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ABBREVIATION

A & N	Andaman and Nicobar
APWD	Andaman Public Works Department
CEPT	Centre for Environmental Planning and Technology
CPHEEO	Central Public Health and Environmental Engineering Organization
CRZ	Coastal Regulation Zone
DEWATS	Decentralized Waste Treatment System
DTCP	Department of Town and Country Planning
ECBC	Energy Conservation Building Rules
FAR	Floor Area Ratio
Ha.	Hectare
HNAB	Havelock and Neil Advisory Body
HTL	High Tide Line
IIMP	Integrated Island Management Plan
IL&FS	Infrastructure Leasing and Financial Services
Kw	Kilowatt
Kwp	Kilowatt Peak
IPZ	Island Protection Zone
LPCD	Litres Per Capita Daily
MLD	Million Litres Daily
pph	Persons per hectare
PPP	Public Private Partnership
Sq.km.	Square Kilometre

CHAPTER 1

HAVELOCK & NEIL ISLANDS – AN OVERVIEW

1.1 INTRODUCTION

Havelock and Neil are the two beautiful inhabited islands in the archipelago of 556 islands, constituting the Union Territory of Andaman & Nicobar (A & N) Islands. These two islands offer world class attractions for the tourists, which by and large, continue to survive till date in pristine state. Though, beach attraction in Andaman is not limited to these islands, the beaches here are unusual and spectacular, drawing tourists from far off regions of the globe. Popular beaches, abundance of coral deposits, and dense forests define the geographical setting of these islands. The dense forests and vast seas, house a variety of flora and fauna with significant number of species endemic to these islands.

Havelock and Neil Islands are situated at 39 and 36 km., away from Port Blair, the headquarters of the A & N Islands (Map 1). Daily ferry services are available to these islands. In addition, Sea Plane operates between Port Blair and Havelock Island on all days accepting Sundays in a week. As per the 2011 census, Havelock and Neil Islands account for a population of 6315 and 3040 persons respectively. Geographically Havelock Island is six times bigger than Neil Island. The total area of the Havelock Island is 113.93 sq. km., while the Neil Island extend only for 18.9 sq.km. Forests account for sizable extent of land area in both the islands; 95.6 sq. km., at Havelock Island constituting more than 84 % of land and 6.47 sq. km., at Neil Island constituting more than 34 % of the land. Agriculture is the mainstay of the local people both at Havelock and Neil Islands. Forest based activities also provide occupational support at Havelock Islands.

Havelock is emerging as a very popular destination since mid 90's and about 1000 tourists visit this island every day. The private sector is seen active in Havelock providing accommodation, boarding and transport services. There is a steep increase in the number of lodging houses and resorts constructed in the recent years. Comparatively the tourists to Neil Island are only minimal; on an average only about 300 tourists are visiting this island in a day. Introduction of private cruise boats now bring more tourists to Havelock & Neil islands, and this has also resulted in the increase of lodging and boarding facilities.

Though the size of the local population is small, the growing popularity of these islands in Andaman tourism has brought significant physical development activities in the recent past. These activities if not channelized and regulated could adversely impact the tourism potential of these islands. This Master Plan is to be considered as a tool to promote sustainable tourism in Havelock and Neil Islands, which can benefit the local population and increase the share of tourism sector in the overall economy of the A & N Islands.

This Chapter highlights the existing scenario of Havelock and Neil Islands and analyses the emerging situation in order to arrive at a development strategy as well as a spatial development plan and regulations which are conducive to capitalize the potentials bestowed on these islands by the nature without infringing into the fragile ecological systems, which prevails over these islands.

1.2 LAND

1.2.1 Terrain

Havelock and Neil Islands are only 5 km. apart. However, one has to travel more than 20 km., to reach one island from the other, as boat jetties are located apart in such manner in view of the location of forest lands and coral deposits in the sea. The ferries take about 45 minutes to cover the distance between the islands.

In both the Havelock & Neil Islands, local administration is brought under three gram panchayats, two in Havelock and one in Neil Island. Mild rolling topography, dense mass of canopy trees abruptly raising in the coast to a height of 30 – 40 meters, humid climate and high intensity of rainfall are the characteristics generally associated with Havelock & Neil Islands. Hilly lands are more extensively seen at Havelock Islands, taking away 20 % of the land area in contrast to Neil Island, wherein only little over one percent of the land area is classified as hilly terrain. More than one third of the hilly lands at Havelock Island are situated at Krishnanagar. The land details pertaining to the revenue villages of Havelock and Neil Islands along with the population contained in these villages are presented in Table 1.1 & 1.2 respectively.

Table 1.1 Population and Land details - Havelock Island

Name of the Revenue Village	Population (2011)	Area (ha.)		% of Hilly Lands
		Total	Hilly Land	
Govindanagar	2904	359.67	68.15	18.95
Vijaynagar	1099	292.06	40.47	13.86
Krishnanagar	769	363.24	123.38	33.97
Shyamnagar	906	311.14	71.82	23.08
Radhanagar	637	391.24	34.81	8.90
Havelock Island	**6315**	**1717.35**	**338.63**	**19.72**

Table 1.2 Population and Land details - Neil Island

Name of the Revenue Village	Population (2011)	Area (ha.)		% of Hilly Lands
		Total	Hilly Land	
Neil Kendra	1000	108.31	6.54	6.04
Bharatpur	629	187.92	0.15	0.08
Sitapur	274	555.44	0.98	0.18
Lakshmanpur	382	172.64	7.20	4.17
Ramnagar	755	192.07	0.39	0.20
Neil Island	**3040**	**1216.38**	**15.26**	**1.25**

Both the islands are relatively narrow and long in form having vast tracts of forest lands on one side of the islands. The vegetation, coral reef formations surround these islands at many places. While the physiographic character enhances the value of tourism in these islands, it could also pose challenges to the land use planning.

1.2.2 Land Utilization

In addition to the hilly lands contained in the revenue villages of Havelock & Neil Islands, sizable extent of land is under forests. The characteristics of land utilization within the revenue villages of Havelock & Neil Islands are presented in this section. As seen in Table 1.1 & 1.2, the total land area under the jurisdiction of the revenue villages at Havelock & Neil Islands extent to 1717 hectares and 1216 hectares respectively. Despite tourism gaining momentum in these two islands, the land utilization still presents the character of typical agricultural dominant villages of our country.

Agriculture plays an important role occupying more than 70 % of lands both at Havelock and Neil Islands. Nearly 1300 hectares of lands at Havelock Island and 850 hectares of land at Neil Island remain under agriculture use. The proportion of agriculture lands in the revenue villages of Havelock Island vary between 67 % and 85 %. At Neil Island the same range is between 58 % and 89 %. The proportion of agriculture lands is the lowest at Govindanagar (67 %) in Havelock Island, which is mainly because of the presence of boat jetty here. Residential and commercial forms of development are more notable at this revenue village. At Neil Island, Sitapur record the least proportion of agriculture land (58 %), which is due to the fact that more than 40 % of the area at this revenue village is spread under the forest cover. Land use break up details of Havelock & Neil islands are shown Table 1.3 and 1.4 respectively.

In addition to the spread of reserve forests beyond the territories of revenue villages, forests occupy 9 % and 21 % of the land forming part of revenue villages at Havelock & Neil Islands. Thus, even within the revenue area, forests become the second largest occupant of land. However, more than 85 % of forests in the revenue villages of Neil Islands are concentrated only at Sitapur. In Havelock revenue villages, more than one third of the forests are grown at Vijayanagar.

Table 1.3 Land Use Classification for Havelock Island – 2014

Land Use / Revenue Village	Govindanagar		Vijaynagar		Krishnanagar		Shyamnagar		Radhanagar		Havelock Island	
	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%
Residential	37.52	10.43	11.07	3.79	11.01	3.03	16.58	5.33	15.63	3.99	91.80	5.35
Commercial	21.19	5.89	24.43	8.36	0.54	0.15	1.13	0.36	15.78	4.03	63.07	3.67
Industrial	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.13	0	0.00	0.41	0.03
Public & Semi Pub.	7.04	1.96	7.89	2.70	1.93	0.53	3.07	0.99	4.96	1.27	24.90	1.45
Trans. & Comm.	8.52	2.37	4.57	1.56	5.31	1.46	6.16	1.98	9.30	2.38	33.86	1.97
Recreational	0.92	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.92	0.05
Agricultural	280.45	77.97	197.08	67.48	307.22	84.58	241.03	77.47	297.83	76.13	1323.61	77.07
Forest	0.00	0.00	46.94	16.07	29.44	8.10	37.81	12.15	43.41	11.09	157.59	9.17
Water Bodies	4.03	1.12	0.08	0.03	7.80	2.15	4.94	1.59	4.33	1.11	21.17	1.23
Total	**359.67**	**100.00**	**292.06**	**100.00**	**363.24**	**100.00**	**311.14**	**100.00**	**391.24**	**100.00**	**1717.35**	**100.00**

Residential developments are limited to 5 % and 4 % only at Havelock and Neil Islands. Govindanagar at Havelock Island and Neil Kendra at Neil Island are the only two revenue villages to exceed 10 % of their land under residential use. The residential use is more prevalent at these places as these two settlements are the entry points for their respective islands, having the presence of boat jetties. It may be noted that

nearly half the population of Havelock Island and one third population of Neil Island are concentrated only in the above two settlements.

Table 1.4 Land Use Classification for Neil Island – 2014

Land Use / Revenue Village	Neil Kendra		Bharatpur		Sitapur		Lakshmanpur		Ramnagar		Neil Island	
	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%
Residential	15.55	14.35	8.19	4.36	5.34	0.96	2.67	1.55	16.21	8.44	47.95	3.94
Commercial	8.79	8.12	0.68	0.36	1.30	0.23	7.94	4.60	2.60	1.35	21.31	1.75
Public & Semi Pub.	7.64	7.05	0.79	0.42	0.00	0.00	1.49	0.86	0.38	0.20	10.30	0.85
Trans. & Comm.	6.63	6.12	1.59	0.85	0.81	0.15	3.80	2.20	4.26	2.22	17.09	1.40
Recreational	1.06	0.97	0.47	0.25	0.33	0.06	0.00	0.00	0.00	0.00	1.86	0.15
Agricultural	68.62	63.36	167.86	89.33	324.01	58.33	138.40	80.17	163.12	84.93	862.01	70.87
Forest	0.00	0.00	5.44	2.89	223.43	40.23	18.04	10.45	5.51	2.87	252.42	20.75
Water Bodies	0.03	0.02	2.90	1.55	0.21	0.04	0.28	0.16	0.01	0.00	3.43	0.28
Total	108.31	100.00	187.92	100.00	555.44	100.00	172.64	100.00	192.07	100.00	1216.38	100.00

On an average, about 4 % of the revenue lands at Havelock Island are under commercial use. This percentage is the highest, standing at 8 % in Vijaynagar, wherein most of the hotels and resorts are newly developed. Commercial use is almost negligible at Neil Island, except at Neil Kendra, where the percentage of commercial use is little over 8 %. (Map 2 and Map 3)

1.3 PEOPLE

1.3.1 Population Growth and Size

The population of Havelock Island which was 3681 in the year 1991, had grown upto 6315 by 2011, recording a phenomenal growth of 72 % in two decades. The increasing tourists' flow to the island, which started in 1990s accelerated the population growth. Radhanagar village where the world famous beach is located, recorded a whopping population growth of 138 % during 1991-2001. The second highest growth (76 %) of population during 1991-2001 was recorded at Vijaynagar, where most of tourists' accommodation facilities are developed by the private sector. Havelock Island, which experienced a high growth rate of 45 % during 1991-2001, stabilized in the growth in the subsequent decade (2001-11) recording 18 % of growth (Table 1.5). Shyamnagar is one revenue village to witness high growth rates in decades, 1991-2001 and 2001-11. Nearness to Govindanagar and boat jetty, makes it a preferred location for more people to find their homes here. During 2001-11, 961 persons were added to Havelock population; out of this, 798 persons increase (constituting 83 %) was found only at Govindanagar and Shyamnagar.

The population of the Neil Island is 3040 as per the 2011 census (Table 1.6).The growth of tourism which began at Havelock during mid-1990s, was also seen to happen at Neil Island, but at a slower rate and smaller scale. Neil Island population increased by 23 % during the twenty year period 1991-2011, which was 72 % for the Havelock Island. The growth rate which was 16 % during 1991-2001, reduced to 6 % in the subsequent decade 2001-11. Neil Kendra is the revenue village to have more population in the Island, followed by Ramnagar and Bharatpur. 78 % of the Neil Island population is contained in these three villages.

Table 1.5 Population & Growth Rate at Havelock Island

Name of the Revenue Village	Population			Growth Rate		
	1991	2001	2011	1991-01	2001-2011	1991-2011
Govindanagar	1823	2419	2904	32.69	20.05	59.30
Vijaynagar	564	992	1099	75.89	10.79	94.86
Krishnanagar	618	735	769	18.93	4.63	24.43
Shyamnagar	418	593	906	41.87	52.78	116.75
Radhanagar	258	615	637	138.37	3.58	146.90
Havelock Island	**3681**	**5354**	**6315**	**45.45**	**17.95**	**71.56**

Table 1.6 Population & Growth Rate at Neil Island

Name of the Revenue Village	Population			Growth Rate		
	1991	2001	2011	1991-01	2001-2011	1991-2011
Neil Kendra	866	1064	1000	22.86	-6.02	15.47
Bharatpur	467	564	629	20.77	11.52	34.69
Sitapur	248	267	274	7.66	2.62	10.48
Lakshmanpur	331	372	382	12.39	2.69	15.41
Ramnagar	551	601	755	9.07	25.62	37.02
Neil Island	**2463**	**2868**	**3040**	**16.44**	**6.00**	**23.43**

1.3.2 Density

Gross density of people will be a reflection, not only on the economic character, but also over the quality of life and the environment. But, again the measure of density could be misleading in gauging these elements when more than 85 % of the lands are either under agriculture or forests, as in Havelock & Neil Islands. Therefore, the pattern of concentration of people has been studied on the basis of net densities, arrived as the number of persons living per hectare of residential use lands.

Table 1.7 Net Densities at Havelock & Neil Island - 2014

Name of the Revenue Village	Net Density (pph)	Name of the Revenue Village	Net Density (pph)
Govindanagar	70	Neil Kendra	73
Vijaynagar	120	Bharatpur	53
Krishnanagar	69	Sitapur	57
Shyam Nagar	54	Lakshmanpur	165
Radha Nagar	27	Ramnagar	50
Havelock Island	**62**	**Neil Island**	**63**

Overall, the net densities at Havelock and Neil are nearly the same. Vijaynagar at Havelock and Lakshmanpur at Neil Island are the two revenue villages, recording high levels of net densities, 120pph and 165 pph respectively. Excepting these two villages and Radhanagar the net densities range in all other places at Havelock and Neil Islands range between 50 pph to 73 pph. Radhanagar is the revenue village, where the net density is the lowest (27 pph).

1.3.3 Sex Ratio, Children Population& Literacy

As per the 2011 Census, the Sex Ratio of the Neil Island is 871, which is the same as the respective index for the South Andaman district. However, Havelock shows proportionately of more male population, recording sex ratio of just 807, mainly attributed to the functional character of the island. Increasing tourism activity add more of male migrants and it is to be noted that the sex ratio at Radhanagar and Vijaynagar, where tourists presence are more felt, are as low as 736 and 775 respectively.

The small villages at Neil Island, like Sitapur & Lakshmanpur where the population is still under 400, show higher sex ratios. At Lakshmanpur, where agriculture is predominant function, the ratio is so high standing at 1146. Details regarding the sex ratio are provided in Table 1.8 and 1.9.

Table 1.8 Details of Literacy, Child Population and Sex Ratio – Havelock Island 2011

Name of the Revenue Village	Percentage of		Sex Ratio
	Literates	0 – 6 Population	
Govindanagar	79.55	10.54	798
Vijaynagar	75.16	11.01	775
Krishnanagar	69.65	12.36	894
Shyam Nagar	81.92	10.92	857
Radha Nagar	78.02	8.63	736
Havelock Island	**77.50**	**10.74**	**807**

Table 1.9 Details of Literacy, Child Population and Sex Ratio – Neil Island 2011

Name of the Revenue Village	Percentage of		Sex Ratio
	Literates	0 – 6 Population	
Sitapur	76.64	12.04	916
Bharatpur	75.52	11.13	797
Neil Kendra	76.70	10.90	812
Lakshmanpur	74.87	13.61	1146
Ram Nagar	75.89	12.58	878
Neil Island	**76.02**	**11.81**	**871**

The population in the age group of 0 -6 is considered as children population. In South Andaman district, the percentage of children population is 10 % while Havelock and Neil Islands account 11 % and 12 % respectively.

The level of literacy is also far below than the corresponding measure for South Andaman district. At South Andaman district 88 % of the population are literates while Havelock and Neil Islands can take the credit only for 78 % and 76 % of the population respectively.

1.4 ECONOMY

Extent of peoples' participation in economic activities is a broad indicator showing the strength of economy. At Havelock, 37 % of the population is engaged in economic activities as main workers. This measure is one percent higher than percentage of main workers at South Andaman district, wherein both Havelock and Neil islands are located. During the census 2001 and 2011, percentage of main working population (37 %) remained nearly the same at Havelock Island. However, the percentage has significantly come down to 33 % from 40 % at Neil Island which is mainly due to the fact that notable number of workers did not find regular employment both in farm and service sectors, which has brought down the percentage of main workers but significantly increased the percentage of marginal workers.

Traditionally, agriculture & fishing had been the main source of livelihood at Havelock & Neil islands. However, the growth of tourism industry in general and more particular at Havelock Island has started attracting sizable number of tourist population to this picturesque island since late 90's, which has resulted in gradual shift in the occupational pattern. In the period 2001-11, the number of 'other workers' (includes mainly tourism related employment) has increased by 527 at Havelock Island. This is to be seen in parallel to the decline in the number of 'cultivators' by 160 persons during the same period. Notably Vijaynagar revenue village, where the most of tourist accommodations have been developed in the recent past alone had accounted for decline of 145 cultivators during 2001-11. In terms of percentage, the cultivators have come down from 41 to 28 % while the 'other workers' have increased from 55 to 69 % at Havelock Island. Increase in tourism activities has seen manifold increase in land value across Havelock Islands, and cultivators are prompted to discharge their lands for huge onetime benefit.

More than 80 % of employment at Govindanagar, (place of arrival of tourists) and Radhanagar (location of the world famous beach) is sustained only through services rendered to the tourist population. The agricultural dependence in these villages has come down to 17 and 19 % respectively by the year 2011.

Though the development and growth of tourism at Neil Island is visible, the intensity and scale of tourism is much lower in comparison with Havelock Island. Agriculture dependence is seen among 65 % of workers at Neil Island, while the respective measure for Havelock Island is only 30 %. However, it is observed that there is a fast reduction of cultivators is seen at Neil Island. During 2001-11, decline in number of cultivators is higher than Havelock Island, standing at 181. Growth of tourism sector is also not that intense here compared to Havelock Island, resulting in increase of agricultural labourers from 73

to 268. In terms of percentage, the cultivators have come down from 49 to 38 % while the 'agricultural workers' have increased from 6 to 27 %.

Table 1.10 Percentage Change in Employment Pattern

Particular	Havelock Island		Neil Island	
	(2001)	(2011)	(2001)	(2011)
% of Main Workers in total population	36.55	36.80	40.24	33.03
% of Cultivators among Main Workers	40.93	27.67	48.61	37.85
% of Agri. Labourers among Main Workers	3.57	2.84	6.33	26.69
% of Other Workers among Main Workers	55.05	69.15	44.37	35.06
% of Marginal Workers in total population	15.63	5.51	4.39	16.84

Table 1.11 Changes in Employment Pattern

Particular	Havelock Island		Neil Island	
	(2001)	(2011)	(2001)	(2011)
Total Population	5354	6315	2868	3040
Main Workers in total population	1962	2324	1154	1004
Cultivators among Main Workers	803	643	561	380
Agri. Labourers among Main Workers	70	66	73	268
Other Workers among Main Workers	1080	1607	512	352
Marginal Workers in total population	837	348	126	512

Table 1.12 Occupational Pattern among Main Workers at Havelock Island

Name of the Village	Percentage of							
	Cultivators		Agricultural Labourers		Workers in Household Industry		Other Workers	
	2001	2011	2001	2011	2001	2011	2001	2011
Govindanagar	19.66	16.80	3.86	1.15	0.57	0.44	75.91	81.61
Vijaynagar	69.45	46.34	3.74	4.88	0.88	0.00	25.93	48.78
Krishnanagar	60.48	52.26	7.11	4.12	0.00	1.23	32.41	42.39
Shyam Nagar	53.37	34.22	0.56	7.97	0.00	0.00	46.07	57.81
Radha Nagar	33.67	18.57	0.00	0.36	0.00	0.00	66.33	81.07
Havelock Island	**40.92**	**27.67**	**3.57**	**2.84**	**0.46**	**0.34**	**55.05**	**69.15**

Table 1.13 Occupational Pattern among Main Workers at Neil Island

Name of the Village	Percentage of							
	Cultivators		Agricultural Labourers		Workers in Household Industry		Other Workers	
	2001	2011	2001	2011	2001	2011	2001	2011
Sitapur	75.65	65.17	2.56	19.10	0.00	0.00	21.79	15.73
Bharatpur	46.24	82.36	26.59	5.88	0.00	0.00	27.17	11.76
Neil Kendra	17.16	6.86	4.51	38.73	0.00	0.24	78.33	54.17
Lakshmanpur	70.86	59.68	2.29	8.87	0.00	0.81	26.85	30.64
Ram Nagar	77.89	46.21	0.35	28.41	2.81	0.76	18.95	24.62
Neil Island	**48.61**	**37.85**	**6.33**	**26.69**	**0.69**	**0.40**	**44.37**	**35.06**

Increase in the number of tourists in the recent years at Neil Island, is yet to create a significant impact in the composition of employment. Sitapur, Bharatpur and Ramnagar still continue to be largely agricultural dependent wherein 75 to 89 % of the main workers function as cultivators or agricultural labourers. Only at Neil Kendra, where the boat jetty is located has more than 50 % of the main workers are supported by non-agricultural activities.

The Study undertaken by the IL&FS on behalf of the Ministry of Tourism, Government of India has identified Port Blair – Neil – Havelock – Little Andaman as the Priority Circuit for development in the A & N Islands.

Havelock is, by far, the most popular island among foreign tourists closely followed by the Neil Island. There are three beach attractions bringing visitors to the island, each at Havelock and Neil Islands namely Kalapatthar, Elephanta and Radhanagar beaches at Havelock and Bharatpur, Lakshmanpur and Sitapur beaches at Neil. The beaches at Neil Island are equally absorbing as the ones at Havelock, as they are much quieter and feel secluded. The famous Radhanagar Beach at Havelock was voted by Time Magazine as one of the Asia's most beautiful beaches in the year 2004.

1.5 SERVICES

1.5.1 Water Supply

Havelock and Neil Islands depend largely on rainwater. A check dam constructed across the Krishnanagar Nallah is the major source of water at Havelock Island with the total water availability of 0.59 MLD. Water from this source is pumped to treatment plant at Shyamnagar and then supplied to public through public taps. Radhanagar and Bamboo Nallah are the two other minor water sources with the capacities of 0.30 MLD and 0.12 MLD of water respectively. Hotels and Resorts use underground water. Water is supplied to the residents on alternate days. Dug wells are the only water resource for Neil Island with a yield of 0.18 MLD of water.

Table 1.14 Water Sources for Havelock & Neil Island

Sl. No.	Source	Water Available (MLD)	Water Withdrawal (MLD)
1	Krishnanagar Nallah (Havelock)	0.59	0.55
2	Radhanagar (Havelock)	0.30	0.10
3	Bamboo Nallah (Havelock)	0.12	0.10
4	Wells (Neil)	0.18	0.12

The total quantum of water available exceeds the quantum of water withdrawal by 0.26 MLD and 0.06 MLD at Havelock Island and Neil Island respectively. While water supply at Neil Island is estimated (without any adjustments for water loss) to be around 40 lpcd, which just meets the minimum level of water supply, as prescribed by the CPHEEO, Ministry of Urban Development, Government of India. The water supply is estimated at a much higher level of 120 lpcd at Havelock Island. Table 1.14 provides the details of water availability and withdrawal at Havelock and Neil Island.

1.5.2 Waste Management

There is no sewerage system in place for the small populations at these islands and they are left to manage things in their own. Toilet facilities within the premises is absent for most of the local population, as function and lifestyle of the local population is only rural in these islands. Systems of individual and combined septic tanks are in use at some places of these Islands. The natural terrain and the size and form of Havelock and Neil Islands help in draining of rainwater quickly.

Havelock and Neil Island do not have proper solid waste collection and treatment system, except the one dumping yard at Radhanagar. Solid waste is disposed either in the front or the rear yard of each house. The settlements of population concentration, like Govindanagar (Havelock) and Neil Kendra (Neil) already faces the problem of waste management, and dumping of waste are seen in public places. The unmindful dumping of waste is a potential threat not only for the air quality but also the soil and underground water quality.

At the average generation level of 400 gm. of per capita waste, it may be estimated that around 2.5 metric tonnes of garbage will be generated daily at Havelock Island. However, the actual waste generation stands much higher at 4 to 4.5 tones, which is mainly due to the large quantum of waste generated by the hotels and restaurants, catering the tourist population. These wastes mainly comprise PET bottles, glass bottles, cans & tins and kitchen waste. The hotels by and large segregate the waste, and the recyclable waste are collected by the dealers and sent to mainland for recycling.

1.6 SOCIAL INFRASTRUCTURE & OTHER FACILITIES

Educational facilities are provided by the Administration upto the level of Higher Secondary education both at Havelock & Neil Islands. Only for higher education, the students need to move out of the islands. The detail of the educational institutions available is furnished in Table 1.15.

Table 1.15 Details of Educational Facilities at Havelock & Neil Island

Sl. No.	Source	Havelock Island	Neil Island
1	Primary School	4	1
2	Middle School	1	1
3	Senior Secondary School	1	1

Table 1.16 Details of Health Facilities at Havelock & Neil Island

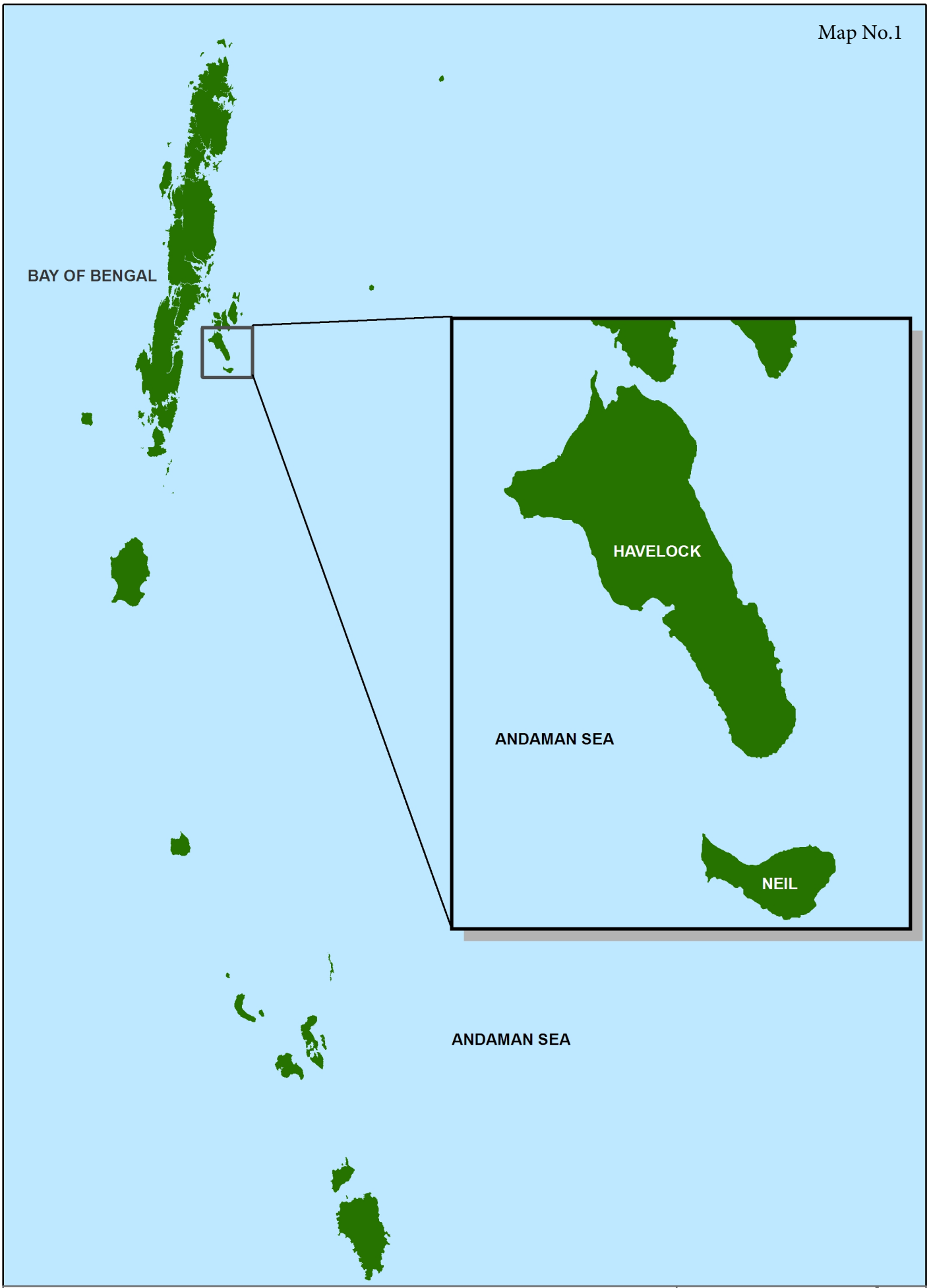
Sl. No.	Source	Havelock Island	Neil Island
1	Primary Health Centre	1	1
2	Sub Centre	2	1
3	Doctors	1	1
4	Nurses / Midwives / LHVs	9	7
5	Para Medical Staff	21	17
6	Bed Strength	10	10

Table 1.17 Details of Other Facilities at Havelock & Neil Island

Sl. No.	Source	Havelock Island	Neil Island
1	Sub Post Office	1	1
2	ED Branch Post Office	2	2
3	Co-operative Bank	1	1
4	Fire Station	1	1
5	Police Station	1	1

Basic health care facilities are also provided by the Administration satisfactorily. Generally, the accessibility & availability of the educational and health institutions are adequate. However, the emergency & specialized patient care facilities are totally absent, which acts as a deterrent for tourism development. The detail of healthcare facilities and other facilities available are provided in Table 1.16 and 1.17 respectively.

Map No.1



LOCATIONOF HAVELOCK AND NEIL ISLANDS

MASTER PLAN FOR HAVELOCK AND NEIL ISLANDS - 2034

0 15 30 60 90 KM

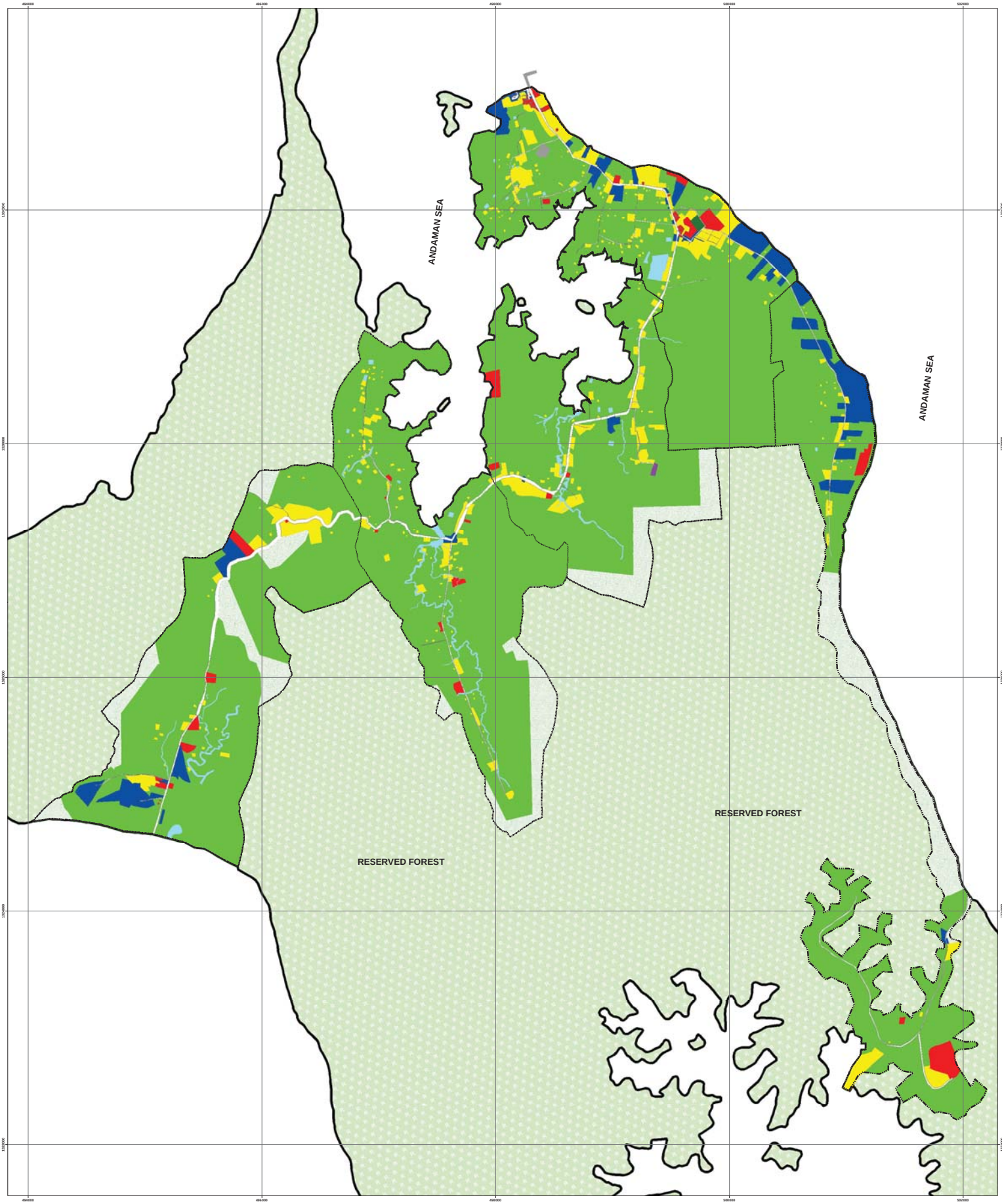
N

CLIENT
Andaman Public Works Department
A & N Administration, Port Blair

APWD

CONSULTANTS
School of Architecture & Planning
Anna University, Chennai-25

12



HAVELOCK AND NEIL ISLANDS

HAVELOCK ISLAND

LEGEND

- Residential
- Commercial
- Industrial
- Public & Semi-Public
- Transport & Communication
- Recreational
- Water bodies
- Agricultural
- Reserved Forest
- Other Forest
- Mangroves
- LPA Boundary
- Village Boundary
- Survey Boundary
- Roads

0 200 400 800 1,200 1,600 2,000 Meters

PROJECTION SYSTEM : UTM
DATUM : WGS84
SPHEROID : WGS84
ZONE : 46

DATE JUNE 2014

ISLAND NAME HAVELOCK

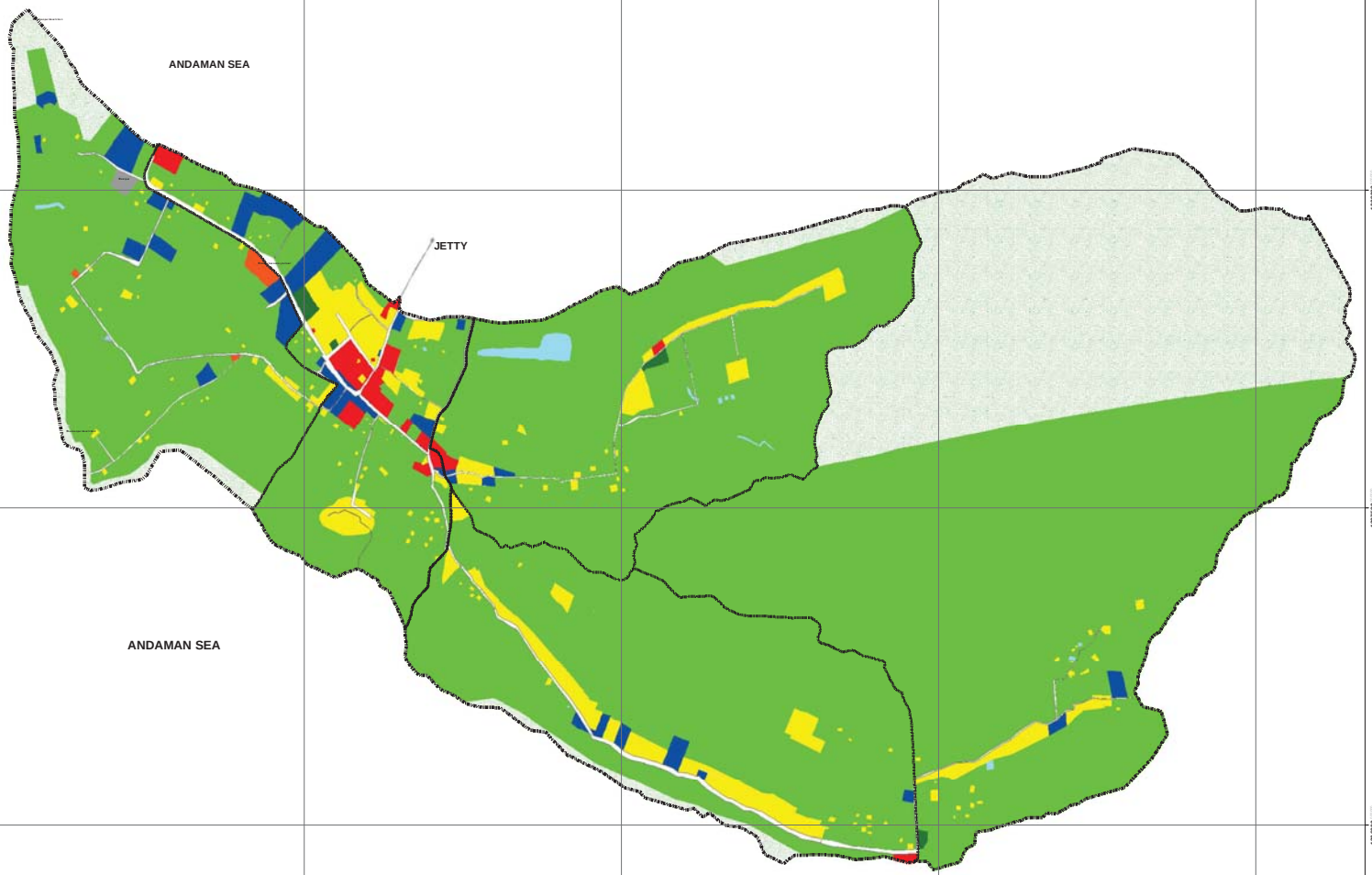
N

CLIENT Town and Country Planning Unit
Andaman Public Works Department
A & N Administration, Port Blair

APWD

CONSULTANTS School of Architecture & Planning
Anna University Chennai

EXISTING LANDUSE 2014 - HAVELOCK ISLAND
MASTER PLAN FOR HAVELOCK AND NEIL ISLANDS -2034



HAVELOCK AND NEIL ISLANDS

NEIL ISLAND

LEGEND

- Residential
- Commercial
- Public & Semi-Public
- Transport & Communication
- Recreational
- Water bodies
- Agricultural
- Reserved Forest
- Other Forest
- Mangroves
- LPA Boundary
- Village Boundary
- Roads

0 145 290 580 870 1,160 1,450 Meters

PROJECTION SYSTEM : UTM
DATUM : WGS84
SPHEROID : WGS84
ZONE : 46

DATE: June 2014

ISLAND NAME: NEIL

N

CLIENT: Andaman Public Works Department
A & N Administration, Port Blair

APWD

CONSULTANTS: School of Architecture & Planning
Anna University Chennai

EXISTING LANDUSE 2014 - NEIL ISLAND
MASTER PLAN FOR HAVELOCK AND NEIL ISLANDS -2034

CHAPTER 2
DEVELOPMENT APPROACH

2.1 PURPOSE OF MASTER PLAN

The ecosystem prevailing over the Havelock and Neil Islands are complex, and intricate. The absolute beauty of these islands attracts tourists in large numbers, creating vast scope for tourism development, better employment opportunities and growth of economy. Physical developments, mainly by the private entrepreneurs are active in order to capitalize on the increasing tourist flow. Such developments have to confirm to the limits of carrying capacity and if not regulated could heavily damage the fragile nature of the ecosystems which may cause tourists losing interests over these islands. Therefore, it is imperative that the master planning exercise focus not only on capitalizing the prospects of tourism sector, but also on sustaining the prospects over long time. In addition, the Master Plan is expected to protect the interests of the local residents and help them to share the benefits of tourism development in these islands.

Achievement of these priorities would require identification of necessary physical development projects, allocation of land parcels for various functional activities and necessary regulating mechanism for land and building development. Master Plan for Havelock and Neil Islands propose to serve the above requirement as it is set to be the statutory instrument under the 'Andaman & Nicobar Islands Town and Country Planning Regulation, 1994' which states that 'no development of land shall be undertaken or carried out in any development area by any persons or body (including a department of Government or the Administration) unless permission for such development has been obtained in writing from the Town Planner.

Assessment of existing conditions at Havelock & Neil Islands suggests the need for strengthening basic facilities and services, which caters to the local population along with the development of necessary tourism infrastructure. Employment opportunities accruing through development of tourism sector should help the local population to enhance their income levels and quality of life. The purpose of the Master Plan is to serve in these lines, with the specific objectives as listed below.

- To enhance the level of basic services and facilities delivered for the local population.
- To develop self-sustaining communities in these islands, through expansion of employment opportunities in the traditional and new forms of employment.
- To draw policies/regulations for sustaining a pristine environment and promote sustainable tourism in these islands.
- To develop a world class tourists' infrastructure, offering a unique and inexplicable experience which can attract high value tourists, with minimal ecological footprints.
- Focus on attractions which are natural and developed in compatible with the fragile eco system.
- To encourage orderly spatial development keeping in view of the need for sustainable tourism development in these islands.

Essentially this Master Plan will be a blue print for development, which would guide development along desired lines for a particular horizon year. This Master Plan for Havelock and Neil Islands is set to be a Perspective Plan for 20 years laying down regulations for land development & identify the physical development strategies/projects to be implemented in a phased manner. These proposals would aim to serve the aspirations of the present population, satisfy the needs of future population in the plan period and also cater to the comforts and joy of the tourists' population.

2.2 DEVELOPMENT CONCEPT AND APPROACH

Capitalizing and sustaining the prospects of tourism will be the key to development of Havelock and Neil Islands. A development concept is evolved both for Havelock Island (Map 4) and Neil Island (Map 5), as part of the Master Plan which translates the various inventiveness proposed, over the geographical space of the islands, which is fundamental to the development approach conceived and elaborated in the following sections of this chapter.

2.3 LAND

2.3.1 Land Use Zoning

Availability of land is limited, which leads to its fullest exploitation to achieve maximum economic gains. However, such a scenario may not well augur for the sustainable development of these islands and hence the Master Plan proposes to adopt the approach of 'land use zoning', through which all the lands in Havelock and Neil Islands are brought under certain category of land use zone.

Over 900 hectares of lands within the revenue villages of Havelock Island are under agriculture use. In addition to this, more than 500 hectares of land are under forests. Together, agriculture and forests lands account for 87 % of the total area (17.17 sq.km.) of the five revenue villages of Havelock Island. At Neil Island, agriculture and forests lands constitute 47 % each, of the total area, which means 94 % of the total area of the island is sensitive to development. The pressures of population growth and especially the expected growth in the tourism sector are likely to consume considerable portion of lands for development, if not regulated and left to the market mechanism. Further, unless the disposition of land for development is not planned and regulated the objective of sustainable development could not be realized.

Therefore, Master Plan would not only bring all the lands in the island under various land use zones, but also specify the nature and extent of development permissible under various land use zones. The idea of land use zoning, would not only help to protect the environmentally sensitive areas of the islands and fertile agriculture lands but also ensure, preservation of open spaces, and orderly physical developments which would collectively enhance the value of land, improve economy and quality of life of the people.

2.3.2 Regulation on Coastal Lands

The Central Government with the view to ensure livelihood security to all the people living in the coastal areas, to conserve and protect coastal stretches and also to promote development to sustainable manner based on scientific principle taking into account the dangers of natural hazards in the coastal areas, sea

level rise due to global warming, has declared the coastal stretches of the entire Andaman & Nicobar Islands and water area upto territorial water limit as the Island Protection Zone and a separate Island Protection Zone Notification has been issued in the year 2011. Under this Notification, two separate approaches for environmental management in the Andaman & Nicobar Islands have been envisaged. One is in the form of Island Coastal Regulation zone (ICRZ) for ten major islands namely North, Middle, South Andaman, Baratang, Long Island, Little Andaman, Havelock, Neil Island, Car Nicobar and Great Nicobar and in the form of Integrated Island Management Plan (IIMP) for all the rest of the islands. The coastal areas of the islands coming under the scope of ICRZ are classified under four categories such as ICRZ – I, ICRZ – II, ICRZ – III, ICRZ-IV. Under these categories, areas upto 200 mtrs. from HTL on the landward side have been earmarked as No Development Zone (NDZ) and no new constructions are permitted within 200 mtrs. from HTL. The Ministry of Environment & Forests in the amended IPZ Notification issued in the year 2013 has allowed for the development of eco-tourism activities from 50 mtrs. of the HTL in the ICRZ-III areas. In ICRZ-II and ICRZ-III the area between 200-500 mtrs. buildings are permitted subjected to local town and country planning rules. The water area from the low tide line to 12 nautical miles on the seaward side has been categorized as ICRZ-IV.

The IPZ Regulations have been framed with the objective of ensuring the livelihood security of the local communities, conserve/protect coastal stretches and promote sustainable development which are very much integral part of this Master Plan. Hence, this Master Plan proposes to adopt the approach of IPZ, and incorporate these provisions in granting permission for development as per the provisions contained under ICRZ/IIMP.

2.3.3 Spatial Organization of Land Use Zones

Land use planning refers to the way we plan the physical layout, or land use, of our communities and it is an essential component of a long term spatial planning exercise. One of the challenges in land use planning is the presence of long coast line in these islands. Beaches and vegetation along the coast line are the common features of these islands, which attract the tourists'. Further, developments along the coast could possibly pollute and damage the richest coral reef ecosystem. The coral reef structure acts as natural barrier and buffers shorelines against waves, storms and floods, preventing damages. Moreover, the coastal zone is always vulnerable for natural disasters. Hence, the planning approach would negate residential & commercial zones along the coast line.

2.3.4 Green Buffers

Sustainable tourism not only means sustaining the tourists' interest or the value and volume of the tourists, but also means a minimal impact over the environment and generation of employment for the local people in the tourism sector. Island tourism will be the most fragile and sensitive form of tourism and hence the development approach would promote eco tourism, in an attempt to achieve sustainable development.

Vegetative buffers between environmentally sensitive areas or hotspots and areas of development can be useful in minimizing the negative impacts of developments. Therefore, wherever these kinds of buffers are naturally available in the form of forests / mangroves, Master Plan would protect these buffers. Further, these green buffers can help to generate interests among the tourists and develop island tourism more in the sustainable perspective. Therefore, the development approach conceives the main transport

corridors of Havelock and Neil Islands travelled by the tourists as Eco corridors, and proposes to develop a green buffer zone along these corridors. The existing road network at Havelock and Neil Islands is shown in Map 6 and the Map 7 shows the proposed Eco Corridor at these islands. Considering the paucity of land for development at these islands, the width of these buffer zone are kept at a minimum of 3m. on either side of the road at Havelock and Neil Islands.

2.3.5 Size & Location of Residential Use Zone

Land use planning proposals, do have a larger socio-economic impact over the people. Parcel of land becoming eligible for one or more specified use, considerably alters the functional characteristics of the land and its economic value. Opening up of more than required lands for development, could result in speculation and delay the development process. It is also possible that in such cases, the developments occur sporadically and more investments will be required for the delivery of services. Therefore, the Master Plan proposes to achieve compact and clustered development, around the existing / new locations of settlements. Considering these points, Master Plan proposes to bring 1.5 times to 1.75 times of additional lands required to maintain the present level of densities (during the plan period) under residential zone, so that sporadic developments are minimized.

2.4 PEOPLE

2.4.1 Population Projection

An assessment of population number is made in this section, which will further help to carry out the demand assessment for evolving the plan proposals. Tourism being the main function & character of these islands, the share of tourists' population is likely to be significant. Hence, population projection for the plan period is carried out separately for the local resident population and the tourists' population.

2.4.1.1 Resident Population

Population projection is a difficult task, for islands like Havelock and Neil, which reflects no temporal pattern or uniformity within the areas contained in these islands. During 1991- 2001, the Havelock & Neil Islands recorded population growth of 45 % and 16 % respectively. In the subsequent decade 2001-11, the growth rates of these two islands came down drastically to 18 % and 6 %. In the twenty year period 1991-2011, the population had grown by 72 % at Havelock Island and 23 % at Neil Island, which works out to be 3.6 % annual growth for Havelock Island and 1.2 % for Neil Island.

The high growth rate of 3.6 % is largely attributed to the growth of tourism industry at Havelock, which is not expected to continue at the same level for the next twenty years, in spite of impetus gained by the sector. However, it is desirable to project the population at this same rate of growth as it is targeted to achieve 5000 tourists' population visiting this island on every single day. The Neil Island is also targeted to receive 2000 tourists daily in the next twenty years and hence it is expected to exceed the present annual growth rate of 1.05 %, drawing in-migrants to provide services for the tourists' population.

Under these considerations, the population for Havelock & Neil Islands have been projected at the rate of 2.75 % and 1.50 % annual growth under the geometric projection method and the same are presented in Table 2.1.

Table 2.1 Projected Populations for Havelock & Neil Island

Name of the Island	2021	2031	2034
Havelock Island	8283	10864	11786
Neil Island	3528	4094	4281

2.4.1.2 Tourist Population

As mentioned earlier, since mid-1990's tourism has been on the rise at Havelock Island and in the last two years the growth has been very significant. Increase in the tourist population has already led to intensive physical developments catering to the various needs of the tourists. Further the Administration has also been considering and started to implement measures which would help to attract more tourists. In view of these, not only the tourists' number is expected to increase in future, but also the duration of their stay is bound increase. It is expected in the next 20 years, Havelock and Neil Islands are to receive at least 5000 and 2000 tourists respectively on each day and the average duration of stay would increase to a minimum of 2 days. In such case, there would be 10000 tourist population at Havelock and 4000 tourist population at Neil Island, on any single day in addition to the projected resident population of about 12000 and 4300 respectively by the year 2034.

Master Plan proposes to adopt an approach that would not only help to develop and sustain the islands in the form which continue to attract tourists, but also meet the aspiration of the local residents, help to improve their economy, taking advantage of the anticipated growth in the tourism sector. Within the above approach, specific objectives have also been listed in section 2.1. Development approach to be adopted with regard to people perspectives are discussed in this section.

2.4.2 Implications on changing Demographic Patterns

Support population for the tourism industry cannot be provided by the local population alone, in view of its limited size and skill levels. Therefore, notable in-migration is expected to Havelock & Neil Islands, mainly from other parts of A & N Islands. This population will be in employable age group and young, moving into islands mostly in singles. This may alter the pattern of age distribution of the population, sex ratio, proportion of workforce in the islands, and especially in the tourism dominated revenue villages like Radhanagar, where already it could be seen that proportion of children population is lower compared to the other parts of the island.

The alteration in the demographic features as mentioned above, and increase in working population in-migrating to Havelock & Neil Island would enhance the demand for housing, which the local community may find difficult to supply. The Master Plan would look into these perspectives while evolving the development proposals for the islands.

2.4.3 Enhancing the Skill Set of Local Population

Local population to benefit out of growth in tourism industry, need to enhance their skill levels to absorb the opportunities arise in the sector. Exclusion of local community from the main source of occupation may cause social discomfort, which this Master Plan proposes to eliminate. As mentioned in section 1.3.3, the literacy levels at Havelock and Neil Islands are lower than the South Andaman district by more than 10 percentage points. Developments at these islands are proposed to include raising the literacy levels and enhancing the employability levels of the local population.

2.5 ECONOMY

2.5.1 Sustaining the Economic Base

How a community earns for its living, determines the economic base of town / settlement. Tourism and Agriculture will continue to be the backbone of economy at Havelock and Neil Islands during the plan period. It will be the endeavor of this Master Plan to promote tourism, more in a responsible and sustainable manner and eco-tourism, thus leads the way forward. Principles of eco-tourism are proposed to channelize the development approach, conceived by the Master Plan. Multitude of eco-tourism characteristics and elements has been brought by different authors and agencies. However, for the sake adopting a particular line of approach, the four principles of eco-tourism laid out by the Ministry of Tourism, Government of India, are mentioned hereunder.

i) The local community should be involved for the overall economic development of the area.
ii) The likely conflicts between resource use for eco-tourism and the livelihood of local inhabitants should be identified and attempts made to minimize the same.
iii) The type and scale of eco-tourism development should be compatible with the environment and socio-cultural characteristics of the local community, and
iv) It should be planned as a part of the overall area development strategy guided by an integrated land use plan avoiding inter sectoral conflicts and ensuring sectoral integration, associated with commensurate expansion of public services.

2.5.2 Protection of Agriculture Lands

Despite, significant growth of tourism activities in the recent times at Havelock and Neil Islands, agriculture will continue to hold an important share in the economy. As of 2011, around one third and two third of the workers at Havelock and Neil Islands respectively are agriculture dependent. Continuation of their activities in the sector would depend largely on retaining the agriculture lands. Though, the land use zoning proposed in section 2.3.1 would provide the legal instrument for protection of agriculture lands from conversion to other uses, it is necessary to augment productivity levels of agriculture lands through appropriate strategies, as that alone can stop agriculture land owners, succumbing to the pressures of the market economy.

2.5.3 Harnessing the potential of Fisheries Sector

In addition to Tourism and Agriculture, Fisheries is also to be considered a potential sector for generating employment and ensuring sustainable development. Presently, significant number of local fisherman use non-motorized wooden dinghies for fishing, which restricts the scope for deep sea and multi day fishing. The fishermen also do not have facilities either to store or move the catch, in excess of local consumption. Developing Fish landing Centres at Havelock & Neil islands would help fisherman to use bigger mechanized fishing boats and venture into longer duration of fishing and access coastal areas which are not accessed for fishing. Further, establishment of necessary infrastructure for handling, processing, and storage of the catch could help to create more employment and increase the household income.

2.5.4 Promoting Rural Tourism

Regular employment is not guaranteed for the agriculture workers in the farm sector which is the main reason for high proportion of marginal workers in Neil Island. As the regular employment is not assured in the farm sector, the workers are inclined to change, to other livelihood options. Apart from combating the situation through external aides & support, the Master Plan proposes a systematic approach to take advantage of the tourism sector by supplementing and regularizing the employment in the farm sector.

Promotion of 'Rural Tourism', at Havelock & Neil Islands would support more regular employment for the workforce and also support sustainable development of these islands, as rural tourism is considered to be a kind of eco-tourism. Rural Tourism allows the creation of an alternative source of income in the agricultural sector for rural dwellers. Rural tourism can showcase rural life, culture of native population and provide the opportunity for the tourists to partake in the agriculture activities, which could be a lifetime experience for most of them coming from urban areas. Cultivators can provide the farm accommodation for the tourists, which not only helping them to increasing their earnings, but also providing auxiliary services for the tourists. Thus, through rural tourism the local community is expected to benefit economically and socially, which would also help retention of agricultural lands even without the support of legal instruments.

In fact, rural tourism is multi-faceted and includes nature tourism and adventure tourism. Havelock and Neil Islands host significant numbers of international tourists' extremely keen on experiencing nature tourism and adventure tourism. Not the regular kind of accommodation and services are sought by this nature of travelers. Accommodation in the midst of agriculture fields and association with the indigenous community for a short period is what the desire of this category of visitors. It is proposed that local communities are enabled and strengthened to provide such support in an organized manner.

2.5.5 Enticing High Value Tourists through Cruise Tourism

Cruise Tourism is defined as travelling for leisure to various destinations on a cruise (luxury) ship, which are not involved in the transportation industry like ferries or cargo ships. A cruise ship is a passenger ship used for pleasure voyages, where the voyage itself and the ship's amenities are part of the

experience, as well as the different destinations along the way. As mentioned, transportation is not the prime purpose, as cruise ships operate mostly on routes that return passengers to their originating port.

Globally, Cruise Tourism has gained a lot of momentum in the recent past, and several new destinations have emerged in the map of cruise destinations. The long coast line, location and spread of many beautiful inhabited and uninhabited islands have been one of the USPs of the Andaman & Nicobar Islands, which offers enormous scope for developing Cruise Tourism in the A & N Islands. Developing Cruise Tourism in the Islands will certainly increase the number of international tourists, and high value domestic tourists, significantly resulting in increased level of per capita expenditure of the visitors. Havelock & Neil Islands are already very popular among the foreign tourists, and a primary survey conducted by EQUATIONS and published in 2008, reveals that more than 55% of foreign tourists visit only Havelock during their trip and 26% visit both Havelock and Neil during their trip to Andamans.

Havelock & Neil Islands cannot be missed out, while proposing for Cruise Tourism in A & N Islands. The gaining popularity of the fully air conditioned merchant vessels 'Makruzz' & 'Coastal Cruz', engaged in marine transport of passengers between Havelock and Port Blair, confirms the scope of developing Cruise Tourism in the islands with Havelock and Neil as cruise destinations.

On the basis of the stakeholders consultation and the recommendation of the Directorate of Tourism, A & N Administration, the Interim Report on 'Identification of Tourism Circuits across India' prepared by the IL&FS on behalf of the Ministry of Tourism, Government of India in the year 2012, has identified Port Blair - Neil - Havelock - Little Andaman as the priority circuit for development. Introducing Cruise Tourism in this Circuit could be the beginning, which has the potential to extent national and international boundaries.

2.5.6 Expanding Attractions / Facilities for the Tourists

Beaches are the main attractions for people visiting Havelock & Neil Islands. Coral Reef Watching and opportunities for Water Sports are the other attractions for the tourists to these islands. However, the entire A & N Islands are bestowed with such treasures at various locations, and it is important that Havelock & Neil Islands are to enhance their capabilities to attract more tourists and sustain the number in the long term. Also, important is to develop a range of attractions, so that visit to the islands does not become monotonous, but constantly inspiring. Tourists' average duration of stay is also bound to increase with increasing number of attractions and level of facilities, ultimately bringing more shine to the local economy.

Further, it is equally or more important to completely revamp the existing tourism infrastructure, as the present condition of these completely fail to convince both the domestic and foreign tourists coming to these islands from far off places. Tourists are invariably tempted to compare the tourists' sites / places, they have visited and recording a lower score on this, will fail to sustain tourism development in the long run.

2.6 SERVICES

2.6.1 Water Supply

In order to sustain the present level of water supply (120 lpcd) by the plan period 2034, Havelock Island will require 1.41 MLD of water to serve the resident population, against the present availability of 1.01 MLD of water. For providing the same level of 120 lpcd for the residents of Neil Island, the water requirement will be around 0.51 MLD against the present availability of 0.18 MLD. Further, development would warrant daily water supply, which is now provided on alternate days or once in three days. While developments relating to water supply, to this extent are to be planned to cater to the needs of the future population, meeting the needs of tourists' population would be a difficult task for the administration.

Hotels and Resorts at present use underground water. But danger waits, when huge quantum of underground water is drawn with increase in tourists' number. Agriculture also consumes high quantum of water drawn through open and bore wells. Excessive use of underground water could result in intrusion of saline water, causing damage over the environmental sustainability of these islands. Under these circumstances, the Master Plan proposes to conserve water and focus on recycle & reuse of water with the participation of the hotel / tourism industry. Tourists' accommodation providers are to plan for their own water needs, without depending upon the administration.

2.6.2 Waste Management

Both solid and liquid waste management measures are yet to be taken up in full, at these islands. As mentioned in section 1.5.2, toilet facilities are not present for most of the local population. This situation cannot be continued permanently, considering the wellbeing of the natural environment, and the kind of tourism development proposed to be achieved in the Havelock & Neil Islands. Therefore, it is proposed that the entire population of Havelock & Neil Islands is provided with toilets connected to individual or combined septic tanks with soaktic.

Islands are adopting different approaches to solid waste management depending on their size, available resources, and the extent and perception of the problem. The approaches may range from fencing a small dumpsite to an island-wide waste separation programme.

The size of the revenue villages in the islands, their spread and availability of lands, suggests that both the solid and liquid waste management measures could be approached more in a decentralized manner. It is proposed to follow such an approach in waste management, by which no waste generated at the islands go untreated. Accordingly, the management measures are to be planned and executed.

Waste management for the tourists' population also needs to be efficient, so that the entire islands sustain not only the natural environment, but also the tourism development. The waste management at the accommodation houses of the tourists is to be handled by the providers of such facilities, individually or collectively. Investors, shaping the built environment for the tourists are to be encouraged to comply with the prescriptions of green buildings.

2.6.3 Electricity

In view of geographical and topographical constraints, including separation by sea of the inhabited villages, there is no single power grid in the islands and instead power houses cater independently to the areas. Two grids connected solar power plants of 50 kwp capacities each, installed at Havelock & Neil Islands in 2004 and 2002 respectively are non-functional due to technical reasons. It is only the diesel power generation house with the installed capacity of 1330 kw and 560 kw function at Havelock & Neil Islands, providing 24 hours of power supply. There are 1281 consumers at Havelock and 665 consumers at Neil Islands receiving the electricity supply from these power houses.

Complete dependence on diesel for power generation, is not the ideal state of affairs, considering the fact that the diesel is not locally available commodity. The Electricity Department of the A & N Administration has drawn the new policy for power generation through new and renewable energy sources in the year 2012 with the main objective of reducing the dependence on conventional sources of power generation, especially from diesel. The policy, mention to consider any registered company, co-operative or registered society desirous of installing systems and generating electricity from new & renewable energy sources such as mini/micro hydro, solar photo voltaic, solar thermal, biomass, wind, co-generation, municipal waste, biogas and ocean. Havelock and Neil islands are to be given priority for establishing such facilities, as the demand for electricity in these islands are to increase manifold in the coming years in view of tourism development.

Already, in the whole of A & N Islands, 52 % of power generated is drawn by the non-domestic, industrial and other bulk consumers. This share of non-domestic commercial consumers is expected much higher (than 52 %) at Havelock & Neil Islands, as tourists population in the next 20 years are projected to be nearly equal to the resident population. In such scenario, the responsibility of conservation of electricity, will largely remain with the service providers of the tourists, including the lodging, and boarding operators. The non-domestic consumers are expected to come with their own plan and arrangement for generating electricity for their use.

2.7 TRANSPORT

Both Havelock & Neil Islands are connected to Port Blair by sea and air. The projected tourists' population would require substantial augmentation of transport facilities between Port Blair and these islands. The cost of augmentation is expected to be huge and it is proposed that the Administration encourages participation of the private sector in this exercise.

Intra Island transport facilities require detailed planning as it is proposed to minimize the adverse impacts over the environment. Already pollution is experienced at Havelock, because of the uncontrolled number of commercial vehicles. At Havelock Island, there are 99 commercial three wheelers and 180 commercial LMV or plying, mainly for supporting tourist population. If the operation of these vehicles are not regulated the number of vehicles are expected to grow proportionally to the increase in tourist population. Therefore, the Master Plan proposes to limit the use of vehicles run by fossil fuels and support transport by non-polluting vehicles, cycling and walking.

Parking is the related issue, to be addressed with priority. Absence of designated places for parking of tourist vehicles leaves the vehicles parked on the road margins and public use areas, causing obstructions for smooth flow of traffic.

2.8 SOCIAL AND INFRASTRUCTURE AND OTHER FACILITIES

While the educational facilities for the present are to be considered adequate for the present both at Havelock & Neil Island, the increase in population during the plan period, would require additional facilities. As far as health facilities are concerned only the minimal services are provided, which is to be considered inadequate considering the importance of the services. Also, the lack of health facilities becomes a major constraint for developing tourism at these islands. As tourism is considered a thrust area for economic development, the Master Plan proposes that the high level of health facilities is established during the plan period.

The facilities like Police Station and Fire Station, which are much essential for the local population as well for the tourists' safety, requires expansion both at Havelock & Neil Islands.

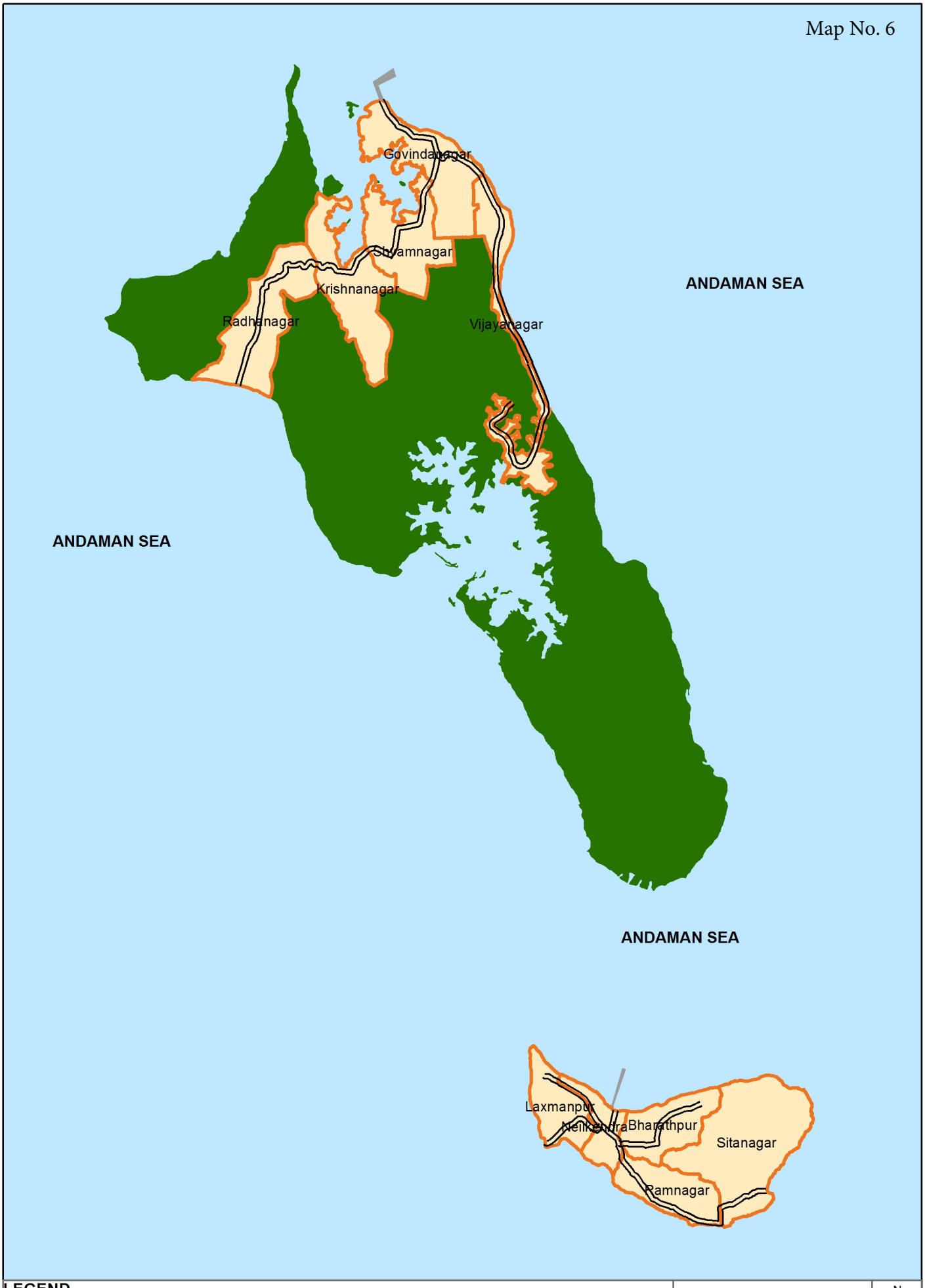
Map No. 4

1. Tourist Pavilion
2. Island Park
3. Boat House at Govinda Nagar
4. Rejuvenation of space around Boat Jetty
5. Boat House at Vijay Nagar
6. Residential neighborhood
7. Coral Museum
8. Shows on Elephant Centre
9. Link Road
10. Existing Road - Proposed for Improvement
11. Forest Trekking
12. View Tower
13. Eco-Friendly Tourist Cottages
14. Budget Accommodations
15. Rural Tourism
16. Dolphin Shows
17. Environmentally Sensitive Area for Protection
18. Beautification of Govinda Nagar Beach

NEIL ISLAND

CONCEPT MASTER PLAN

Map No. 6



LEGEND

EXISTING ROADS

ISLAND BOUNDARY

0 0.5 1 2 3 KM

N

EXISTING ROAD NETWORK

MASTER PLAN FOR HAVELOCK AND NEIL ISLANDS - 2034

CLIENT

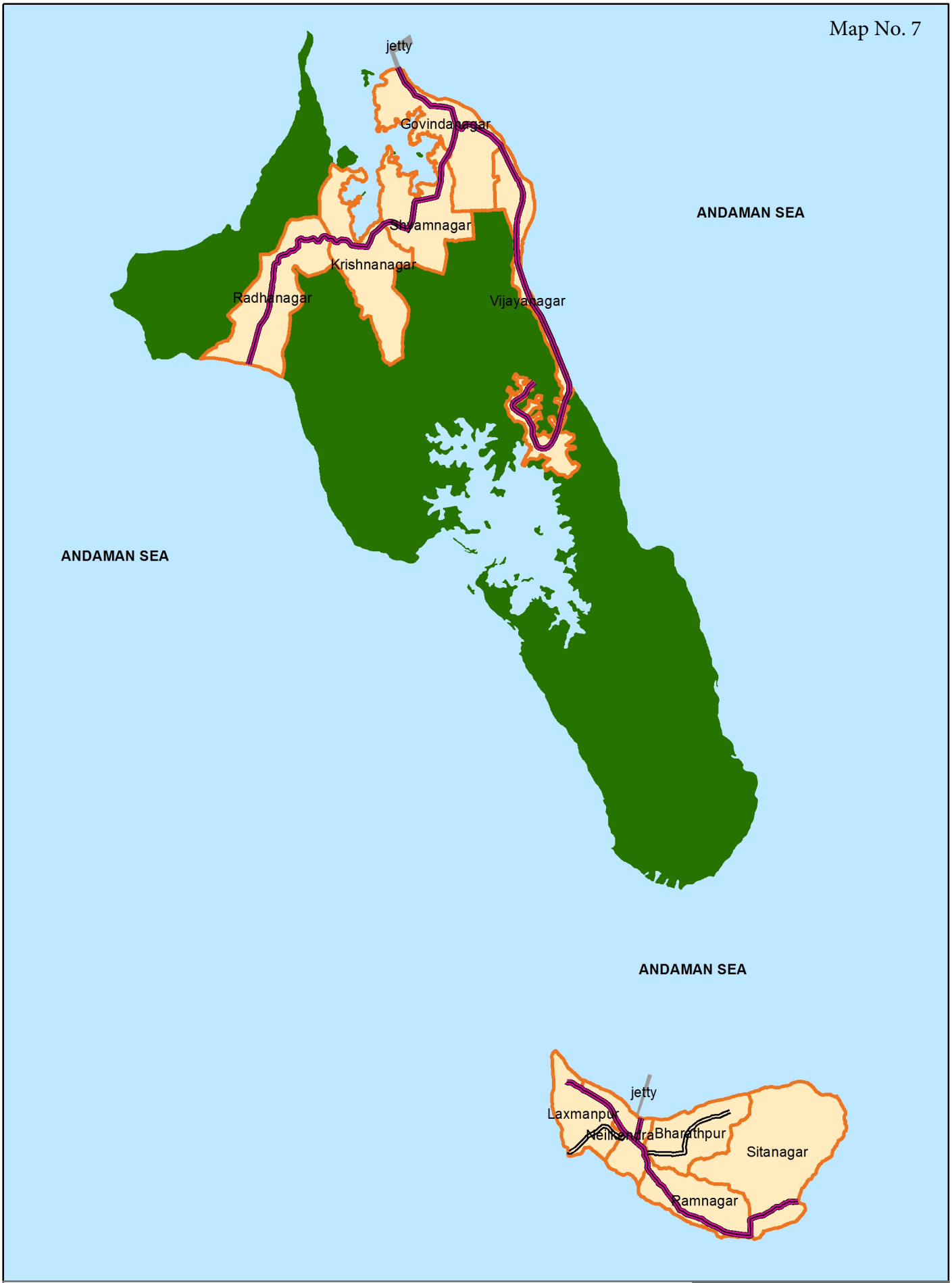
Andaman Public Works Department
A & N Administration, Port Blair

APWD

CONSULTANTS

School of Architecture & Planning
Anna University, Chennai-25

Map No. 7



LEGEND

EXISTING ROADS | VILLAGE BOUNDARY | ECO CORRIDOR

0 0.5 1 2 3 KM

N

PROPOSED ECO CORRIDOR

MASTER PLAN FOR HAVELOCK AND NEIL ISLANDS - 2034

CLIENT
Andaman Public Works Department
A & N Administration, Port Blair

APWD

CONSULTANTS
School of Architecture & Planning
Anna University, Chennai-25

CHAPTER 3
PLAN PROPOSALS

3.1 NATURE AND TYPE OF PLAN PROPOSALS

Development Approach towards fulfillment of the plan objectives has been outlined in the previous Chapter. Further identification of physical development projects & their spatial organization would lead the way forward not only in meeting the interests of the tourists but also the aspirations of the local community and ensure sustainability in socio-economic functioning of the settlements. Compatibility in competing uses of land also needs to be ensured for harmonious development and the Master Plan for Havelock & Neil Islands would attempt to achieve this through proper zoning of land use. Master Plan would also determine the extent of land to be brought under different land use zones on the basis of the projected local population, expected level of tourists and the planning norms suggested by the apex planning bodies. Orderly physical developments are proposed to be achieved through prescription of certain minimum standards in key planning parameters, which will supplement the plan proposals as 'Development Regulations'. These apart, the Master Plan proposals will also include certain policies & programmes, for the consideration of the Administration towards improving the economy and maintaining the ecological balance in the islands. The following sections of this chapter provide the above details.

Infrastructure is the key towards development and an important determinant of the standard of living of the people. The term 'Infrastructure' is wide and covers many things from the local to regional level. The Master Plan for Havelock & Neil Islands draws attention to the basic services of the local population as well the tourists' population which could be sizable and matching in number.

3.2 BASIC SERVICES

3.2.1 Water Supply

Discussion on water supply status in Chapter 2, leads to the conclusion that Havelock Island would require 0.40 MLD of additional water to sustain the present level of 120 lpcd supply by the plan period 2034 for the resident population. By similar standard, Neil Island would require 0.33 MLD of additional water by the year 2034. Provision of water supply to the tourist population at the level 120 lpcd, will add up to the additional water requirement to the level of 1.60 MLD and 0.57 MLD at Havelock and Neil Islands respectively.

Provision of water supply to the resident and tourist population at the minimum level of 70 lpcd, as visioned by the Ministry of Drinking Water & Sanitation and as recommended by the CPHEEO of the Ministry of Urban Development, Government of India require additional water to the extent of 0.52 MLD at Havelock Island and 0.26 MLD at Neil Island. Unaccounted and water loss could further push up the additional need by atleast 10 per cent.

Further, it is to be noted that agriculture which is practiced in sizable extent of lands at Havelock and Neil Islands, consumes large quantum of subsurface water. Modernization of irrigation methods and alignment of cropping pattern with minimum use of water could help to conserve water and its

sustainability for the domestic use. Strengthening of existing small and local level ponds are proposed in addition to creating check dams, where concentrated water flows are more prevalent, which will help watershed development in the islands.

These two islands receive good amount of rainfall for more number of days, and direct use of rainwater, could be a strategy for augmenting utilizable water resources.

Tourism activities demand large quantity of water and they become responsible for increasing withdrawals of underground water. The anticipated level of increase in tourists' will also cause fast depletion of underground water. The blossoming tourism industry at Havelock and Neil Islands is to be encouraged to cut water consumption and improve waste management towards sustainable development of these islands. Tourism Industry consumption if not regulated, it could cause high levels of undesirable impacts over the local communities.

The A & N Administration may serve the water requirement of resident population with priority and help the Tourism Industry to develop the infrastructure required for establishing new water sources and conservation of water. The cost of water supply from the tourism industry is to be fully recovered by the administration. Desalination Plant could be installed to support the water needs of the tourism industry, which would be in a position to meet the cost of water through desalination.

3.2.2 Drainage

As mentioned earlier, the amount of rainfall is good at these islands. However, being surrounded by sea on all sides with natural slope towards the sea, run-off water is proportionately high at both these islands. Harvesting of rain water is proposed to sustain the water table which is depleting fast in view of high quantum of withdrawal for agriculture and use of tourism industry. Use of direct rain water is also suggested in the last section. Channeling rainwater through construction of a proper drainage system is proposed to meet the above requirements.

3.2.3 Waste Management

It is proposed that Waste management exercise is given priority attention both at Havelock and Neil Islands. Deficiencies in waste management will have snowballing impacts over multitude of sectors. Especially, consequences on health, ecology and economy could be highly damaging and irreparable, if timely actions are not taken in this direction.

As mentioned in chapter 1, both solid and liquid waste management measures are yet to be taken up in full, at these islands. In both islands, availability of the toilet facilities for the local population is only minimal. Income in some cases and the lifestyle in others, are the reasons behind people not having the toilet facility of their own. However, considering the number of households it would not be a difficult task to provide individual toilet or community toilet for the entire population in these islands, and also completely ban the open defecation. It is proposed that the households below the poverty line, are financially supported by the Administration to built toilet facilities, if land is available and where land is

not available community toilet facilities could be established. Public toilets are also proposed in all places of tourists' congregation.

Wastewater treatment protects human and environmental health, and therefore it is proposed that the waste water generated at these islands is fully treated and reused to the fullest. There are several options and methods to consider in waste water treatment. As suggested in Chapter 2, decentralized approach in waste management is preferred as it evades resources and impacts of moving the waste to a central location for treatment, considering the distributed nature of communities, land requirement and the environmental sensitivities.

The sewage management through conventional septic tank system though widely popular and used by several communities requires reconsideration for proposing in the islands in view of the prevailing soil conditions, water table, and closeness of the communities to water bodies. The Ministry of Environment and Forests, Government of India has published a compendium on sewage treatment technologies, which gives the fact sheets of different methods. The Administration may also consider, the Decentralized Waste Treatment System (DEWATS) proposed by the Centre for Environmental Planning and Technology (CEPT), Ahmedabad which requires only about 0.25 hectares of land area for establishing the facility for population upto 5,000.

The Hotel Owners Association also to be encouraged to have their own individual / combined wastewater treatment plants and should not be allowed to discharge the waste water in open. Master Plan proposes to conserve water and focus on treatment and reuse of water with the participation of the hotel / tourism industry. Commercial establishments, which are to be considered big in the island context, are proposed to construct their own wastewater treatment facilities.

Solid Waste Issues looms large at these islands, as the volume of wastes have significantly increased over the years with the increasing tourism activities and modernization of life styles of the local communities. Waste from tourism could be nearly twice the rate of local waste generation. Wastes are dumped in open, as the generation is more than the capacity of the local community / administration to manage. The size and function of these islands may also not support full recycling and reuse of solid waste. However, attention is required to be placed on segregation of waste and treatment of biodegradable waste locally. Wastes that are not possible to be recycled and reused locally are to be transferred out of the island, which otherwise would lead to retention of wastes in the islands.

3.3 SOCIAL INFRASTRUCTURE

3.3.1 Health

Considering the isolation of inhabited islands, difficult terrain and communication bottlenecks, the provision of health facilities have been liberal and the norms for establishment of different levels of facilities have been relaxed. As per the relaxed norms Primary Health Sub-Centres are established at a distance of 5 KM and PHCs at 10 KM distance irrespective of population. Though this level of facilities may be adequate for the resident population, the tourists require higher level of health facilities. The high value tourist population at minimum requires 'doctor on call' facilities at the staying places, and emergency medical care facilities of very high order. It is proposed that a working model is developed

with the participation of private sector to establish emergency care hospital at both Havelock & Neil with availability of highly skilled medical practitioners, who could be brought to these islands for short stays capitalizing the tourism attractions present. Such a facility will greatly help the tourists and also facilitate the local population.

Further, it is proposed that 'Air Ambulance' facility is made available to transport the patients (both tourists & locals) from these islands to Port Blair.

3.3.2 Education

Though, the availability of educational institutions are adequate for the present as mentioned in Chapter 1, it would require additional facilities during the plan period, mainly considering the spread of the communities. Establishing 1 higher secondary school additionally at Havelock Island and 2 primary schools at Neil Island are expected to meet the requirements.

3.3.3 Housing

As per the 2011 census, of the 1641 households in Havelock Island 862 of them are housed at Govindanagar, which constitutes 52 %. The nearness to boat jetty and better opportunities for livelihood through business and tourism related activities make Govindanagar as the preferred location for housing. The similar reasons contribute for Neil Kendra in Neil Islands, to house 40 % of the households in the Neil Islands in its territory. Unplanned and organic growth of these settlements, coupled with poor housing conditions and disharmony between the built and the natural environment are discouraging for development of tourism activities. Further, planned and compact development of housing colonies would help providing better quality and level of services, which both the Havelock & Neil Islands very much require.

Therefore, it is proposed that a planned residential neighborhood is developed at Govindanagar providing access to all public facilities. Similarly, a residential neighborhood could be developed at Neil Island, and Bharatpur will be the suitable location, as sufficient extent of lands are available there and also it is located in close proximity to Neil Kendra. It is proposed that the land use planning takes care of compact and clustered development, around the existing and new locations.

Further, it is projected that during the plan period, the arrival of tourists would increase to 5000 and 2000 tourists everyday at Havelock & Neil Islands respectively. The tourists are expected stay for atleast couple of days, and this scenario is expected to create a surge in level of service population, for whom the housing requirement is also to be planned.

Need for rental accommodation could turn to be a new and important issue, where most of the resident population currently lives in their own premises. In many cases, the support population in-migrating to these islands may initially require single rental accommodation. It is proposed that the Administration, may consider a proposal for construction of rental accommodation, including the people working in the private sector. The Administration also need to plan for alternative accommodation for the households, living in areas proposed for developing public and tourists facilities.

3.4 TOURISM DEVELOPMENT

The Economic Survey of A & N Islands 2007-08, published by the A & N Administration has set the vision to develop A & N islands as an up market destination for eco tourists through environmentally sustainable development of infrastructure without disturbing the natural eco systems. In this direction, the Tourism Development at Havelock and Neil Islands is to focus on –

- Achieving Maximum Economic Benefit with Minimal Ecological Impacts
- Increasing tourist flow and extend of stay
- Sustenance of the Tourists interests.

1) Prepare an Action Plan for implementation of the identified Tourism Development Projects in the Master Plan and also identify tourism spots / locations which can attract tourists with minimal interventions. The Action Plan is to draw suitable site locations through scientific and systematic analysis for the various projects identified, prepare cost estimates, suggest financial modeling and develop strategies for project execution and maintenance.

2) International Tourists help to achieve high value tourism with low volume. Havelock and Neil are to become the Face of Andaman Tourism, which will tremendously help attracting foreign tourists. Tourism Department of the A & N Administration need to engage itself with the Tourism Agencies of the other State Governments in the main land, to channel the international tourists to the island.

3) Identification of Port Blair - Neil - Havelock - Little Andaman as the Priority Circuit for development of Tourism, as identified by M/s. IL & FS in its report submitted to the Ministry of Tourism, Government of India (2012) is to be taken further. Tour Operation in such circuit will help to bring more tourists to Havelock & Neil Islands and also save time and energy in transportation of the tourists.

4) Entry to Havelock, which is considered to be paradise on earth, is most uninviting. No billboards to welcome the arrival, or to pronounce the island's treasure or to direct tourists for a greater exploration in store! Therefore, it is proposed to develop a 'Tourists Pavilion' adjoining the Boat Jetty at Govindanagar (Havelock). The tourists on arrival at Havelock will proceed to the Pavilion, which will house tourists information centre, dormitories, cloak rooms, restaurants, clinic, booking centres for hotel / resort / cabs etc.. It could also be the place to begin chartered day tours of the islands. Similar idea of ‘Tourists Pavilion’ is also proposed for Neil Island at Neil Kendra Revenue Village.

5) The immediate surroundings of the boat jetty at Govindanagar is a mix of tourists and local community. Tourists are to receive inviting and absorbing experience on landing at these islands, uninterrupted by the activities of local population, congestion and pollution. The area around boat jetty and the proposed 'Tourists Pavilion, require complete rejuvenation for which a detailed spatial planning is proposed.

6) Govindanagar beach is just adjacent to the boat jetty, where the tourists arrive. Presently, it is the place to stock the commodities for transport, and dumping the waste. Maintaining an unpolluted coastal environment and beautification of this beach, can offer the tourists an enchanting experience within hours of their arrival. Beach / Sea Front developments are proposed not only at Govindanagar but also required at Kalapathar, Radhanagar, Sitapur, Bharatpur, and Lakshmanpur.

7) Corals are seen at low water depths in the vicinity of elephant beach and light house. Corals are seen in naked eyes and snorkeling is more enticing for those, youth in mind. However, not many tourists could experience this, as the travel from Govindanagar to the coral colony in fishing/ fibre boats is considered unsafe, as no licensed boat operators at present. Constructing a Boat House at Govindanagar will help to operate licensed boat services to these coral colonies. Coral colonies are also seen towards the northeast of Havelock Island, beyond the sheet rocks in the coast adjoining Vijaynagar. Boat House similar to Govindanagar is proposed at Vijaynagar, which can help to organize trips for scuba diving.

8) Open spaces and Parks, apart from serving recreational and leisure purposes also help to manage the spillover tourists' population. The Parks also function as intermediary spaces for the tourists, while visiting the various tourists' places. Unfortunately, both the Havelock & Neil Islands do not have any parks, and hence it is proposed to develop one each in these islands, in such a way that they are near to the boat jetties.

9) Scuba diving is a adventurous and famous recreational activity for coral viewing. However, the activity requires physical agility, hence not suited for all categories of tourists. Therefore, a Coral Museum is proposed with exotic varieties of corals very near to the boat house, so that those who do not prefer to go for scuba diving, may still enjoy the wonders of nature in a more convenient setting. An Aquarium could also supplement the coral museum to add more attractions for the tourists.

10) Aerial view of the serene nature of islands will always be shining in memory! Havelock endowed with top class beaches of the world and vast lands of agriculture, plantations and natural vegetation will be absorbing to gaze from an elevation. The maximum elevation of the islands is about 185 metres from the mean sea level and at this point it is proposed to erect a View Tower to earn a spot glimpse of the islands. The tourists can also spot other islands from the tower with the aid of binoculars installed in the towers.

11) A trek path is proposed for a natural trail in the tranquil forest environment to visit the Island View Tower. After having a bird's eye view of the island from the tower, the tourists can descend down in the forest path to the Radhanagar beach. Also, a Tourist Info booth is proposed at the foot of the trek path, where resting lounges, tourists' info booths, restaurant, art culture, internet café are proposed to be made available.

12) Increasing the tourists flow and extending their duration of stay are the focus for development in the Master Plan. Number of proposals are being made in this Master Plan to generate more

interest for the tourists, which can also help to attract more tourists to these islands. It is necessary that the accommodation facilities also become part of tourism elements, and therefore it is proposed that Eco Resorts are encouraged to be established which can have minimal impact on the environment. In this direction, it is proposed that the establishment of eco resorts is not largely seen as a commercially exploiting activity in land use planning.

13) Pleasure of tourism is significantly influenced by the nature and characteristics of the staying places. Different kind of lodging facilities create, range of emotions and tourists are generally sensitive in this regard. The cost of lodging also impacts the number of tourists and the economic level of tourists. Though, the objective of tourism development in the islands is set on 'high value low volume' tourism, it is proposed that enough opportunities are created for all sections of the tourists to enjoy the serenity and the beauty of these islands. In this direction, it is proposed that four types of tourists' accommodation, viz., Dormitories, Budget Lodges, Rural Stay Houses and Eco Resorts are developed at different locations.

While Radhanagar could be the most desired village for establishing eco resorts, Krishnanagar could be the ideal place for promoting budget accommodation and rural stay places. The entry points like Govindanagar in Havelock Island and Neil Kendra in Neil Island are the places where dormitory facilities to come up. In order to encourage eco resorts, the land parcels to be zoned under Open Spaces and Parks could also be permitted to develop such accommodation facilities.

14) Developing Rural Stay Places at Krishnanagar will help developing this village as a centre for 'Rural Tourism'. The habitations, the agricultural fields around and the temples present at Krishnanagar could be well taken advantage of, in this regard.

3.4.1 Guidelines for Eco Friendly Constructions

As Eco Resorts are proposed to be encouraged in the sense that it will cause minimal impact over the environment, caution is to be exercised in granting permission for these tourists facilities. The proposed activity is to be clearly established as eco friendly, and in this regard, it is to be ensured that the proposed eco resorts are designed in harmony with the local natural and cultural environment, using principles of sustainable design; they minimise the use of non-renewable energy resources and minimise the use of non-renewable materials for construction; they use recycled materials where possible; they work in harmony with the local community offering jobs with a wide range of responsibilities and employment; they work to provide benefits to local conservation and offer to educate the visitor about the local environment and culture. Overall, the accommodation they provide, need to be i) part of the experience, ii) an extension of the conservation site, iii) integrated with the surrounding environment, and iv) environmentally sensitive in terms of planning, design and operation.

3.5 TRANSPORT

Havelock Island transport infrastructure includes road, sea and air transport. The sea and air transport connectivity which provides the inter-island linkage, needs further strengthening in order to receive the estimated level of tourists (5000) by the plan period. In this regard, the Directorate of Shipping Services

is proposed to consider introducing more number of luxury ferries in a phased manner. Exclusive ferries for tourists' population may also be considered. Boat Jetty at Havelock Island requires all round improvements and expansion to meet the expected level of tourists and operation of more ferries. The upgradation proposed in waiting, ticketing, parking and wash rooms facilities by M/s. IL & FS in their report (2012) is to be considered in tune with expected level of tourists in the plan period, for implementation.

Boat Jetty at Neil is also proposed for improvements and expansion to meet the demands of increase in number of ferries and tourist in the plan period. Luxury ferries are also proposed to Neil Island which will help more international tourists to visit the island. Directorate of Shipping Services is to consider introducing frequent and local ferry connectivity between Havelock and Neil Islands.

Realization of the plan objectives would further require policy decisions with regard to intra-island transport of the tourists, both at Havelock & Neil Islands. If unregulated, the number of commercial vehicles run on conventional fuels, is estimated to have ten-fold increase by the plan period, to cater to the tourists population which may cause enormous damage to the environment. Therefore, it is proposed to ban the use of commercial vehicles run on conventional fuels, for the transport of tourists and allow LNG, battery operated / environmentally friendly vehicles run on non-conventional fuel by the transport operators in a phased manner.

Convenient Island Shuttle Services, Hop on; hop off bus services, battery operated mini bus services can greatly reduce the dependence on private transport, which can also help to minimize the pollution levels in the island.

Tourism locations and the Transport terminals are required to have proper parking facilities. The lack of parking facilities at Havelock Island, apart from curbing flow of traffic also develops negative impact on tourism. It is proposed that Parking Lots are constructed near to the boat jetties, and beaches of tourists' interest. Parking lots are proposed to be part of development of every tourist destination in the islands.

Further, developing a circuit to visit all tourism location within the islands helps to make tourism interesting and convenient. At Havelock, tourists need to drive back in the same road after visiting Vijaynagar beach. A linkage through the forest to the existing road is proposed, to establish a circuit in the road network. This will help to connect Vijaynagar and Radhanagar directly, reducing the travel distance and time significantly. The link road proposed is to pass through the elevated terrain surrounded by forests, which itself will become a tourism component.

Havelock & Neil Islands having become the favorite tourist destination, the overall condition of the roads are to be improved and widened to facilitate minimum of two way movement of traffic with cycle tracks. The main tourists' corridors (as shown in the maps) are to be widened to the extent of 20 metre in future, which can accommodate four-lane traffic, with provision of cycle track and pedestrian foot path of 2 m. each.

3.6 LAND USE ZONING AND PLANNING NORMS

Master Plan for Havelock & Neil Islands proposes to regulate the physical growth in these islands in an orderly manner by identifying different land use zones which ensure economic viability, environmental sustainability and social stability during the plan period and beyond. Land Use Zoning and Planning Norms are stipulated for various construction and land development activities to serve as effective tools for ensuring an orderly development.

3.6.1 Land Use Zoning

Land use zoning provides spatial segregation of conflicting land uses and increasing positive externalities, because many uses find an advantage in being grouped with compatible land uses. The Master Plan for the Havelock & Neil Islands designate following category of land use zones for regulating wide range of demands in utilization of land for development.

i) Residential (RE)
ii) Commercial (CO)
iii) Public and Semi Public (PSP)
iv) Transportation and Communication (TC)
v) Parks and Open Spaces (POS)
vi) Agricultural (AG)
vii) Special Reservation (SR)

Also, each of the designated zones clearly identify that (a) activities permissible normally, (b) activities permissible with special sanction and (c) activities prohibited. This is to ensure that the developmental activities permissible in each of the land use zones are compatible to the principal land use. In order to facilitate the same the activities permissible under each land use zones are grouped in a hierarchy starting from activities of lower intensity to higher intensity.

3.6.2 Planning Norms for Construction Activity

i) Planning norms for the construction activities identify 7 important planning parameters for consideration. They are minimum plot size, minimum plot frontage, minimum abutting road width, maximum FAR permissible, maximum plot coverage, maximum permissible height and maximum floors permissible. These norms vary for each of the land use zones depending on the requirement, carrying capacity of the land and the infrastructure availability. In addition to the 7 parameters, parameters for setback spaces and parking norms have been spelt and they are commonly applicable to all the land use zones.

ii) The planning norms prescribed also takes into account the need for tree planting, requirements of coastal regulation zone, and requirements for earthquake resistance structures.

(iii) The maximum number of floors & height permissible in the Havelock & Neil Islands are restricted to G+1 floor or 12 m. respectively, by taking into account the peculiar nature of land form, panoramic view points and vulnerability to earthquake.

(iv) The maximum FAR in Havelock & Neil Islands is 125 for Commercial & Residential land use zones and 100 for the public and semi public land use zone. This has been carefully conceived taking into account, the carrying capacity of the islands.

(v) All other norms such as plot size, plot frontage, road width requirements, plot coverage, have been prescribed separately for each of the land uses taking into account the requirements of various activities. They ensure that each of the parcels of land is properly accessed by a public road: and adequate lighting, ventilation, safety, and privacy are ensured for all the developments. Parking norms ensure that the parking requirements are met within the plots under consideration and the burden is not passed to the public roads.

3.6.3 Planning Norms for Land Development

Development of land for residential activities in the form of layout and sub division of land separate norms have been devised. The norms ensure that large scale land developments are in order particularly with regard to the accessibility, hierarchy of roads, reservation of lands for parks and open spaces and civic amenities.

The following chapter on Development Regulations details the land use zoning regulations and planning norms for construction activities and land development in the form of residential and industrial layouts and sub-divisions.

3.7 LAND USE PLANNING

Development approach proposed in the Master Plan and the regulations proposed for physical development necessitates all land parcels in the revenue villages of Havelock & Neil Islands are brought under certain land use zones. Hence lands in these island are classified (survey number wise) under a specific land use zone on the basis of their suitability & potential, to achieve the objectives of the Master Plan. The land use classification and the extent of land made available for various zones, as derived on the basis of the projected population and planning norms are presented in Table 3.1 and Table 3.2.

Table 3.1 Proposed Land Use Distribution for Havelock Island – 2034

Land Use / Revenue Village	Govindanagar		Vijaynagar		Krishnanagar		Shyamnagar		Radhanagar		Havelock Island	
	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%
Residential	95.39	26.52	44.40	15.20	41.73	11.49	87.99	28.28	17.68	4.52	287.19	16.72
Commercial	35.73	9.93	76.01	26.03	19.13	5.27	4.14	1.33	8.43	2.16	144.43	8.35
Public & Semi Pub.	60.20	16.74	60.12	20.58	31.18	8.58	5.98	1.92	5.31	1.36	162.79	9.48
Trans. & Comm.	12.14	3.38	4.57	1.57	5.40	1.49	6.12	1.97	9.30	2.38	37.53	2.19
Parks & O. Space	23.42	6.51	40.96	14.03	0.00	0.00	0.00	0.00	279.64	71.48	344.03	20.03
Agricultural	129.59	36.03	65.99	22.60	229.14	63.08	164.50	52.87	26.69	6.82	615.92	35.86
Special Reservation												
Forest	0.00	0.00	0.00	0.00	29.46	8.11	38.01	12.22	39.93	10.21	107.41	6.25
Water Bodies	3.20	0.89	0.00	0.00	7.20	1.98	4.39	1.41	4.25	1.09	19.05	1.11
Total	**359.67**	**100.00**	**292.06**	**100.00**	**363.24**	**100.00**	**311.14**	**100.00**	**391.24**	**100.00**	**1717.35**	**100.00**

Table 3.2 Proposed Land Use Distribution for Neil Island – 2034

Land Use / Revenue Village	Neil Kendra		Bharatpur		Sitapur		Lakshmanpur		Ramnagar		Neil Island	
	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%
Residential	41.39	38.21	37.42	19.91	16.68	3.00	13.94	8.07	20.98	10.92	130.40	10.72
Commercial	4.57	4.22	0.31	0.17	0.44	0.08	14.36	8.32	8.73	4.54	28.41	2.34
Public & Semi Pub.	14.77	13.64	2.88	1.53	2.21	0.40	7.22	4.18	6.00	3.12	33.07	2.72
Trans. & Comm.	6.61	6.11	1.59	0.85	0.81	0.15	6.56	3.80	4.26	2.22	19.83	1.63
Parks & O. Space	22.11	20.42	62.94	33.49	16.40	2.95	30.74	17.81	0.00	0.00	132.19	10.87
Agricultural	18.83	17.39	74.24	39.51	295.27	53.16	91.31	52.89	152.10	79.19	631.76	51.94
Special Reservation												
Forest	0.00	0.00	5.44	2.89	223.43	40.23	8.03	4.05	0.00	0.00	236.90	19.48
Water Bodies	0.02	0.02	3.11	1.65	0.20	0.04	0.47	0.27	0.01	0.00	3.81	0.31
Total	**108.31**	**100.00**	**187.92**	**100.00**	**555.44**	**100.00**	**172.64**	**100.00**	**192.07**	**100.00**	**1216.38**	**100.00**

The proposed land use plan 2034 for Havelock & Neil Islands are shown in Map No. 8 and 9 respectively. Also the existing and proposed land use maps of the revenue villages in these islands are available at the Town Planning Unit, of the APWD, Port Blair. Some of the salient features of the proposed land use plan are listed below.

i) In addition to the lands under residential use at present, Master Plan proposes to earmark 185 hectares of more lands under residential zone, in order to enhance the quality of housing developments at Havelock Island. This amounts to threefold increase in the residential use area, and nearly 70 % of these additional lands come from Shyamnagar and Govindanagar.

ii) Similarly, at Neil Island also 82 hectares of lands have been additionally brought under residential use zone and nearly 66 % of these lands are from the revenue villages Neil Kendra and Bharatpur.

iii) As tourism is considered as a thrust area for development and employment generation it becomes necessary sizable extent of lands are allocated for commercial use. At Havelock Island 90 hectares of lands have been additionally brought under commercial use zone and the respective addition at Neil Island is 82 hectares.

iv) In order to strengthen the social & physical infrastructure which are fundamental for both local population and tourists, sizable extent of lands have been brought under the Public and Semi Public Use. Addition of lands proposed in public and semipublic use zone is about 138 hectares at Havelock Island, which is showing a six fold increase. The increase at Neil Island is about three fold, where 23 hectares of additional lands are brought under public and semipublic use zone.

v) Land use plan prescribes earmarking of certain lands under the classification 'Parks and Open Spaces' in order to preserve the open and natural spaces which are essential for sustainable development. This could also help in capitalizing the potentials of tourism development. About 20 % and 10 % of the total area at Havelock and Neil Islands are brought under this classification.

vi) The land use plan also protects the forests lands and water bodies, as these lands are brought under 'Special Reservation' classification.

3.8 PROJECTS AND PHASING

Attainment of objectives enunciated in the last chapter of the Master Plan depends on the extent to which the programmes and project proposals identified are formulated as viable projects and implemented successfully. Allocation of public funds in full for the proposals may not be feasible considering competing priorities of the Government. Necessarily private funds are to be channeled and projects are to be phased for realization of plan objectives. However, consuming the entire plan period of 20 years for project implementation is undesirable in order to capitalize the development potential in these islands and also achieve orderliness in development. Accordingly, projects are identified hereunder and categorized in two groups proposed to be implemented in ten years time.

Phase I (2014-19)

1) Augmentation of Existing Water Supply Sources & Preparation of Water Management Plan for both Havelock & Neil islands, identifying the projects necessary for water conservation / recharge & augmentation of water resources.

2) Design & Develop new Water Supply Delivery System in both the islands.

3) Strengthening of existing small & local level ponds to store more water.

4) Construction of Storm Water Drains at Havelock & Neil Islands.

5) Construction of decentralized waste water treatment system (DEWATS), at Govindanagar and Krishnanagar in Havelock Island and at Neil Kendra in Neil Island.

6) Construction of community toilets at revenue villages where households do not possess individual toilet facilities.

7) Construction of modern toilets at all tourism places at Havelock & Neil Islands.

8) Create awareness among the residents about waste management & Launch of segregation of waste at source programme & establish a complete waste management system, drawing suitable plan for Havelock Island.

9) Construction of local level compost yards for treating the bio degradable wastes.

10) Establishment of Sophisticated Emergency Care Hospital at Havelock Island.

11) Construction of Residential Neighbourhood at Govindanagar in Havelock Island and Bharatpur in Neil Island.

12) Construction of Rental Accommodation Building at Shyamnagar in Havelock Island and Bharatpur in Neil Island.

13) Construction of Fish Landing Centres at Havelock & Neil Island.

14) Establishment of Ice Plants and Cold Storage at Havelock & Neil Island.

15) Preparation of an Action Plan for detail planning of various tourism projects identified in the Master Plan and also to suggest a suitable financing and implementation strategy.

16) Tourism Department to get networked with the various State Governments, to bring more foreign and domestic tourists to Havelock & Neil Islands.

17) Promote Port Blair - Neil - Havelock - Little Andaman Circuit Tourism, to help more visitors for the island.

18) Preparation of a Detailed Spatial Development Plan for Govindanagar and Neil Kendra including the boat jetty areas.

19) Beach / Sea Front developments at Govindanagar, Neil Kendra, Kalapathar, Radhanagar, Sitapur, Bharatpur and Lakshmanpur.

20) Boat House construction and operation at Govindanagar and Vijaynagar to visit Coral Colonies.

21) Developing large Island Parks at Havelock & Neil Islands.

22) Formation of 'Trek Path' to the highest point of the Havelock Island.

23) Formulation of 'Rural Tourism Plan', to identify the nature of activities for promotion and their integration with the spatial plan. The Plan may also suggest a suitable plan implementation strategy.

24) Improvements & expansion of boat jetties and enhancement of passenger facilities at Havelock & Neil Islands.

25) Introduction of innovative transport services for the tourists, using alternative non polluting fuel.

26) Formation of Link Road to connect Vijaynagar and Krishnanagar

27) Widening and improvement of the main road network at Havelock and Neil Islands for two way movement of traffic with cycle track and footpath.

28) Improvement of rural road networks at Havelock Island, ensuring better connectivity to the State Highways and establishing critical links in circulation.

29) Extension of rural roads, construction of link roads and general improvements to the rural road networks at Neil Islands.

30) Construction of Parking Lots near the Transport Terminals (Boat Jetties & Helipads), beaches of tourists interest and all places of tourists' interest.

31) Preparation and Implementation of Plan for Phased enhancement of energy generation through non conventional sources, both at Havelock & Neil Islands.

32) To conduct study for establishment of a Marina/Cruise terminal either at Havelock/Neil Islands.

Phase II (2019-24)

33) Establishment a Desalination Plant at Havelock & Neil Islands.

34) Introduction of 'Air Ambulance' Services between Havelock Island and Port Blair.

35) Establishment of additional higher secondary and primary schools at Havelock and Neil Island respectively.

36) Developing a 'Tourist Pavilion' adjoining the boat jetty at Govindnagar & Neil Kendra.

37) Establishment of a 'Coral Museum' at Vijaynagar.

38) Construction of Havelock 'Watch Tower' to have 360 degree view of the island.

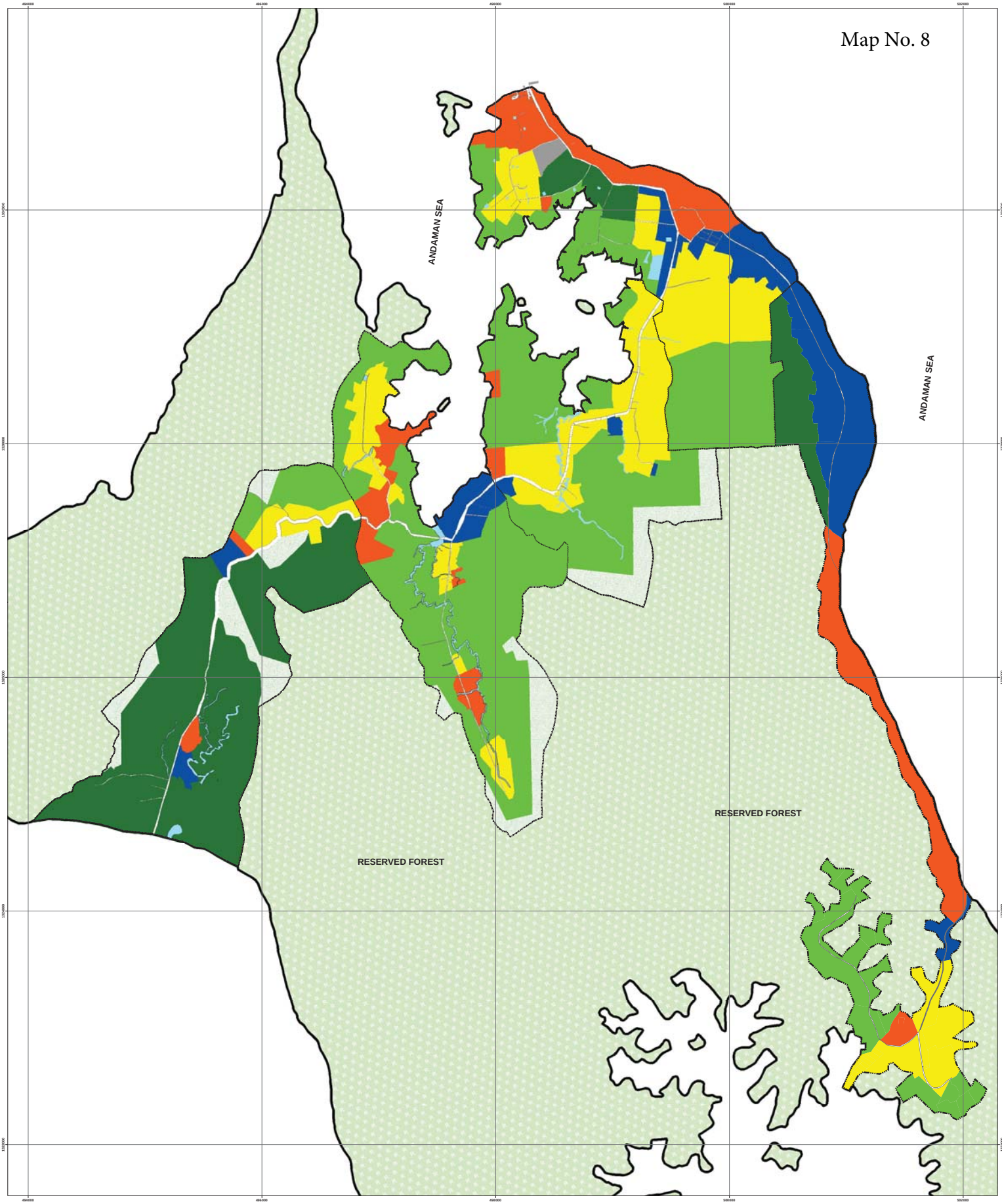
3.9 PROJECT LAND REQUIREMENTS AND COSTING

Successful implementation of the Master Plan project proposals largely depends on the availability of land and required funding for development. The proposals extend across many sectors and it will be the responsibility of the concerned agency / department to initiate suitable actions towards implementation of the projects. The development projects envisaged in the Master Plan in many cases may require further detailing through detailed studies and investigations. The extent of lands to be acquired, displacement of people, benefits to the community and the negative impacts of affected people are to be studied for incorporating appropriate mitigation plans as part of project proposals. However, an indication of land financial requirements, for the major project proposals is shown in Table 3.3.

Table 3.3 Land & Financial Requirement for Implementation of Major Projects

Sl. No.	Project Title	Project Requirement	
		Land (ha.)	Finance (Rs. in Crores)
1	Decentralized Wastewater Treatment System – Govindanagar, Krishnanagar & Neil Kendra	1	10
2	Compost Yards at all revenue villages	1	10
3	Emergency Care Hospital at Havelock	1	50
4	Expansion & Improvements of Helipads	2	20
5	Development of Residential Neighbourhood	5	100
6	Construction of Rental Accommodation at Shyamnagar	5	30
7	Construction of Community / Public Toilets	--	5
8	Island Parks at Havelock & Neil	5	20
9	Desalination Plant for Havelock & Neil Islands	3	50
10	Coral Museum at Vijaynagar	1	20
11	Development of Havelock Boat Jetty Area	--	10
12	Development of Neil Boat Jetty Area	--	10
13	Beach / Sea Front Developments	--	5
14	Tourist Pavilion at Govindnagar and Neil Kendra	2 hect each	100
15	Construction of Boat Houses	--	20
16	Havelock Watch Tower	1	20
17	Formation of Trek Path	--	2
18	Link Road between Vijaynagar & Krishnanagar	--	10
19	Road Improvements	--	25
	Total	**29**	**517**

Map No. 8



HAVELOCK AND NEIL ISLANDS

HAVELOCK ISLAND

LEGEND

- Residential
- Commercial
- Public & Semi-Public
- Transport & Communication
- Parks and Open Space
- Water bodies
- Agricultural
- Reserved Forest
- Other Forest
- Mangroves
- LPA Boundary
- Village Boundary
- Roads

0 200 400 800 1,200 1,600 2,000 Meters

PROJECTION SYSTEM : UTM
DATUM : WGS84
SPHEROID : WGS84
ZONE : 46

DATE AUGEST 2014

ISLAND NAME HAVELOCK

N

CLIENT Town and Country Planning Unit
Andaman Public Works Department
A & N Administration, Port Blair

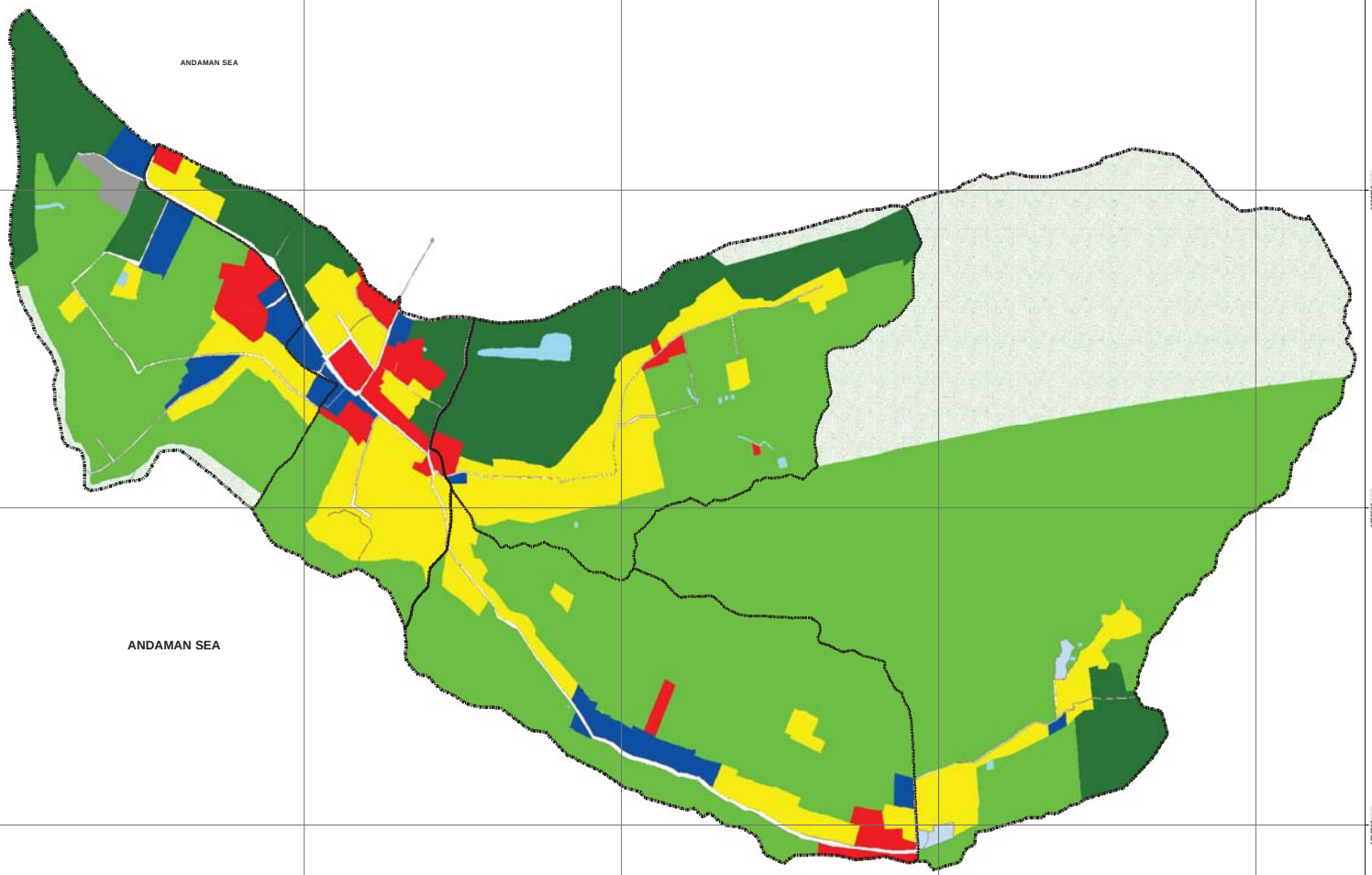
APWD

CONSULTANTS School of Architecture & Planning
Anna University Chennai

PROPOSED LANDUSE 2034 - HAVELOCK ISLAND

MASTER PLAN FOR HAVELOCK AND NEIL ISLANDS -2034

Map No. 9



HAVELOCK AND NEIL ISLANDS

NEIL ISLAND

LEGEND

- Residential
- Commercial
- Public & Semi-Public
- Transport & Communication
- Parks and Open Space
- Water bodies
- Agricultural
- Reserved Forest
- Other Forest
- Mangroves
- LPA Boundary
- Village Boundary
- Roads

0 150 300 600 900 1,200 1,500 Meters

PROJECTION SYSTEM : UTM
DATUM : WGS84
SPHEROID : WGS84
ZONE : 46

DATE: AUGUST 2014

ISLAND NAME: NEIL

N

CLIENT: Andaman Public Works Department
A & N Administration, Port Blair

APWD

CONSULTANTS: School of Architecture & Planning
Anna University Chennai

PROPOSED LANDUSE NEIL ISLAND
MASTER PLAN FOR HAVELOCK AND NEIL ISLANDS -2034

CHAPTER 4

DEVELOPMENT REGULATIONS

4.1 TECHNICAL TERMS AND DEFINITIONS

1. **Access:** Way to a plot or a building other than a street or road.

2. **Agro Mandi:** Local farmers' markets held in village/town squares or open spaces and shopping centers for agro products.

3. **Amalgamation:** Combining two or more plots into a single plot.

4. **Amenity:** Includes road, water supply, street lighting, drainage, sewerage, public works and such other convenience as the Administrator may, by notification in the Official Gazette, specify to be an amenity for the purpose of this Regulation;

5. **Apartment:** Set of rooms forming an Individual home within a building block comprising more than three dwelling units.

6. **Balcony:** A horizontal projection, with a handrail or balustrade or a parapet, to serve as sitting out place not exceeding 1.2 m in depth and not continuous throughout the length or width of the building.

7. **Bifurcation:** Means bifurcation of a single plot into two**.**

8. **Building:** A house, hut, shed or other roofed structure, whatsoever purpose, and of whatsoever material constructed and every part thereof, and includes a wall and a well, but does not include a tent or other such portable and merely temporary shelter; and “part of building” includes any wall underground room or passage, verandas, fixed platform, plinth, staircase, or door steps attached to or within the compound of an existing building or a proposed building.

9. **Building Line:** The line up to which the plinth of a building adjoining a street or an extension of a street or on a future street may lawfully extend. It includes the lines prescribed, if any, in any scheme. The building line may change from time to time as decided by the DTCP.

10. **Canopy:** Cantilever projections at lintel or roof level over an entrance of a building.

11. **Community Hall:** A hall for the purpose of community gathering and conducting social events.

12. **Continuous Building:** Buildings constructed without any side set back. Row type housing also falls into this category**.**

13. **Corner Site:** A site at the intersection of two roads and facing two or more roads/streets.

14. **Corridor:** A common passage or circulation space within a building**.**

15. **Covered Area:** Ground area covered by the building above the plinth level and includes parts of the building projecting out in the other storey.

16. **Development:** Means the carrying out of building, engineering, or other operations in, on, over or under land or the making of any material change in building or land and includes re-development.

17. **Development Area:** All Revenue Villages forming part of Havelock and Neil Islands

18. **Dharmashala:** Rest-house for pilgrims that are primarily created for a religious purpose.

19. **Dormitory:** A residence hall consisting of sleeping quarters or buildings primarily providing sleeping and residential quarters for large numbers of people, often associated with a boarding school, college or university.

20. **Drain:** Includes a sewer, pipe, ditch, channel or any other device for carrying off sullage, sewage, polluted water, rain water or sub soil water together with pail- depots, traps, sink cisterns, flush tanks and other fittings appertaining thereto.

21. **Dwelling Unit:** An independent housing unit with separates facilities for living, cooking and sanitary requirements, and may be a part of a building.

22. **Eco Corridor:** Road connecting Govindanagar boat jetty with Vijaynagar Beach and Radhanagar Beach at Havelock Islands and road connecting Neil Kendra boat jetty with Sitapur Beach and Lakshmanpur Beach at Neil Islands for provision of vegetative cover.

23. **Eco-Friendly material:** Building materials which leaves minimal carbon footprint, less energy consumptive, recyclable and reusable, not include materials such as cement concrete, solid/hollow brick etc.

24. **Eco Resort:** Resort, which is intended to be constructed with environmental friendly material and cause minimal impact over the Ecology in design, construction, operation and maintenance.

25. **Floor Area:** The built up area with roof above of all floors including the ground floor. It is measured at the floor level of the respective floors. Floor Area includes the area of the swimming pools having roof above.

26. **Floor Area Ratio (FAR):** The quotient obtained by dividing the multiple of the total floor area with 100 by the area of the plot.

$$FAR = \frac{\text{Total Floor Area}}{\text{Plot Area}} \times 100$$

27. **Godown:** A commercial building for storage of goods used by manufacturers, importers, exporters, wholesalers, transport businesses, customs, etc.

28. **Group Development:** Means accommodation of residential or commercial or combination of such activities housed in two or more blocks of buildings in a particular site irrespective of whether these structures are inter connected or not.

29. **Guest House:** Includes a building or a collection of buildings or part of a building used for the accommodation of guests of an institution.

30. **Height of Building**: The vertical distance measured, in the case of flat roofs from the average level of the ground around and contiguous to the building or as decided by the DTCP, to the top of the terrace of last livable floor of the building adjacent to the external walls; and in the case of pitched roofs, up to the point where the external surface of the outer wall intersects the finished surface of the sloping roof, and in the case of gables facing the road, in the midpoint between the eaves level and the ridge.

31. **Hotel:** Includes a building or a collection of buildings having provisions for accommodation and boarding of travelers or tourists.

32. **Land:** Includes land which is being built upon or is built upon or covered with water benefits to arrive out of land, things attached to the earth or permanently fastened to anything attached to the earth and drives created by law or any street.

33. **Layout:** Division of land into plots exceeding eight in number formed by an individual or body or persons, whether incorporated or not.

34. **Local Body** means a Gram Panchayat or an Urban Local Body constituted under Andaman & Nicobar Islands (Panchayats) Regulation, 1994 or Andaman & Nicobar Islands (Municipal) Regulation, 1994.

35. **Lodging House:** Includes a building or a collection of buildings or part of a building used for the accommodation of travelers or tourists.

36. **Marriage Hall:**A function hall for the purpose of conducting social events like marriage / reception etc.

37. **Owner/Tenant:** Includes the person for the time being holding the license, permit or grant under the Andaman and Nicobar Islands Land Reform & Land Revenue Regulation, 1966 in respect of any land also the person for the time being receiving the rent of any land or building, whether on his own account or as agent or trustee for any person or society or for any religious or charitable purpose or who could so receive the same if the land or building were let to a tenant.

38. **Parking Space**: An area covered or open, sufficient in size to park vehicles together with a drive way connecting the parking lot with road or street and permitting ingress or egress of the vehicles.

39. **Plinth Area**: The built up cover area measured at the ground/stilt floor level of the building(s).

40. **Plot Extent:** Area of contiguous parcel of land enclosed by definite boundaries. Note: If the extent of plot differs as per site conditions form PLR extract /Patta and registered ownership document, then for application of FAR and plot coverage regulations, lowest of the same [excluding any encroachment] will be counted. For application of setback regulation the inner boundary arrived excluding any encroachment or the part of the land for which the applicant/developer does not have the right over it will be the basis.

41. **Plot Coverage:** The extent to which the plot is covered with a building or structure and this is expressed as percentage of the ratio of the built up area at ground level to the plot extent .

42. **Plot Frontage:** The width of the plot on the side of the site or plot abutting the access road.

43. **Private Street:** Any street, road square court alley, passage or riding path, which is not a public street but does not include a pathway made by the owner of the premises on his own land to secure access to or the convenient use of such premises.

44. **Public Space:** A place in a Planning area not being private property, which is open to the use or enjoyment of the public.

45. **Road/Street:** Any street, road, bridge, foot-way, lane, square alley or passage in the Planning Area along which the public or any portion of the public has a right to pass and includes the drains or gutters on either side, and the land up to the defined boundary of any abutting property notwithstanding the projection over such land of any veranda or other superstructure.

46. **Road/Street Width:** Means whole extent of space within the boundaries of the road/street measured at right angles to the course of direction of such road / street.

47. **Room Height:** Means the vertical distance measured from the finished floor surface to the finished ceiling surface. Where a finished ceiling is not provided, the underside of joists or beams or tie beams shall determine the upper point of measurement for determining the room height.

48. **Sanctioned Plan:** The set of plans and specifications submitted in connection with a building or development and duly approved with seal and sanctioned by the concerned Local Body / DTCP.

49. **Service Road:** A road /lane provided on any side of a plot for service purposes.

50. **Set Back Line:** A line usually parallel to the plot boundaries and laid down in each case by the Local Body / DTCP beyond which no building can be constructed towards the site boundaries.

51. **Site:** A contiguous parcel / piece of land including a plot enclosed by definite boundaries.

52. **Stilt:** Building raised above ground level with stilt area of height not exceeding 2.7m which is kept open on all sides with adequate structural elements and used for vehicles parking or services.

53. **Street Alignment** means a line dividing the lands comprised in and will be forming part of the street from the adjoining land.

54. **Sub Division:** Means division of land into plots not exceeding eight in number.

55. **Total floor area:** The sum of the floor area of all floors including the ground floor, but excluding areas of covered parking and parking in the stilt floor, staircase headroom, lift machine room, & architectural features.

56. **Villa:** Any large rural / suburban / urban house that is free-standing in a landscaped plot of ground.

57. Ware House: A commercial building for storage of goods. Warehouses are used by manufacturers, importers, exporters, wholesalers, transport businesses, customs, etc.

4.2 LAND USE ZONING REGULATIONS

4.2.1 SPATIAL EXTENT

These Regulations apply to the Development Area (all revenue villages forming part of Havelock and Neil Islands) notified under sub section (1) of section 11 of Andaman and Nicobar Islands Town and Country Planning Regulation, 1994. The provisions of this document are to be read in conjunction along with section 8 to 10 of the Andaman and Nicobar Island Town and Country Planning Regulation, 1994. **The Regulations proposed herewith are prospective**. The delineation of various Land use zones and the permissible developmental activities in them are intended to achieve orderly growth as per the Land use strategies enunciated in the development proposals.

4.2.2 LAND USE ZONES

The Master Plan for Havelock and Neil Islands has adopted the following seven main Land Use Zones:

i) Residential (RE)
ii) Commercial (CO)
iii) Public and Semi Public (PSP)
iv) Transportation and Communication (TC)
v) Parks and Open Spaces (POS)
vi) Agricultural (AG)
vii) Special Reservation (SR)

4.2.3. GROUPING OF LAND USE IN VARIOUS LAND USE ZONES

The uses and activities permitted under each Land use zone are grouped in a hierarchy starting from activities of lower intensity to higher intensity, as given in Table 4.2.3. The permissibility of different groupings of other land uses in each Land use zone is covered in 4.2.4 under Regulations for Main Land use Zones.

TABLE NO. 4.2.3 (A) USES AND ACTIVITIES PERMISSIBLE UNDER RESIDENTIAL ZONE

All forms or residential developments permissible under Residential Zone are grouped as under:

GROUP-A	GROUP-B
▪ Plotted Developments ▪ Villas & Detached Houses ▪ Semi Detached Houses ▪ Row Houses ▪ Apartments ▪ Group Housing	▪ Guest Houses ▪ Serviced Apartments ▪ Condominiums/Dormitories

Note: i) All activities permissible under Group A are restricted to a total floor area of 300 sq.m.
ii) Activities under Group A, exceeding 300 sq.m of total floor area are to be considered under Group B
iii) All activities permissible under Group B are without any restriction of floor area.
iv) All activities permissible under Group A & B are subject to Planning Norms applicable as mentioned in Table 4.3.2

TABLE NO. 4.2.3 (B) USES AND ACTIVITIES PERMISSIBLE UNDER COMMERCIAL ZONE

All forms of commercial developments permissible under Commercial zone are grouped as under:

GROUP-A	GROUP-B	GROUP-C
▪ Petty Shops dealing with daily essentials not exceeding 30 sq.m. ▪ STD/FAX/Internet Centre/ ATM Centre not exceeding 30 sq.m. ▪ Hair Dressing & Beauty Parlours not exceeding 30 sq.m. ▪ Dry Cleaners / Tailoring Units / Bakery / Sweet Shop / Tea Stalls not exceeding 30 sq.m. ▪ Professional Consulting Offices, Tutorial Centres, Schools of Commerce and Electrical and Electronics Service Centre, Tourists Facilitation Centres not exceeding 50 sq.m. ▪ Restaurants / Coffee Shops not exceeding 100 sq.m.	▪ Banks, Insurance & Other Offices / Safe Deposit Vaults ▪ Hotels / Restaurants / Health Spas / Beauty Parlours ▪ Retail Shops/ Godown	▪ Offices ▪ Retail Shopping/Mall ▪ Cinemas theatres, Auditoriums & Concert Halls ▪ Restaurants, Health Spas, Beauty Parlors, Fitness Centres ▪ Convention Centre, Craft Bazaar, Handicrafts Emporiums & Tourists Pavilion ▪ Hotels, Holiday Resorts, Lodging Establishments ▪ Godowns

Note: i) Activities under Group A, exceeding stipulated area, are to be considered under Group B.
ii) All activities permissible under Group B are restricted to a total floor area of 300 sq.m.
iii) Activities under Group A & B, exceeding 300 sq.m of total floor area will be considered under Group C.
iv) All activities permissible under Group C are without any restriction of floor area.
v) All activities permissible under Group A , B & C are subject to Planning Norms applicable as mentioned in Table 4.3.2.

TABLE NO. 4.2.3 (C) USES AND ACTIVITIES PERMISSIBLE UNDER INDUSTRIAL ZONE

GROUP-A	GROUP-B
• Cottage Industries using electrical power utilizing machinery not exceeding 5 HP & employing not more than 8 people • Poultry Farm, Dairy Farm, Agro based Cottage Industries not exceeding 100 Sq.m of floor area. • Automobile/Mechanical/Electrical/Electronic Repair Centers not exceeding 100 sqm of floor area.	• Light Industries without restriction of floor area- All Industries using electrical power utilizing machinery not exceeding 10 HP or with employees not exceeding 15 in number. **Illustrative Industries:** • Food Products, Textile Products, Timber & Wood Products, Paper Product & Printing, Metal Works, Electrical Goods, Transport Equipment, Glass Works & Boat Repairing.

TABLE NO. 4.2.3 (D) USES AND ACTIVITIES PERMISSIBLE UNDER PUBLIC & SEMI PUBLIC ZONE

All forms of developments intended for the convenience and service to the public are classified under Pubic and Semi-Public zone and are grouped as under:

GROUP-A	GROUP-B	GROUP-C
Government Offices ▪ Offices of the Govt., Dept. upto 300 sq.m. ▪ Bill Collection Centres (Water / Sewage, Electrical etc.) Police Station & Post Offices upto 300 sq.m. ▪ Fire Stations Educational Institutions ▪ Nursery & Primary Schools, Crèches ▪ Public Library Health Facilities ▪ Health Clinics, Pathological Laboratories, Diagnostics Centres not exceeding 300 sq.m. ▪ Nursing Homes, Polyclinics, Dispensaries, Physiotherapy Centres not exceeding 300 sq.m. ▪ Veterinary Clinics not exceeding 300 sq.m. Religious & Community Services ▪ Places of worship not exceeding 100 sq.m. ▪ Social Welfare & Cultural Institutions not exceeding 300 sq.m. ▪ Community Halls not exceeding 300 sq.m. Others ▪ Public Convenience ▪ Dhobi Ghats ▪ Storage of Domestic Gas Cylinders not exceeding 300 sq.m.	Government Offices ▪ Offices of the Govt., Dept. upto 600 sq.m. Educational Institutions ▪ Middle, High, & Higher Secondary Schools ▪ Technical Training Institutes Health Facilities ▪ Pathological Laboratories, Physiotherapy Centres and Diagnostic Centres ▪ General Hospitals, Specialty Hospitals without restriction of floor area Religious & Community Services ▪ Places of worship not exceeding 200 sq.m. ▪ Social Welfare & Cultural Institutions/Museums not exceeding 600 sq.m. ▪ Community Halls not exceeding 600 sq.m. Others ▪ Water & Sewage Treatment Plants in land area not exceeding 0.25 hectares.	▪ All lands intended for accommodating physical infrastructure required for Utilities such as Water Supply, Sewerage, Storm Water Drainage, Solid Waste Disposal System, Electricity, Telecommunication etc., are included in Public & Semi Public Zone. ▪ All lands which intended for accommodating social infrastructure such as burial grounds, crematoria etc..

Note: i) Activities under Group A, exceeding stipulated area, are to be considered under Group B.

ii) Activities under Group B, exceeding stipulated area, are to be considered under Group C.

iii) All activities permissible under Group C are without any restriction of floor area and subject to norms prescribed by DTCP on a case to case basis from time to time.

v) All activities permissible under Group A , B & C are subject to Planning Norms applicable as mentioned in Table 4.3.2.

TABLE NO. 4.2.3 (E) USES AND ACTIVITIES PERMISSIBLE UNDER TRANSPORTATION & COMMUNICATION ZONE

All forms of developments related to the transportation and communication are classified under Transportation and Communication zone and they are grouped as under: All forms of roads and streets are included in this zone

GROUP-A	GROUP-B	GROUP-C
▪ Bus bays, Auto / Taxi Stand, Bus Shelters, Information Booths ▪ Communication Towers, Booking Offices ▪ Fuel Filling Stations, Service Stations with Installations not exceeding 5 HP. ▪ Parking Lots	▪ Fuel Filling Stations, Service Stations with Installations not exceeding 30 HP. ▪ Motor Garage & Workshop not exceeding 100 sq.m. floor area ▪ Bus Terminal / Depots ▪ Boat Jetties ▪ Telephone Exchange Buildings	▪ Fuel Filling Stations, Service Stations without restriction on HP ▪ Motor Garage & Workshop ▪ Transport Offices ▪ Goods Terminals ▪ Ware Houses, Godowns, Cargo Transit Yards ▪ Loading, Unloading Platforms, Weigh Bridges ▪ Helipads

Note: i) All activities permissible under Group A, B & C are without restriction of floor area, except motor garage & workshop under Group B.

ii) All activities permissible under Group A , B & C are subject to Planning Norms applicable as mentioned in Table 4.3.2.

TABLE NO. 4.2.3 (F) USES AND ACTIVITIES PERMISSIBLE UNDER PARKS AND OPEN SPACES ZONE

All lands which are not covered under any special reservation and intended for active and passive recreation including the building activities incidental to the designated uses are covered under this zone

GROUP-A	GROUP-B	GROUP-C	GROUP-D
▪ Neighbourhood Parks ▪ Playgrounds ▪ Plant Nurseries ▪ Swimming Pools ▪ Green Houses ▪ Herbariums	▪ Sports Clubs ▪ Sports Stadiums (indoor & outdoor) ▪ Recreational Complexes ▪ Sports Training Centres ▪ Social & Recreational Clubs ▪ Open Air Theatres ▪ Eco-Resorts	▪ Exhibition Grounds ▪ Festival Grounds ▪ Fair Grounds ▪ Circus Grounds ▪ Camping Grounds ▪ Entertainment & Amusement Parks ▪ Water / Adventure Sports ▪ Places of Assembly (Maidans)	▪ Water Front Development ▪ Zoological Gardens ▪ Botanical Gardens ▪ Birds Sanctuary

Note: i) All activities permissible under Group A, B, C and D are without restriction of land area.

ii) The Residential activities classified under Group-A, Commercial Activities classified under Group-A & Group-B, Public & Semi-Public activities classified under Group-A, Transport & Communication activities classified under Group-A may be permitted with the Special Sanction, provided the material used for construction shall be Eco friendly.

iii) Poultry Farm, Dairy Farm, Agro based Cottage Industries not exceeding 100 Sq.m floor area may be permitted with the Special Sanction, provided the material used for construction shall be Eco friendly.

iv) All activities permissible under Group A, B, C & D are subject to Planning Norms applicable as mentioned in Table 4.3.2.

v) Authority may impose additional conditions for granting special sanction.

TABLE NO. 4.2.3 (G) USES AND ACTIVITIES PERMISSIBLE UNDER AGRICULTURAL ZONE

All lands which are to be protected, reserved for promoting agricultural, plantation and farming activities are covered under this zone. No construction activities other than those which are incidental to the farming activities and those which cater to the needs of tourists, interested in witnessing and partaking in agricultural activities are generally permitted in this zone.

a) Construction activities incidental to farming activities include residential developments, (subject to the condition that such developments are limited to a maximum of 3 dwelling units, each not exceeding a floor area of 100 sq.m.), animal husbandry activities, seed / fertilizer depots, agricultural godowns and warehouses, provided that the total floor area of all such activities do not exceed 10% of the total land area.

b) Construction activities which cater to the needs of tourists interested in witnessing and partaking in agricultural activities; include eco-friendly cottages / resting rooms for tourists each not exceeding a floor area of 40 sq.m., and food bazaars, as per the guidelines specified under section 4.3.1 (I), provided that the total floor area of all such activities do not exceed 10 % of the total plot area and not spread in more than $1/3^{rd}$ of the total plot extent. Remaining $2/3^{rd}$ of the plot extent, to be retained under agriculture.

c) Construction activities which cater to Poultry / Dairy Farming and Agro based Industries not exceeding 20 % of the land area.

Note: i) Activities mentioned above are permissible in combination, provided that the total floor area of all such activities do not exceed 20% of the total plot area and also fulfill conditions stipulated under each case.

ii) All activities are permissible only at the ground level or stilt + 1 floor level and expected to fulfill setback requirements as mentioned in section 4.3.1. and planning norms as mentioned in Table 4.3.2.

iii) Maximum stilt height of 1m. is permissible.

iv) All activities are permissible only with special sanction from DTCP.

vi) Construction not permissible on sub divided lands, which were forming part of lands on which planning permission for construction has already been granted.

TABLE NO. 4.2.3 (H) LAND FORMS UNDER SPECIAL RESERVATION

All lands which are to be protected, preserved and reserved for Sustainable Development are covered under this zone. The land use categories under this zone are given as under.

a) **Forest Lands:** Generally include all lands under reserved forests which are covered under the Indian Forest Act and other forest under the jurisdiction of Revenue Department Felling of trees in the Forest Lands and any form of Construction Activities are totally prohibited.

b) **Mangroves:** Generally include trees and shrubs that grow in saline coastal habitats in the tropics and subtropics. The word most broadly refers to the habitat and entire plant assemblage or mangal, for which the terms mangrove swamp and mangrove forest are also used.

c) **Water Bodies:** Generally indicates all existing water bodies, back waters, estuaries, stream, lakes, ponds and tanks. The boundaries of water bodies relate to the maximum flood level. In Water Body Zone, no construction is permitted in the water spread and a buffer of 30 m., is to be left from the boundary. Activities such as fishing, boating and picnics only are permitted along banks. The only construction allowed is open to sky jetties for boating, platforms for Fishing and rain shelters and snack bars not exceeding 10 sq.m., in area, and not exceeding 4 in numbers around a water body.

d) **Eco Corridor:** Generally include all lands to a depth of 3 M on either side of the roads proposed in the development plan / regulation as eco corridor. The tenant shall develop vegetative cover in the Eco Corridor to act as a Green Buffer. The intent of creating this green buffer zone is to preserve the ecological character of the development area and the rich bio diversity prevalent which can be harnessed for promoting sustainable tourism. The buffer of 3m proposed is also meant to minimize the impact of development activities, likely to take place in due course of time. Though activities are generally not permissible in the green buffer zone, the access is permitted to the properties abutting the eco corridor through the green buffer zone with a passage width of 4m. for plots having frontage upto 20m., 7 m. passage for plots having frontage more than 20m. to 40m., and 10m. passage for plots having frontage more than 40m.

Note: Since Special Reservation zone is primarily intended to protect and preserve lands classified under this zone, no construction activity other than those which are incidental to the use alone are permitted, subject to Special Sanction from DTCP. The Department of Environment & Forests, A & N Administration shall be the competent Agency for development and management of Reserved Forests in accordance with the Indian Forest Act, 1927.

4.2.4. REGULATIONS FOR MAIN LAND USE ZONES

'Uses and Activities' permitted Normally and permitted with Special Sanction from the DTCP and Prohibited in different classifications of land use zones are presented in Table 4.2.4 against each of the zones.

TABLE NO. 4.2.4 PERMISSIBLE & PROHIBITED USES AND ACTIVITY GROUPS IN DIFFERENT LAND USE ZONES

Land Use Zones	Uses normally permitted						Uses Permitted with Special Sanction						Uses Prohibited					
	RE	CO	PSP	TC	POS	I	RE	CO	PSP	TC	POS	I	RE	CO	PSP	TC	POS	I
Residential	A	A	A	A	A	--	B	B	B	B	B	A	----	C	C	C	C D	B
Commercial	A	A B	A	A	A B	A	B	C	B C	B C	C	B	---	---	---	----	D	--
Public & Semi-Public	----	A	A B	A	A	A	A B	B	C	B C	B C D	B	--	C	--	---	---	--
Transportation & Communication	----	A	A	A B	----	A	A	B	B	C	A	B	B	C	C	----	B C D	--
Parks & Open Spaces	----	----	----	---	A	--	A	A B	A	A	B C D	--	B	C	B C	B C	---	A B
Agricultural	For permissible uses and activities refer Table No. 4.2.3 (G)																	
Special Reservation	For permissible uses and activities refer Table No. 4.2.3 (H)																	

RE – Residential, **CO** – Commercial, I- Industrial **PSP** – Public & Semi Public, **TC** – Transportation & Communication, **POS** – Parks & Open Spaces

Note: The uses permitted with special sanction by DTCP, are subject to additional conditions prescribed by the DTCP, on a case to case basis.

4.3 PLANNING NORMS FOR CONSTRUCTION ACTIVITIES

The Planning Norms prescribed below for all construction activities in different land use zones are applicable for all revenue villages of Havelock & Neil Islands.

The purpose of these Planning Norms is to ensure orderly and sustainable development without impacting the fragile ecology prevailing over the development area. The norms prescribed reflect the spirit of the development proposals conceived in the Master Plan.

The Planning Norms, specified for the construction activities are categorized under two groups; the first group contains norms which are common to all land use zones and the second contains those which are different for various land use zones. These two groups of norms are provided in section 4.3.1 and 4.3.2 respectively.

4.3.1 PLANNING NORMS COMMON FOR ALL LAND USE ZONES

A) Setback Requirement

Setback spaces in the front, rear and sides are mandatory for all forms of developments. The Setback requirements given below govern the minimum required spaces to be left in the front, rear and two sides of the plot.

Front Setback

The front setback is governed by the width of the road, the plot abuts and the minimum required space shall be as under.

Table A

Width of Abutting Road (R.O.W)	Minimum Front Setback	Balcony Projection Permissible within Front Setback
Upto 7 m.	1.5 m	--
More than 7 m.	2.5 m	1.2 m

Note: In case of roads under Eco Corridor (Map No.7), the setback shall be measured beyond the Eco Corridor

Rear Setback

The rear setback is governed by the depth of the plot and the minimum required space shall be as under.

Table B

Average Depth of Plot	Minimum Rear Setback	Balcony Projection Permissible within Rear Setback
Upto 20 m.	2.0 m	1.0 m
More than 20 m and upto 30 m	4.0 m	1.2 m
Above 30 m	6.0 m	1.2 m

Side Setback

The side setbacks to be provided on either side are governed by the width of the Plot and the number of floors. For semi detached buildings side setbacks are required on one side only. The minimum required space shall be as under.

Table C

Number of Floors	Average Width of the Plot	Side Setback Requirement / Balcony Projection Permission within Side setback (in m.)		
		For Detached Buildings		For Semi Detached Buildings
		On One Side	On Other Side	On any One Side
Ground Floor Only	Upto 10 m.	1.0 / 0.0	1.0 / 0.0	2.0 / 1.0
	Above 10 m, and upto 15 m.	1.5 / 0.0	1.5 / 0.0	3.0 / 1.2
	Above 15 m.	2.0 / 1.0	2.0 / 1.0	4.0 / 1.2
Stilt + 1 Floor	Upto 10 m.	1.5 / 0.0	1.5 / 0.0	3.0 / 1.2
	Above 10 m, and upto 15 m.	2.0 / 1.0	2.0 / 1.0	4.0 / 1.2
	Above 15 m.	2.25 / 1.2	2.25 / 1.2	4.5 / 1.2
Ground + 1 or Stilt + 2 Floors	Upto 10 m.	1.5 / 0.0	1.5 / 0.0	Not Applicable
	Above 10 m, and upto 15 m.	2.0 / 1.0	2.0 / 1.0	
	Above 15 m.	2.25 / 1.2	2.25 / 1.2	

Note:

i) In all the setbacks spaces, unsupported sunshades, wardrobes and built-in cupboards are permissible to a depth of 0.6m.

ii) Open single flight/double flight or spiral staircase is permissible in the rear and side setback spaces provided such structure do not fall within 0.5 m. from side boundary or 1.0 m. from the rear boundary

B) Parking Norms and Standards

Parking of two wheelers, four wheelers and heavy vehicles as the case may be, are governed by the total floor area and wherever required they shall be provided within the site as per the norms to the satisfaction of the DTCP for the use of the occupants and of persons visiting the premises as described below:

TABLE NO. 4.3.1 PARKING NORMS FOR DIFFERENT TYPES OF USES IN ALL LAND USE ZONES

SL. NO	TYPE OF USE	NORMS
1	**Residential**	
	For dwelling units with floor area upto 50sq.m.	1 two wheeler space for every dwelling unit.
	For dwelling units measuring more than 50 sq.m and upto75sq.m.	2 two wheeler space for every dwelling unit
	For dwelling units measuring more than 75 sq.m and upto 150 sq.m	1 car & 1 two wheeler space for every dwelling unit
	For dwelling units measuring more than 150 sq.m.	1 car parking space for every 150 sq.m or part thereof and 1 two wheeler space for every dwelling unit
	Note: For Apartments and Group housing, in addition to the parking spaces specified above, 10% of additional parking shall be reserved for visitors parking.	
2	**Retail Business** (shops, shopping complexes, departmental stores etc..)	
	Upto 50 sq.m.	2 two wheeler space
	Above 50 sq.m	1 car space for every 100 sq.m or part thereof & 2 two wheeler space for every 50 sq.m. or part thereof.
3	**Offices** (Government)	
	Upto 200 sq.m.	4 two wheeler space
	Above 200 sq.m.	1 car space for every 200 sq.m or part thereof & 1 two wheeler space for every 50 sq.m. or part thereof.
	Other Offices (including Banks)	
	Upto 500 sq.m.	1 car space for every 100 sq.m or part thereof & 1 two wheeler space for every 50 sq.m. or part thereof.
	Above 500 sq.m.	1 car space for every 150 sq.m or part thereof & 1 two wheeler space for every 50 sq.m. or part thereof.

4	**Restaurants**	1 car space for every 100 sq.m. of floor area or part thereof with a minimum of 2 car parking space.
5	**Lodging Establishments, Hotels, Tourist Homes and Resorts**	1 car space for every 10 guest rooms and for the non room area 1 car space for every 200 sq.m. of floor area or part thereof.
6	**Star Hotels**	1 car space for every 5 guest rooms and for the non room area 1 car space for every 200 sq.m. of floor area or part thereof.
7	**Theatres, Auditoriums, Concert Halls, Community Halls, Marriage Halls**	1 car space for every 100 sq.m. or part thereof, subject to a minimum of 5 car parking space.
8	**Hospitals and Nursing Homes**	
	Nursing Homes	1 car space for every 200 sq.m. of floor area or part thereof.
	Hospitals	
	Upto 2000 sq.m.	1 car space for every 300 sq.m. area or part thereof.
	Above 2000 sq.m.	1 car space for every 400 sq.m. area or part thereof.
9	**Health Clubs, Health spas, Fitness Centres, Recreation Clubs**	1 car space for every 200 sq.m. area or part thereof with a minimum of 2 car parking space.
10	**Industrial activities**	
	Cottage Industries & Repair Centres	1 two wheeler for every 50sq.m. area
	For Light Industries	1 car space for every 300 sq.m. area or part thereof and two wheeler for every 50sq.m. area
11	**Godowns, Wholesale and Warehouse Buildings**	1 lorry space for every 1000 sq.m. of storage space or part thereof.
12	**Religious Buildings**	1 car space for every 200 sq.m. of floor area or part thereof.

Note:

i) The dimension of the parking stall for different vehicles shall be 2.5 mx5 m for cars, 1.2m x 1.8m for two wheelers and 3.5 m. x 10 m. for lorries.

ii) For group developments and apartments, 10% of the required car/two wheeler parking spaces subject to a minimum of one car space and 2 two wheeler spaces shall be reserved for the physically handicapped persons near the entrance.

iii) The width of driveway shall be 3.5 m. for one way movement and 6 m for two way movement. The width of the entry and exit gates shall be a minimum of 3.5 m.

iv) The minimum inner turning radius for cars in driveway and ramps shall be 3.5 m. For trucks and lorries the inner turning radius shall not be less than 7 m.

v) The gradient in ramps shall not be steeper than1:8 and the slope of the parking spaces shall not be more than 4% in any direction.

vi) The maximum height of stilt floor provided for Parking of vehicles shall not be more than 2.7 m. measured from the floor level to the bottom of the roof slab above, subject to the condition that a minimum of 2.4 m. is provided from the floor level to the bottom of the beam above. Parking spaces provided at the Stilt Floor are exempted from FAR calculations.

vii) The width of aisle in parking lots shall be as described below:

Description	**Parallel Parking**	**Angular Parking Upto 60°**	**Angles Above 60° and Perpendicular Parking**
Two Wheelers	2.5 m	2.5 m	2.5 m
Four Wheelers	3.5 m	3.5 m	6.0 m
Trucks and Lorries	7.0 m	3.5 m	10. 0 m

C) Planting of Trees

In order to compensate the loss of green cover on account of urban developments, the norms are prescribed for planting trees which are pre-requisite for according Planning Permission. The Local Body / DTCP having jurisdiction shall grant building permissions subject to the conditions that the prescribed number of trees of prescribed species are planted by the owner. The owner of the premises or house shall maintain the trees and they shall not be felled without the prior permission of the officer concerned. The norms for planting trees shall be as follows:

Residential Land Use		**Commercial Land Use**		**Public & Semi Public Land Use**	
Plinth Area (sq.m)	**No. of trees to be planted**	**Plinth Area (sq.m)**	**No. of trees to be planted**	**Plinth Area (sq.m)**	**No. of trees to be planted**
Below 50	Nil	Below 100	Nil	Below 200	2
51 – 100	1	101 – 200	1	201 – 500	4
101 – 200	2	201 – 300	2	501 – 1000	6
201 – 300	3	301 – 500	3	Above 1000	6 + 1 for increase of every 200 m^2
Above 300	3 + 1 for increase of every 200 m^2	Above 500	3 + 1 for increase of every 300 m^2		

Note:

The type of plants, the distance between trees/plants from the building and the distance between the plants shall be carefully worked out keeping in view the structural safety and aesthetic requirements of buildings.

D) Rainwater Harvesting

Effective measure shall be taken by the owner within each premises for conservation of rainwater through rainwater harvesting measures and use of recycled water to the maximum extent possible to the satisfaction of the DTCP. Collection of rainwater from roofs and terraces and directing the same either to storage tank or to recharging well may be insisted by the DTCP. Rainwater harvesting structures as prescribed in National building Code, 2005 (Part 9, Section 1, para 5.5.12) shall be provided and maintained by the owner.

E) Energy Augmentation

Ancillary Solar / Wind or any other form of non conventional energy system shall be provided for the following categories of building and same shall be shown in the plans submitted for Planning Permission. Such system shall be capable of meeting a minimum of 25 % of the estimated power requirements.

Applicable for Developments under various land use Zones		**Total Floor Area**
Residential	Group B	More than 2000 sq.m.
Commercial	Group C	More than 750 sq.m.
Public & Semi Public	Group B & Group C	More than 1000 sq.m.
Parks & Open Spaces	Group B & Group C (only Entertainment & Amusement Parks)	More than 1000 sq.m.

The Local body/ DTCP reserves the right to ensure that the facilities provided are installed and maintained to the satisfaction of the DTCP.

F) Wind Energy

Non- conventional energy resources like wind energy may be explored by the applicant wherever technically feasible in large scale developments exceeding 1000 m^2 of floor area. The DTCP may consider an incentive, in the form of additional FAR of upto 25 to such developments. The Local Body / DTCP reserves the right to ensure that the facilities provided are installed and maintained to the satisfaction of the DTCP.

G) Waste Management

All forms of commercial developments, exceeding 500 sq.m of floor area, Eco Resorts exceeding 1000 sq.m. of floor area shall provide for recycling & reuse of wastewater generated and the same shall be shown in the plans submitted for Planning Permission.

Likewise, accommodation facilities of any form, including Eco Resorts exceeding 500 sq.m of floor area, shall provide for environmentally sustainable methods of solid waste management, and the plan for the same shall be submitted while Planning Permission is sought.

H) Special Rules for Group Development

i) Group Development will be permissible only if the road serving as access to the proposed development is not less than 6 m.

ii) For group development involving more than one building block, the clear distance between any two blocks including balcony/sunshade projection shall be a minimum of 2.5 m.

iii) Any interlink such as connecting corridors etc., between two buildings shall not be construed as making any two buildings into one block. However, if these blocks are connected solidly atleast for one third width of any one block on the connecting side, then such blocks shall be construed as a single block.

iv) The width of the internal vehicular access way including passage if any shall be minimum of 6 m Such vehicular access shall be available for every building block in the site within a distance of 50 m.

I) Guidelines for Construction of Eco Resorts / Cottages & Resting Rooms

The following guidelines shall apply for construction of eco friendly cottages / resting rooms in agricultural zone and eco resorts in other land use zones, where it is permitted.

a) ECO FRIENDLY COTTAGES & RESTING ROOMS IN AGRICULTURE ZONE

i) Restricted to ground floor only. Maximum stilt height permissible is 1 m.
ii) Coverage, FAR and height shall be followed as per the provisions applicable contained under Table No. 4.3.2.
iii) Maximum floor area of a single unit of cottage / resting room not to exceed 40 sq.m.
iv) Maximum number of units to be clubbed is restricted to 2 and the total floor area not to exceed 100 sq.m.
v) Use of cement concrete is restricted to the level of sub-structure (plinth level) only.
vi) Renewable and reusable materials other than cement concrete, hollow block/brick masonry with cement mortar are permissible for super structure including columns, beams and roof. However, to facilitate laying of service / plumbing lines in bathrooms / toilets, not more than two side walls are allowed to be constructed with conventional materials like hollow blocks / bricks etc. RCC roofing in this case is also permitted.
vii) Only sloped roof is permissible for all developments.
viii) The use of cement concrete shall be allowed in super structure for kitchen, dining and other common facilities and shall be restricted to 10% of the total floor area.
ix) In case building constructed on stilts, the eco-friendly material other than cement concrete shall be used for flooring. However bathrooms /toilets are exempted.

b) ECO RESORTS IN OTHER LAND USE ZONE, WHERE PERMISSIBLE

i) Restricted to G+1 floor only. Maximum stilt height permissible is 1m above ground level.
ii) Coverage, FAR and height shall be followed as per the provisions applicable contained under Table No. 4.3.2.

iii) Maximum floor area of a single unit of resort / cottage not to exceed 50 sq.m.

iv) Maximum number of units to be clubbed is restricted to 3 and the total floor area not be exceed 170 sq.m.

v) Use of cement concrete is restricted to sub-structure for single storied building. However, to facilitate laying of service / plumbing lines in bathrooms / toilets, not more than two side walls are allowed to be constructed with conventional materials like hollow blocks / bricks etc. RCC roofing in this case is also permitted.

vi) In case of G+1 structure the use of cement concrete is permissible only for Columns and beams upto ground floor level and only renewable and reusable materials (other than cement concrete) are permissible for roof. However bath / toilets in the first floor can have cement concrete flooring & roofing.

vii) At the first floor level all structures shall only be of renewable and reusable materials other than cement concrete.

viii) In case building constructed on stilts, the eco-friendly material other than cement concrete shall be used for flooring.

ix) Only sloped roof is permissible for all developments.

x) The use of cement concrete shall be allowed in super structure for kitchen, waste water recycle plant & Rain Water harvesting tank etc. and shall be restricted to 10% of the total floor area permissible in the Eco- Resort.

4.3.2 PLANNING NORMS FOR DIFFERENT LAND USE ZONES

The Planning Norms, which are different for each land use zone are prescribed under the following Planning Parameters.

i) Minimum Plot Size
ii) Minimum Plot Frontage
iii) Minimum Road Width
iv) Maximum FAR
v) Maximum Plot Coverage
vi) Maximum Height
vii) Maximum Number of Floors

The Planning norms applicable to each of the land use zones are tabulated and provided in Table 4.3.2.

TABLE NO. 4.3.2 PLANNING NORMS FOR DIFFERENT LAND USE ZONES

PLANNING NORMS	LAND USE ZONE					
	RE	**CO**	**PSP**	**TC**	**AG**	**POS**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Minimum Plot Size (sq.m)	100	200	300	1000	4000	300
Minimum Plot Frontage (m)	8	12 (for plots upto 1000 sq.m) 20 (for plots more than 1000 sq.m)		25	50	10
Minimum Road Width (m)	6	7 m for plots upto 1000 sq.m. 10 m for plots exceeding 1000 sq.m.		7 m for plots upto 10000 sq.m. 10 m for plots exceeding 10000 sq.m.	7	7
FAR Permissible	125	125	100	100	10#	50
Maximum Plot Coverage (%)	60	60	40	50	10#	25 (33.33% for Eco Resorts)
Maximum Height (m)	7 m. for G+1 or 10m for Stilt +2 floor	8 m. for G+1 or 11m for Stilt +2 floor			5	12
Maximum No. of Floors	G+1.or stilt +2 floors				G	G+1

RE – Residential, **CO** – Commercial, **PSP** – Public & Semi Public, **TC** – Transportation & Communication, **POS** – Parks & Open Spaces, **AG** – Agricultural

The maximum permissible FAR and Plot Coverage only for Poultry/Dairy farming and Agro-based industries is 20 & 20% respectively.

Norms for construction activities, incidental to the main land use shall be as per the governing standards / specification of such uses.

Note:

i) Minimum Plot size, Road width & frontage shall be applicable for new subdivision/Layouts.

ii) The Floor to Floor height shall not be less than 3 m and 3.2 m for activities permissible under Residential and Commercial Land Use Zones respectively. For Ground floor, the height is measured from the top of plinth beam to the finished floor level immediately above ground. For typical floors the height is measured from finished floor levels between two adjoining floors.

iii) Special Reservation zone is primarily intended to protect and preserve lands classified under this zone. no construction activity other than those which are incidental to the use alone are permitted subject to sanction from the DTCP. The Department of Environment & Forests, A & N Administration shall be the competent Agency for development and management of Reserved Forests in accordance with the Indian Forest Act, 1927.

iv) For uses permitted with special sanction, the DTCP may prescribe additional conditions on size of plot, frontage it possesses, and the width of the road that abuts the site. Further, the DTCP may also impose supplementary conditions relating to environmental factors including strengthening of the infrastructure.

4.4 LAYOUT AND SUBDIVISION REGULATIONS

These layout and sub division regulations are applicable for all such developments in the revenue villages in Havelock and Neil Islands.

4.4.1 DEFINITION

i) Layout means division of land in plots exceeding eight in number.
ii) Sub division means division of plots not exceeding eight in number for residential purposes.

4.4.2 PURPOSE OF LAYOUT AND SUBDIVISION REGULATIONS

The Purpose of these Regulations is to ensure that plots intended for developments are directly accessible from passages / streets / roads and the road network is designed with proper hierarchy with width depending on the length and anticipated intensity of development on the plots. The Regulations further ensure that proper open spaces for Playgrounds, Parks and common amenities intended for public use are provided.

4.4.3 APPLICABLE NORMS

A) <u>Sub Division</u>

The norms for subdivision of residential layouts are as follows.

Sub division of large plots up to a maximum of eight plots primarily for residential activities are covered under this category. For each of the sub divided plots, the minimum extent of plot, plot frontage and the minimum road width shall be as described in Col. 2 of Table 4.3.2. The road provided to give access to the sub divided plots shall be as per Table-C below. In addition to the same, for plots having an extent of 3000 sq.m., and above before subdivision, reservation of land for open space as stipulated. If the sub division proposed attracts provision of OSR, then the road/ passage leading to OSR shall be handed over to the Local Body by gift deed after proper development and fencing. The open spaces reserved shall be in a shape and location specified by the DTCP. The lands reserved shall be free from any construction by the layout owner, developer or promoter.

B) <u>Residential Layouts</u>

Layouts intended primarily for residential activities are covered under this category. The minimum extent of plot, plot frontage and the minimum road width shall be as described in Col. 2 of Table 4.3.2. .In addition to the same, reservation of land for open space, and civic amenities is an essential requirement in residential layouts. Also the width of passages, streets and roads are governed by the length of the same and intensity of development in the layout. Following are norms for residential layouts.

i) Open Space Reservation Norms

Reservation of land for recreational purposes in a Layout or sub-division for residential Layout shall be as follows:

TABLE –A OPEN SPACE RESERVATION

Total Layout Area	Minimum Percentage of Layout Area to be reserved for OSR
Upto 0.3 ha.	Nil
More than 0.3 ha. To 3 ha.	5 %
More than 3 ha.	7.5 %

Note:

i) While computing the area reserved for open space, public roads proposed in the layout which are to be handed over to the Local Body are to be excluded from the overall area of the Layout.

ii) The areas under open space reservation shall be handed over by the developer free of cost by means of a gift deed to the Local Body after proper development and fencing.

iii) The open spaces reserved shall be in a shape and location specified by the DTCP. The land so reserved shall be free from any construction by the layout owner, developer or promoter.

ii) Reservation of Land for Civic Amenities

Reservation of land for Civic amenities such as Health care facilities, commercial establishments, public utilities and offices of Government Departments shall be as follows:

TABLE –B RESERVATION OF LAND FOR CIVIC AMENITIES

Total Layout Area	Minimum Percentage of Layout Area to be reserved for Civic Amenities
Upto 1 ha.	Nil
More than 1 ha. To 3 ha.	5 %
More than 3 ha. To 5 ha.	7.5 %
More than 3 ha.	10 %

Note:

i) Reservation for civic amenities would be applicable only in the case of layouts exceeding 1 hectare in extent. While computing the area reserved for civic amenities, Public roads and the OSR proposed in the layout which are to be handed over to the Local Body are to be excluded from the total extent of the Layout.

ii) The owner or developer shall develop such civic amenities for the benefit of the residents within two years of approval of Layout or shall hand over the land to the Resident's Association for utilizing the reserved lands for providing civic amenities only.

iii) In the event of Government Departments proposing to utilize the reserved lands for

providing public utilities or for providing offices for the use of public they are entitled to purchase to a maximum extent of 50 % of such reserved lands within one year of the layout approval, from the developer at market price.

iv) In the Residential Layouts promoted by the Government departments, the area reserved for Civic Amenities shall be retained and put to use only for the designated purposes.

v) The land set apart for Civic Amenities shall be deemed to be zoned for commercial and public/semipublic land use zone as the case may be and planning norms as stipulated under these Regulations shall govern the developments in such plots.

iii) Width of Passages / Streets / Roads

The width of the streets/roads and passages is governed by the intensity of development, nature of development and length of the street/road/passage and the same shall be as per the table given below:

TABLE –C WIDTH OF PASSAGES / STREETS / ROADS

Sl. No.	Description	Width of Passages / Streets / Roads (m)
1	When it is intended to serve upto eight plots and length of passage/street/road does not exceed 120m.	4.0
2	When it is intended to serve upto16 plots and length of street / road does not exceed 240m.	5.0
3	When it is intended to serve upto 32 plots and length of street/road does not exceed 400 m.	6.0
4	When the roads of length more than 400 m but below 1000 m.	7.0 (DTCP, reserves the right to increase this to 9 m., for road length beyond 1000 m.

Note:

i) For the purpose of these rules, the maximum plot extent shall not exceed 500 sq.m.

ii) For division of plots not exceeding 8 in number, the passages mentioned vide sl.no.1can remain private. However, for division of plots exceeding 8 in number, the streets/roads mentioned vide sl.no.2, sl. no. 3 and sl. no. 4 above are to be necessarily handed over free of cost to the local body by a gift deed.

iii) The DTCP reserves the right to ensure adequate linkages to the adjoining layouts / lands and the road network identified in the Master plan.

iv) Cul-de-sacs: When the length of the road network proposed in the layout is within 60 metres of length, cul-de-sacs with a turnaround area of 9 m x 9 m at the closed end are permissible.

v) Gradient & Turning radius: The gradient for roads shall not be steeper than1 in10 and the minimum inner turning radius for roads shall be 3.5 m.

vi) Splay: A splay at the intersection of two roads shall be provided subject to the minimum dimensions given below:

TABLE –D WIDTH OF ROAD AND SPLAY REQUIRED

Width of Narrower Road	Minimum Splay Required
Upto 7.0 m.	1.5 m x 1.5 m
More than 7 m. and upto 10 m.	2.5 m x 2.5 m
More than 10 m.	3.5 m x 3.5 m

4.5 ADHERENCE TO OTHER NORMS AND STANDARDS

In addition to the norms prescribed under these regulations it is required to comply with the norms and standards prescribed by other organizations / institutions wherever applicable. They are prescribed as under:

4.5.1 PROTECTION AGAINST EARTHQUAKE

Havelock and Neil Islands fall under zone V which is seismically most active region where earthquakes of magnitude 8 or more in the Richter scale could occur. Therefore adequate precautions shall be taken in design of structures proposed in these islands. Every person who constructs, reconstructs, adds to or alters a building shall cause the design of the structure made safe for the components of earthquake vibrations as per the provision of the National Building Code of India 2005 for seismic zone V.

4.5.2 CIVIL AVIATION REQUIREMENTS FOR CONSTRUCTION IN THE VICINITY OF HELIPAD

The buildings, structures in the vicinity of existing / proposed helipads shall conform to the requirement of 'Civil Aviation Authority'. The requirements as given in the National Building Code of India 2005 have to be adhered in general.

4.5.3. COASTAL REGULATION ZONE

The Ministry of Environment and Forests, Government of India through its notification in 2011, restricts the uses of areas in the coastal stretches of Andaman and Nicobar Islands including Havelock and Neil Islands in order provide livelihood security for the local communities and protect the unique environment prevailing in the islands. Use coastal stretches needs to be in accordance with the provisions of Island Coastal Regulation Zone (ICRZ) / Integrated Islands Management Plans (IIMP).

The coastal areas of the islands are classified under ICRZ-I, ICRZ-II, ICRZ-III and ICRZ-IV, and norms for regulation of activities in the coastal areas have been laid in the notification of the Ministry of Environment and Forests, 2011. The proposal for consideration of issue of planning permission and Building Plan approval for any construction / reconstruction in the Havelock & Neil Islands shall be in compliance with the provisions of the above referred notification.

4.5.4. PROVISIONS FOR PERSONS WITH DISABILITIES

Provision for persons with disabilities is a mandatory provision as per the PERSONS WITH DISABILITY ACT 1995 and the intent of the Act is to provide and ensure barrier free environment in the buildings and premises used by public. Residential developments are not covered under this provision. Following are some of the important provisions to be made:

A) Site Planning:

Every building should have atleast one access to main entrance/exit to the disabled which shall be indicated by proper signage. This entrance shall be approached through a ramp together with stepped entry. The ramp should have a landing in front of the doorway.

B) Parking:

Surface parking for at least two car spaces shall be provided near entrance for the physically handicapped persons with maximum travel distance of 30 m., from building entrance. The width of parking bay shall be minimum 3.6 m. The information stating that the space is reserved for wheel chair users shall be conspicuously displayed.

C) Building requirements:

a) For approach to the plinth level, and in other levels where ramps with gradients are necessary or desired they shall conform to the following requirements. For approach to plinth level, the ramps slope shall not be steeper than1:12 and its width shall be a minimum of 1.5 m and its length shall not exceed 9 m. The ramp shall be provided with handrails on either side and its surface shall not be slippery. For ramps connecting various floors, the slopes should not be greater than1:20 and its width shall be a minimum of 1.5 m. The landing shall be a minimum of 1.5 m x 3 m and the length of the ramp shall not exceed 9 m/ between landings. The ramps shall be provided with hand rails on either side and its surface shall not be slippery.

b) Among the lifts provided within the premises atleast one lift shall have the facility to accommodate the wheel chair size 80 cm x 150 cm.

c) The doors and doorways shall be provided with adequate width for free movement of the disabled persons and it shall not be less than 90 cm.

d) Stairs and ramps shall have the handrail facilities as prescribed in the National Building Code of 2005, Group 1.

e) Minimum one special WC in a set of toilet shall be provided for the use of handicapped with essential provision of washbasin near the entrance for the handicapped.

CHAPTER 5
IMPLEMENTATION MECHANISM

5.1 FUNDAMENTALS FOR PLAN IMPLEMENTATION

Once the Master Plan is approved, it will be the endeavor of the concerned departments to work towards the successful implementation of the provisions and proposals contained in the plan document. Havelock & Neil Islands are unique and so the Master Plan for these Islands. Concept of Sustainable Tourism had been the guiding principle in the Master Planning exercise, helping to derive a responsive Master Plan, in all likelihood expected to contain the development impacts within the carrying capacity of these islands. Tourism here is poised for greater growth and set to gain a major share of economy in the coming years. Accordingly, the Master Plan has paid adequate attention on this sector, and identified projects towards increasing the number of tourists and as well sustaining their interests. Therefore, the Department of Tourism along with the Department of Town & Country Planning (presently Town & Country Planning Unit of APWD) is to take the lead role in channelizing all efforts towards implementation of the Master Plan.

It is also important to review the Master Plan recommendations and the implementation periodically, in order to incorporate necessary changes in project detailing, adjust timeframes and reorient development policies and strategies. This revision will become necessary in the context of growing internal & external economies and socio-cultural changes expected to happen among the local population and the tourists.

5.2 REGULATION ON LAND AND BUILDING DEVELOPMENT ACTIVITIES

At present the building and land development activities in Havelock & Neil Islands are governed by the Andaman and Nicobar Islands (Panchayat Administration) Rules, 1997. However, on notification of above two islands as Development Area, under the Andaman and Nicobar Islands Town and Country Planning Regulation, 1994 and coming into the operation of this Master Plan, the provisions contained as 'Development Regulation' in this Master Plan shall also apply to all developments within the notified development area. In such case, every person/body (including a Departments of Government of India or the Administration), desiring to undertake any development in the Development Area shall obtain the permission, in writing, by making an application under section 4(1) of the Andaman and Nicobar Islands Town and Country Planning Rules, 2005. Notwithstanding anything contained in any other law, no person shall, after coming into operation of this Master Plan, use or permitted to be used, any land or building in the development area, otherwise than in conformity with this Master Plan, as per the section 10 of the Andaman and Nicobar Islands Town and Country Planning Regulation, 1994.

The Andaman and Nicobar Island (Panchayat Administration) Rules, 1997 apart from providing the general framework for Panchayat Administration in the island also provide prescriptions for control of building operations within the jurisdictions of the Panchayats and lays down several rules for orderly physical development. Chapter VII of the above said rules include some of the planning parameters such as setback requirements, plot coverage, minimum road width etc. for the constructions activities Panchayat area. In addition, procedures relating to application and exemption for permission are also included.

The Development Regulations prescribed as part of the Master Plan comprehensively cover all the planning parameters and also the Master Plan lays down the procedures for obtaining planning permission. In case of conflict between the Development Regulations stipulated in the Master Plan and the Andaman and Nicobar Island (Panchayat Administration) Rules, 1997 the provisions contained in the Development Regulations & Implementation Mechanism suggested in the Master Plan will prevail.

5.3 DEVOLUTION OF POWERS

Under Section (12) of the Andaman and Nicobar Islands Town and Country Planning Regulation, 1994 the Town Planner is vested with the powers to issue Planning Permission within a Development Area. The powers and functions of the Town Planner may be delegated to the following institutions and the representatives heading these institutions for the purpose of granting planning permission and approval of the building plans within the Panchayats forming part of Havelock and Neil Islands.

i) Local Self Governments (Gram Panchayats) forming part of Havelock & Neil Islands

ii) Town & Country Planning Unit, APWD (proposed to be upgraded as Department of Town and Country Planning - DTCP, as per Master Plan for Port Blair Planning Area)

Both Havelock & Neil Islands comprise of five revenue villages each and these villages fall under the jurisdiction of three Gram Panchayats as mentioned in Table 5.3.

TABLE 5.3 REVENUE VILLAGES/PANCHAYATS AT HAVELOCK & NEIL ISLANDS

Name of the Panchayat	Revenue Villages
Shyam Nagar (Havelock Island)	Vijaynagar
	Krishnanagar
	Shyamnagar
	Radhanagar
Govindanagar (Havelock Island)	Govindanagar
Neil Kendra (Neil Island)	Lakshmanpur
	Neil Kendra
	Ramnagar
	Bharatpur
	Sitapur

Presently, the building activities in the revenue villages at Havelock and Neil Islands are regulated by the respective Gram Panchayats. It is proposed to devolve powers to these local bodies to issue planning permission and approval of building plan for all developments, in plots not exceeding 200 sq.m. For developments in plots exceeding 200 sq.m., DTCP will be the competent authority to issue the planning permission and the approval of building plan is to be accorded by the concerned local body.

Further, it is also proposed to devolve powers to the Panchayats within the Planning Area to approve layout for plots, in case of number of plots does not exceed 8 and also the total extent of site considered for layout does not exceed 1000 sq.m.

5.4 PROCEDURE FOR OBTAINING PLANNING PERMISSION, BUILDING PLAN APPROVAL AND LAYOUT FOR PLOTS FOR DEVELOPMENT

The Development Regulations apart from prescribing the rules and standards for land and building development also proposes for 'Normal' and 'Special Sanction' Categories for according planning permissions. The procedure for obtaining / granting planning permission are briefed hereunder.

(a) For developments in plot with an extent not exceeding 200 sq.m.

If the proposed "development" is within a plot not exceeding 200 sq.m., the applicant may apply in the prescribed format to the concerned local body for obtaining both planning permission and approval of the building plan. The local body in turn, may accord Planning Permission as per the provisions of the Development Regulations stipulated in the Master Plan for Havelock and Neil Islands and also approve the Building Plan as per the provisions of the Andaman and Nicobar Islands (Panchayat Administration) Rules, 1997 in consonance with the Master Plan for Havelock and Neil Islands.

If the activity requires Special Sanction the local body may forward the proposal to the DTCP for the issue of planning permission before granting the approval of the building plan.

(b) For developments in plot with an extent of more than 200 sq.m.

In case of developmental activities in plots exceeding 200 sq.m., the applicant may apply in the prescribed format to the Town Planner, DTCP through the concerned Local body. The Chief Town Planner, DTCP may accord Planning Permission as per the provisions of the Development Regulations stipulated in the Master Plan. The Building Plan approval is to be accorded by the Local body as per the provisions of the Andaman and Nicobar Islands (Panchayat Administration) Rules, 1997 and in consonance with the Master Plan for Havelock and Neil Islands.

(c) Others

In case of layout for plots not exceeding 8 in number and in case of the site for layout not exceeding 1000 sq.m the applicant may apply in the prescribed format directly to the local body for approval. The local body may accord approval for the same in accordance with the provisions of the Development Regulations stipulated in the Master Plan for Havelock and Neil Islands.

For layout for plots exceeding 8 in number or layout for plots in site exceeding 1000 sq.m in extent, the applicant may apply in the prescribed format to the Town Planner, DTCP through the concerned local body for consideration and approval. The DTCP may accord approval for the same in accordance with the provisions of the Development Regulations stipulated in the Master Plan for Havelock and Neil Islands.

5.5 CONSTITUTION OF AN ADVISORY BODY

As already mentioned in section 5.3, the Town Planner appointed under Andaman and Nicobar Islands Town and Country Planning Regulation, 1994 is vested with the powers to issue Planning Permission within the revenue villages contained in the Havelock and Neil Islands. However, his / her powers and functions in respect of granting planning permission in the revenue villages contained in the Havelock and Neil Islands may be delegated to the representatives of the Local Bodies and the DTCP, as proposed in section 5.3 and 5.4.

Further constitution of an Advisory Body may help the Town Planner, whenever and wherever he/she consider necessary to have broader consultations and consensus in matters relating to implementation of Master Plan and granting Planning Permissions. Therefore, it is proposed that an Advisory Body in the name of 'Havelock and Neil Advisory Body' (HNAB) is constituted to offer advice and recommendations to the 'Town Planner' in matters relating to planning and development of the Havelock and Neil Islands. The Town Planner, if he/she considers necessary, may also refer the applications for Planning Permission sought under the Special Sanction category.

The Town Planner or the Town & Country Planner of the DTCP, in the capacity of the Chairman of the HNAB will be in-charge of the Plan Implementation and Development of the Havelock & Neil Islands. The function of the Member Secretary for the HNAB may be served by the Town & Country Planner or Associate Town & Country Planner. The Deputy Commissioner (South Andaman) along with the representatives of the departments of Tourism, Environment and Forests, Fisheries, and Public Works may be included as the members of the HNAB. Representatives of the Local Bodies in Havelock and Neil Islands may also be considered for inclusion as members in the Committee. The broad functions of the Authority include the following:-

(i) Recommend appropriate strategies towards implementation of the Master Plan.

(ii) Offer assistance in realization of identified programmes and projects in Master Plan.

(iii) Help to achieve coordination among the sectoral agencies and various other stakeholders to overcome issues confronting successful implementation of the Master Plan.

(iv) Offer opinion on granting planning permissions that fall under Special Sanction category, may be referred by the Town Planner or any other person on whom the powers for according the Planning Permissions are delegated.

(v) Offer opinion on land use reclassifications, referred by the Town Planner or any other person on whom the powers for according the land use reclassifications are delegated.

(vi) Offer its views on any other matter referred by the Administration, relating to planning & development of the Havelock and Neil Islands and the implementation of the Master Plan.

5.6 ROLE AND RESPONSIBILITIES OF THE AGENCIES

Master Plan document has identified proposals towards realization of sustainable tourism development in the Havelock & Neil Islands. Attention has also been given to identify proposals which could substantially enhance socio-economic conditions of the local population in the Master Plan. Though the success of these projects would depend on the support and coordination of the various agencies and the public, the process of project implementation is required to be initiated by the respective agencies/departments on which the projects will be finally handed over for operation and maintenance. Coordination among Tourism Department, Department of Town and Country Planning and the Gram Panchayat at Havelock & Neil Islands will be critical and important as these agencies will be mostly responsible for laying out required policies and strategies for successful implementation of the Master Plan and as well the enforcement of the provisions contained in the Master Plan.

The departments responsible for the projects enlisted in the Master Plan need to initiate actions towards preparation of Detailed Project Reports and Environmental Impact Assessment Reports wherever necessary and obtain clearance from all relevant authorities. As land is an essential component of every project conceived in term of spatial context, the government departments are to take appropriate steps in acquiring lands for the development projects through innovative means.

Master Plan provides for reclassification of land use in order to accommodate the local needs and to ensure that individuals are not unduly affected in the process of Plan implementation. However, the Andaman and Nicobar Islands Town and Country Planning Regulation, 1994 does not provide for 'Reclassification of land use'. Therefore, the Administration may consider amending the Regulations for incorporating such provision.

Unlike in other places, Gram Panchayats at Havelock and Neil Islands are over burdened as they need to cater not only for the local population, but for a sizable and increasing number of tourists population, which could exceed the local population in number by the end of plan period. However, their organizational structure and powers are the same comparable with any other local government, which may not augur well for an efficient administration. These Local Governments at Havelock & Neil Islands are seen to lack in technical manpower and may find difficult to manage the situation. Further, these institutions have been empowered by the Master Plan to issue both Planning Permission and Building Plan approval for all developments in plots, not exceeding 200 sq.m. in extent. Considering all these, the Administration is required to take appropriate decisions towards strengthening the local administration at Havelock and Neil Islands.

5.7 RESOURCE MOBILIZATION

Master Plan has identified projects for improving the service delivery for the local population and also several other projects, capitalizing opportunities to attract more tourists and extend their duration of stay at Havelock and Neil Islands. Projects targeted to benefit the local population in the Master Plan do not require huge capitals, as the combined population of these islands does not exceed 10,000 as per the 2011 census. However, projects intended to promote tourism are capital intensive, and also require longer gestation period. As tourism is all set to take the lion share of local economy, there are many tourism development projects identified in the Master Plan, requiring high capital costs for implementation.

Though, public financing could be availed partly for these projects, it may not be totally sufficient for implementation of the tourism projects.

However, Private Public Partnership (PPP) approach suits tourism projects more, than projects in any other sector. All projects relating to tourism development in the Master Plan, are sure to attract the participation of the private sector. Almost all State Governments in India have began applying the PPP concept for implementing tourism projects, which will definitely attract more bidders considering the scope and potential for tourism development in Havelock and Neil Islands.

The Government of India encourages and supports several types of tourism projects through various Schemes of the Ministry of Tourism. Cruise Tourism, Eco Tourism, Adventure Tourism, Heliport Tourism, and Accessible Tourism are the broad areas under which tourism related projects are encouraged and supported by the Ministry of Tourism, Government of India. The Department of Tourism, A & N Administration, is expected to dovetail the projects identified in the Master Plan under the broad areas of support offered by the Government of India and obtain necessary financial aid towards implementation of the projects.

The Departments of the A & N Administration are also expected to initiate action towards incorporating the projects identified in the Master Plan in the Annual / Five Year Plans of the Administration to secure allocation under the plan schemes.

Availability and possession of land is another critical dimension, in plan implementation. Land is a valuable asset, and serves as a resource for development. In most development projects, the share of the land cost is significant. Therefore, the development agencies of the Administration are expected to have a complete inventory of the land under their possession and prepare a management plan for these critical resources as part of their asset management. It is advantageous that the lands are only leased to the private in the Islands and the renewal of lease is to be accorded only after examining the need for public use of the lands. While conceiving the PPP models for implementing the infrastructure development projects, providing land for the project could be the share of investment by the Administration.

The DTCP may also study the possibilities of practicing land management tools such as Transfer of Development Rights (TDR), which may substantially reduce the project cost, where land acquisition is necessary. TDR could be an effective strategy to preserve the pristine ecology of the islands and also to sustain economic development without compromising dynamism in physical development.