70	268	0.74	-	1,908	0	2,156	0
9	Tinoda	Rural	624	3.71	168	0.37	-	954	0	1,078	0
10	Velugam	Rural	3,106	10.83	287	1.83	-	4,718	0	5,333	0
1	Chauda	Rural	771	3.97	194	0.45	-	1,160	0	1,311	0
2	Goratpada	Rural	259	0.82	316	0.15	-	387	0	437	0
3	Khanvel	Rural	6,168	8.58	719	3.63	-	9,358	0	10,578	0
4	Khutali	Rural	3,259	6.71	486	1.92	-	4,950	0	5,595	0
5	Rudana	Rural	3,067	15.15	202	1.80	-	4,640	0	5,245	0

S. No.	Name of Settlement	TRU	Total Popln	Census Area	2001	Percentage Population		2011		2021	
			2001	sq.km.	Density	Rural	Urban	Rural	Urban	Rural	Urban
6	Shelti	Rural	3,032	11.50	264	1.78	-	4,589	0	5,187	0
7	Talavali	Rural	665	3.85	173	0.39	-	1,005	0	1,137	0
8	Umbervarni	Rural	791	2.81	281	0.47	-	1,212	0	1,370	0
1	Bedpa	Rural	2,246	10.87	207	1.32	-	3,403	0	3,847	0
2	Bensda	Rural	1,562	7.53	207	0.92	-	2,372	0	2,681	0
3	Chinsda	Rural	2,784	10.78	258	1.64	-	4,228	0	4,779	0
4	Khedpa	Rural	1,268	6.40	198	0.75	-	1,933	0	2,186	0
5	Mandoni	Rural	1,656	6.33	262	0.97	-	2,501	0	2,827	0
6	Sindoni	Rural	2,277	11.38	200	1.34	-	3,454	0	3,905	0
7	Vansda	Rural	1,398	8.83	158	0.82	-	2,114	0	2,390	0
1	Ambabari	Rural	330	2.98	111	0.19	-	490	0	554	0
2	Bildhari	Rural	855	7.09	121	0.50	-	1,289	0	1,457	0
3	Dudhani	Rural	2,960	8.63	343	1.74	-	4,486	0	5,071	0
4	Ghodbari	Rural	488	3.41	143	0.29	-	748	0	845	0
5	Gunsa	Rural	1,006	4.20	240	0.59	-	1,521	0	1,719	0
6	Jamalpada	Rural	503	2.30	219	0.30	-	773	0	874	0
7	Karchond	Rural	3,523	14.91	236	2.07	-	5,336	0	6,032	0

S. No.	Name of Settlement	TRU	Total Popln	Census Area	2001	Percentage Population		2011		2021	
			2001	sq.km.	Density	Rural	Urban	Rural	Urban	Rural	Urban
8	Kauncha	Rural	1,258	5.25	240	0.74	-	1,908	0	2,156	0
9	Kherarbari	Rural	385	2.95	131	0.23	-	593	0	670	0
10	Kothar	Rural	40	1.07	37	0.02	-	52	0	58	0
11	Medha	Rural	382	2.58	148	0.22	-	567	0	641	0
12	Vaghchauda	Rural	232	2.36	98	0.14	-	361	0	408	0
	DNH	Rural	170,027					257,794		291,414	
	DNH	Urban	50,463						191,325		480,136
	DNH	Total	220,490	48,890		100.00	100.00		449,119		771,550
	DNH	%age				77.11	22.89	57.40	42.60	37.77	62.23

Source: Regional Plan (2007-2021) of DNH, TCPD and Consultant's Analysis for Populations Projections

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