State Development Report for A & N Islands for next 25 years – Development Plan of Andaman Public Works department

Andaman Public Works Department is the premier construction agency of Andaman & Nicobar administration. Most of the civil works are carried out by APWD. Major activities of works of APWD are:-

(1) Roads and Bridges
(2) Water supply & Sanitation
(3) Housing
(4) Urban Development
(5) Public Works
(6) Minor Irrigation
(7) Civil Aviation

Andaman PWD also takes up works for other departments related to infrastructure development.

Works pertaining to Local bodies like Municipal Corporation, Zilla Parishad as well as Central Government departments are also enstrusted to Andaman PWD as deposit works.

1.0 Roads & Bridges:

1.1 There are three categories of roads viz Trunk Roads, Urban Roads (Primarily roads within Port Blair township) and Rural Roads.

1.2 **Trunk Roads :** There are three trunk roads viz Andaman Trunk Road (ATR), Little Andaman Trunk Road (LATR) and Great Nicobar Trunk Road (GNTR).

1.2.1 **ATR :** This road is the main road connecting Chidiyatapu in South Andaman and Aerial Bay in North Andaman. This road traverses through islands of South Andaman, Baratang, Middle Andaman and North Andaman. There are two disconnections, one at Middle Strait and the other at Humphray Strait. The total length of ATR is 333km having an average width of 3.60m which is lesser than the specified width of one lane road of 3.75m. Initial objective of this road was to provide connectivity between the localities of these islands and adequate attention was not given to the sub-grade characteristics and corresponding requirement of different components of the road structure. As per the recent High Court judgment, no construction activity can be taken up in 71km of ATR. In balance 262km, improvement is needed both from the consideration of geometry and the structure of the road which also includes widening to intermediate lane width of 5.50m as suggested by CRRI.

During the next 25 years, improvement of ATR will be taken up in phased manner.

Phase-I : Improvement of the road geometry and structure including widening to 5.50m width will be taken up and completed within the first 10 years.

Phase-II : Depending on the traffic situation, widening of the road to 2 lane width (7.0m) will be taken up during the remaining 15 years.

1.2.2 **LATR :-** LATR is 24km in length, running along eastern coast, connecting Dugong Creek in the North and Harminder Bay in the South of Little Andaman island. Presently it is single lane road having average width of 3.60m. It is proposed to be widened to intermediate lane width (5.50m).

Looking to the trend of population increase which was 7214 during 1981 and 12247 during 1991, increase in width to 5.50m will be adequate for meeting the demand during the next 25 years.

1.2.3 **GNTR :** GNTR is 93km in length and is in two segments known as East-West road and North-South road. East-West road is 42km in length and connect Kopen Heat on the Western coast to Campbell Bay on the Eastern coast. North-South road is 51km in length and connect Campbell Bay in the North to Indira Point in the South. It is the most important road in Great Nicobar Island having average lane width of 3.60m. On account of large scale heavy land slide, condition of the East-West road is very bad. In many stretches road is now practically non-existent. In the first phase, it is proposed to reconstruct and improve the East-West road along with the improvement of the North-South road. In the second phase, widening of GNTR will be taken up to make it 5.50m wide (intermediate lane width). Looking to the trend of increase in population, which had increased from 4976 in 1981 to 6831 in 1991, width of 5.50m will be adequate to cater the need for the next 25 years.

1.3 Urban Roads (Roads in Port Blair Head Quarter area):

1.3.1 Port Blair city is the Administrative head quarter of this union territory having main Administrative & Commercial establishments, tourist linked infrastructures and the main educational Institutions. The Airport and the main shipping port are also situated in Port Blair. The entire Cargo from mainland is received at Port Blair and then further carried to other Islands. Port Blair has to accommodate the tourists and other floating population, since it is the only city linked with the mainland.

The population of Port Blair city was 74955 as per 1991 census and was 1,00,186 during 2001 as per provisional census figures. The population after 25 years is expected to rise to 1,46,000 (excluding estimated floating population of 60,000).

The total number of vehicles in Port Blair during 1991-92 was 10026 and the number of vehicles during the year 2000-2001 was 26,271 and this number is likely to cross half lakh figure by considerable margin in the next 25 years. The city has 117 km road length of different lane widths.

Looking to the trend of population increase resulting in more number of settlements around Port Blair, increase in vehicular traffic etc, it will be necessary to construct new roads for connecting new settlements and improvement including widening of existing roads. It is estimated that in the next 25 years area of road surface will be approximately 3.00 times the present road surface area. This translates into additional 350km of new road with necessary pucca drains, footpaths, culverts etc.

Proper studies / surveys will be conducted before taking up the construction / improvement of Urban roads during the next 25 years.

1.4 Rural Roads:

1.4.1 There are 722 km of rural roads in these Islands. Construction of rural roads in these Islands was being taken up from the U.T. grant till the end of 1999-2000. During 2000-2001, a Centrally Sponsored scheme viz PMGSY has been introduced for providing connectivity to the villages.

As per 2001 census, there are 502 inhabited villages in the A&N Islands. So far 256 villages were connected and remaining 246 villages are yet to be connected. About 900km of new rural roads are proposed to be constructed during the next 25 years in order to provide connectivity to

all the villages as well as to provide intra – village point to point accessibility.

In Panchayat areas works are expected to be carried out by PRIs whereas in other areas like Tribal areas works will be carried out by APWD.

Some of the rural roads, specially those linking major villages with ATR will be taken up for widening and improvement as per the specifications for District roads. Construction of retaining walls, permanent drains and other improvement works will also be taken up in respect of rural roads where the same are lacking.

Some major bridges will be constructed on the Rural Roads either as replacement of the old ones or as complete new ones. There is a need for constructing bridges across nallahs passing through villages which carry heavy flood during monsoon, on account of which villagers face difficulty in crossing the nallahs for their day to day work. Exact cost of the bridges will assessed after detailed investigation.

2.0 Water Supply & Sanitation:

There is one city and two small Census town viz., Garacharma & Bamboo Flat (these are basically satellite towns of Port Blair city) and 502 villages as per 2001 census in A&N Islands. For water supply, these Islands are basically dependent upon the rainwater. Average annual rainfall is about 3000 mm, which is spread over a period of eight months. Because of the sloping hilly terrain, most of this rainwater flows quickly to the sea and needs to be harvested by creating artificial storage by constructing dams, dykes and weirs. This stored rainwater is then supplied through distribution network after proper treatment. In addition to the surface flow, there is also sub-surface flow of water, which is tapped by constructing sub-surface dykes and dug wells. Some of the remote villages are provided water supply from springs/ open wells. The water supply available from all these sources is not adequate to cater to the requirement as per the norms. Hence the same is required to be augmented by tapping new sources alongwith providing treatment facility and distribution network.

The water supply is segregated into two parts namely urban and rural water supply

2.1 Urban Water Supply

2.1.1 Port Blair, which is the Head Quarter of the U.T., is the only city in these Islands as per 2001 census. This city is spread over an area of 16.64 Sqm.

2.1.2 The population of the town as per 1991 census was 74.955. Subsequently the villages named Minnie Bay, School Line and Austinabad also have been brought within the Municipal limits thus increasing the total population to 78,853 during 1991. The population of Port Blair city as per 2001 census is 1,00,186. The projected population and water requirement for the next 25 years are assessed as under:

Year	Projected population *(in Lakh)*	Floating population *(in Lakh)*	Total Popln *(in Lakh)*	Water require-ment @ 135LPCD (in Lakh Litres)	Water require-ment for Institutions (in Lakh Litres)	Grand Total (in Lakh Litres)
2001	1. 00	0.30	1.30	175.50	54.50	230.00
2025	1.46	0.60	2.06	278.10	91.90	370.00

2.1.3 Presently about 150.00 Lakh litres of drinking water are supplied. If the present water supply system is not augmented there will be estimate shortage of about 220 Lakh litres of drinking water after 25 years. Ongoing and proposed new schemes for augmentation are as under:

(i) Revival of Dilthaman tank
(ii) Nayagoan-Chakargaon Diggi
(iii) Chouldhari scheme (A&N share)
(iv) Artificial ground water recharge schemes recommended by CGWB.
(v) Raising the height of Dhanikhari Dam
(vi) Indira Nallah project.

Serial No.(i) to (iv) are ongoing schemes and serial No.(v) is proposed new scheme. Water available from the above schemes in continuation with the existing system will be able to meet the projected demand of drinking water upto 2011.

2.1.4 The following schemes are in the feasibility study stage and they are planned to meet the long term demand of not only for next 25 years but beyond that (upto 50 years).

(i) Tapping the water from Rutland Island
(ii) Flat Bay scheme planned for converting part of the sea into a fresh water lake.

2.1.5 The total capacity of the existing treatment unit is 150 Lakh litres per day and in order to provide safe drinking water. Treatment plants are being constructed for treating the raw water from Nayagaon-Chakargaon diggis as well as Dilthamen tank. Land is being identified for constructing new treatment plants in order to create extra capacity for treatment of additional water from schemes at serial No.(iii), (v) and (vi). Thus activities related to creation of infrastructure for treatment of raw water are in tandem with the augmentation schemes.

2.1.6 The existing distribution system has been designed by Central Public Health Engineering & Environment Organization (CPHEEO) to meet the projected requirement of water supply upto 2011. Distribution system will be revamped along with construction of additional clear water reservoirs to meet the requirement of additional water available after implementation of above augmentation schemes.

2.2 Rural Water Supply

2.2.1 There are 502 villages in these Islands as per 2001 census. As per the detailed survey on status of water supply as on April 2001, 162 villages (now Partially Covered (PC)) are yet to be Fully Covered (FC).

The process of providing additional water in order to maintain the status as fully covered is required to be continued during next 25 years.

2.2.2 The Central Ground Water Board (CGWB) had carried out extensive survey for identification of new sources to tap the ground water potential for augmentation in the rural areas. It is also proposed to get further investigation done at places where surface sources are not available but there is scope of harnessing ground water potential. It is estimated that out of 162 PC villages, about 32 villages (20%) can be augmented through sources identified / to be identified by CGWB.

There is also a need for taking up new major schemes under rural water supply to meet the future demands with next 25 years. The following schemes are identified for survey, investigation, preparation of project report and processing the same for execution.

1. Kamsarat Nalah in Strewardgunj
2. Mithakhari Nalah in Mithakhari
3. Koila Nallah in Mannarghat
4. Krishna Nallah in Havelock, etc.
5. Tika Nallah in Middle Andaman.

In addition to the above, new sources are required to be identified and tapped to cater for the water requirement during next 25 years.

2.2.2 Proper treatment plants are available only in some places like Diglipur, Rangat, Mayabunder, Bakultala, Bambooflat, Kamorta etc. Additional treatment plants proposed to constructed during the 10th Plan are given in **Annexure-A.** The focus in coming 25 years would be to provide treated water to all the villages.

2.2.3 The existing distribution systems in sub-urban and other rural areas are about 20 to 30 years old, many of which need replacement for increasing the capacity to the required level. After carrying out a detailed survey and as per the requirement replacement / renewal of the distribution system will be taken up on a continuous basis. Similarly new distribution lines will be constructed in keeping pace with the requirement during coming 25 years.

2.3 **SANITATION**

Presently most of the houses are provided with aqua-privy / water closet with septic tank with or without soak pit. Effluent from these septic tanks, finds its way directly into the sea. This contributes to the environmental pollution. At present, there is no underground sewerage system. The Pollution Control Act & Environment Protection Act (1986) require commissioning of a proper underground sewerage system in the city having population above one Lakh and therefore it is necessary to have underground sewerage system in Port Blair city. Accordingly consultancy for the work was given to M/s WAPCOS who will be submitting Detailed Project Report by the end of 2003. Execution will be taken up in a phased manner during next about 10 years after getting necessary approvals. Once the system is placed in position and addition is made as and when required, this will continue to serve next 25 years. In other places like Diglipur, Mayabunder, Rangat etc the existing system of water closet and septic tank will be continued during the next 25 years.

3.0 Housing

3.1 Construction of residential accommodations for Government Servants under A&N Administration is taken up under Housing.

3.2 **Construction of residential accommodation for Govt. Servants :**

There is acute shortage of residential accommodation for Government servants in these Islands as only about 7340 houses are available against about 26550 employees, thereby providing a satisfaction level of just about 27%. In view of remoteness of these Islands and non-availability of private buildings on rental basis especially in areas other than Port Blair town, there is a wide gap between the demand and the availability of Government accommodation.

Increase in number of Government employees is not in direct proportion to the increase in population and it can safely be presumed that number of Govt. employees after 25 years shall be in the vicinity of about 30,000. Taking a target of satisfaction level of about 50% the number of Govt. houses required works out to 15,000. Thus about 7660 additional houses will have to be constructed over a period of next 25 years at the rate of about 300 houses per year.

In compliance with the direction of the Hon'ble Supreme Court, methodology of construction of houses will be changed from RCC oriented construction to Assam type construction using timber, bamboo and cane as far as possible. Focus will also be given to revert to timber construction using locally produced treated timber as was the case here in seventies and earlier.

A large number of existing Government houses are in dilapidated condition which need extensive repairs / renovation in order to make them habitable. Renovation process is continuous and target of renovation of 100 houses per year has been fixed.

4.0 Urban Development

4.1 Preparation of Regional Development Plan for Andaman and Nicobar Islands and preparation of Master plans for Port Blair, Diglipur, Mayabuder, Rangat, Wimberlygunj, Hut Bay and Campbell Bay; Construction of Non-road side drains in Port Blair Municipal area; and Slum improvement in Port Blair Municipal area are covered under Urban Development.

4.2 **Preparation on Regional Development Plan for A&N Islands and preparation of Master plan for Port Blair, Diglipur, Mayabunder, Rangat, Wimberlygunj, Hut Bay & Campbell Bay.**

An outline development plan for Port Blair was finalised by the Town & Country Planning Organisation, GOI, Ministry of Urban Affairs and Employment, New Delhi in 1991 but was not put to operation. Subsequently the Andaman and Nicobar Islands Town & Country Planning Regulation 1994 was promulgated and published in the Gazette of India in August 1994 and in the Andaman and Nicobar Gazette in December 1994. However the regulation came into operation only in 1998 and the working rules are under preparation which is in the advanced stage of completion. Apart from Port Blair there is proposal to develop master plan for out lining areas of A&N Islands and such areas have been identified as Rangat, Bambooflat, Wimberlyguj, Mayabunder, Diglipur, Hut Bay, Car Nicobar and Campbell Bay.

To give impetus to the planning process it is proposed to strengthen existing Town and Country Planning unit of APWD by increasing present staff strength of 26 (in position only 16) to 65 at various level.

Apart from the above following programmes have been chattered out for implementing in next 25 years.

(i) Establishment of computer center:-
(ii) Prepare and finalise comprehensive regional development plan for the A&N Islands.
(iii) Prepare, notify, Print and Publish & implement the outline Development Plan for Port Blair and detailed development plan for Port Blair.
(iv) Prepare, notify, print, publish and implement Master Plan for :
(1) Dilgipur (2) Mayabunder (3) Rangat (4) Wimberlygunj
(5) HutBay (6) Campbell Bay (7) Car Nicobar.

4.2 Construction of non-road side drains in Port Blair Municipal area

The topography of Port Blair is undulating and the town experiences heavy rain fall. Lack of pucca drain for efficient disposal of run off is causing considerable erosion to hills and damage to properties. It is necessary to protect the available land by constructing pucca drains.

During 8th Plan, 13500 meters of drain were completed.. During 9th Plan, 7711 Meter of drains were completed. During 10th Plan, it is proposed to convert 5000 meters katcha drain into cement concrete drains. This is ongoing process and to be continued for the next 25 years and beyond. For planned and efficient execution the WAPCOS, New Delhi, Govt of India enterprise has been entrusted with the work of preparation of Master Plan for drainage which will be blue print for the future.

The proposals contained in the report after due an examination will be implemented in phases.

4.3 Integrated traffic planning for Port Blair

The population of Port Blair was 1,00,186 in 2001 and is likely to increase to 1,46,000 (excluding floating population of 60,000). During this period number of vehicles will increase from 26,271 to 60,000. This will considerably increase the traffic density on road. This will require integrated traffic planning so that roads are not clogged. In coming 25 years it is proposed to prepare realistic master plan for traffic management and implement this in a phased manner so that smooth traffic flow is maintained without any bottleneck.

5.0 PUBLIC WORKS

5.1 In the next 25 years the following public buildings will be taken up for construction and will be completed.

(i) Construction of LG's Secretariat.
(ii) Carrying out expansion of existing Secretariat building
(iii) Construction of Assembly building
(iv) Construction of auditorium and conference hall.

All these buildings are located in Port Blair city. In other places the following buildings will be taken up.

(i) Andaman house at Chennai
(ii) Construction of General Pool Office accommodation at Rangat, Mayabunder, Nancowrie and Campbell Bay

Apart from the above, existing old timber buildings which have outlived their lives will be replaced by new building.

5.2 For any organization, it is imperative to keep pace with the time. APWD shall also not lag behind. With this end in view, following action plan have been chalked out for next 25 years.

(i) Providing technology support for investigation and testing of materials so that quality of work is not compromised at any stage.

(ii) Actively encouraging use of alternative building materials to reduce dependence on RCC construction, as suggest by Professor Sekhar Singh Committee for A&N Islands.

(iii) Promoting new techniques of construction such as Assam type building construction.

(iv) Upgrading the existing laboratories and establishing new laboratories.

5.3 **Training of Personnel:** The technical personnel such as Engineers, Architects and Town Planners have to keep themselves abreast with the latest innovations and technical advancements taking place in the construction and related planning / design activities. For this purpose, it is necessary to organize refresher skill development programmes at Port Blair as well as to sponsor the departmental officers to attend specialized training programmes / seminars / conferences being conducted by premier professional institutes within the country and aboard. The policy for continuous training for up gradation of skill and knowledge will be pursued vigoursly in the 25 years to maintain APWD's lead as a premier construction agency.

6.0 Minor Irrigation

Andaman Public Works department carries out works related to Minor Irrigation. It undertakes works related to flood control and also takes measures to arrest sea and soil erosion.

With the aim of attaining self sufficiency in food grains in the Andaman and Nicobar Islands, various settlement areas in this territory are proposed to be brought under irrigation cover to help producing multiple crops. Rainfall in Andaman & Nicobar Isands is abundant and spreads over seven to eight months. However irrigation is required to protect the kharif crop during the break in monsoon and to produce third crop by providing simple diversion cum storage scheme at a reasonable cost.

The Central Water Commission had investigated and prepared draft for four schemes viz., Ramakrishnapur and Vishnu Nallah Minor Irrigation scheme in Little Andaman, Prem Bahadur and Swaroop Nallah Minor Irrigation scheme in Great Nicoabr Island.

The investigation Division of APWD has investigated about 30 Minor Irrigation schemes out of which nine schemes viz., Krishnapuri Nallah, Kudirampur and Kalara Valley Minor Irrigation scheme in North Andaman, Rangat Nallah, Korang Nallah and Panchwati Nallah Minor Irrigation scheme in Middle Andaman and Kamzarat Nallah, Mithkhari Nallah schemes in South Andaman are prima facie found to be feasible.

Out of the above, Ramakrishnapur and Vishnu nallah minor irrigation scheme at Little Andaman were already taken up during 9th Plan.

The following minor irrigation schemes are to be taken up and completed during first 10 years.

(a) Prembahadur Nallah Minor Irrigation scheme in Great Nicobar.

(b) Swaroop nallah Minor Irrigation scheme in Great Nicobar

(c) Korang Nallah Minor Irrigation scheme in Middle Andaman.

The balance schemes will be taken and completed in the remaining 15 years time.

62. **Flood Control including erosion control in A&N Island.**

6.2.1 Sea Erosion.

Andaman and Nicobar Islands cover a total land area of about 8300 Sq.km spread over about 360 Islands (572 including islets and rocks) and stretch for a length of about 800 km in North-South direction.

Out of the above only about 2% of land i.e., about 170 Sq.km is revenue land, the rest being forest area. This area is mostly confined to the coastal belt, theatre of all developmental activities.

Thus the land area available is very limited to meet the increasing demand for development. It is, therefore, important that the meagre land areas is conserved from the effect of sea erosion.

The following pockets have been identified as highly prone to sea erosion.

a. Chidyatappu, Burma Nallah Bridge area between Carbynscove beach and South Point in South Andaman.
b. Betapur Fisherman colony in Middle Andaman
c. Sea shore between Ariel Bay and Kalipur in North Andaman.
d. Area near Shastrinagar, VijayaNagar, Joginder Nagar and between Galathea River and Indira Point in Great Nicobar Island.
e. Between Heety and Netaji Nagar in Little Andaman
f. From Tapoming Village to Lapathy village at Carnicobar Island
g. From Head Quarter upto S.S. School Kapanga, Katchal Island.
h. Nancowry.

In addition, pre-war protection works have weathered and are required to be restored / replaced. Such restoration / replacement is immediately required between Bambooflat and NorthBay and between Bay Island Hotel and Southpoint in South Andaman

About 15000m sea wall is proposed to be constructed during next 25 years for protection of the coasts.

6.2.2 **Soil erosion on account of flooding of rivers / nallahs.**

There is erosion of the banks of Rangat river, Kalpong river and on other major nallahs passing through the villages in South Andaman, Middle Andaman, North Andaman etc which causes damage to the private / government properties. These cannot be protected by planting trees and need permanent river bank protection work. During the next 25 years target of constructing 1500m of spurs across various rivers/nallahs has been fixed.

On account of fast growth of villages like, Diglipur, Mayabunder, Rangat, Wimberlygunj, Bambooflat and Campbell Bay, large number of houses are being constructed in these areas resulting in denuding of vegetation cover. Being hilly terrain and subject to heavy rain for long duration surface run off has increased considerably causing erosion of top soil, de stabilization of hill slopes resulting in land slides and increase in flood condition in rivers / nallahs. To arrest these adverse effects it is necessary to construct drains for swift and efficient disposal of rain run off. With this end in view it is planned to construct pucca / lined drains of length 1500m during the next 25 years.

7.0 Civil Aviation

The Airport at Port Blair is a Defence Airport. The present 6000 ft long runway with the existing specifications can support only aircraft like Boeing 737 having comparatively less passenger carrying capacity.

Out of various alternatives examined by the consultants, M/s RITES, a GOI undertaking, finally the decision was taken to extend the existing runway by 5000ft. Work is in progress and expected to be completed during 2003 – 04.

It is expected that due to increase in tourist traffic in the coming years , the Air port will be declared as international Air port and all additional infrastructural works will be taken up by APWD.

It is proposed to introduce inter Island helicopter service. It is envisaged that the number of existing helipads will be upgraded and new helipads constructed. These helipads shall have facility for security check and other passenger facilities.

However, quantifying the targets for the next 25 years is not possible at this juncture as detailed policy frame work is yet to be firmly put in place.