

# **ANNUAL REPORT TO THE PEOPLE ON INFRASTRUCTURE**

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**2010-11**

**Planning Commission  
Govt. of India  
New Delhi**

**ANNUAL REPORT**

**ON**

**INFRASTRUCTURE**

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**Govt. of India**  
**New Delhi**

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### **FOREWORD**

It gives me great pleasure to release the 2<sup>nd</sup> Annual Report to the People on Infrastructure 2010-11. The Report has been prepared by the Planning Commission in consultation with various Ministries and covers nine key infrastructure sectors which include Power, Railways, Roads, Ports, Civil Aviation, Telecommunications, Irrigation, Rural Water Supply and Sanitation and Housing and Urban Development.

The role of well-developed and efficient infrastructure network in promoting sustainable and inclusive economic growth cannot be overemphasized. Various plan documents have focused attention on the development of this sector as an essential means to augment growth, productivity and the quality of life of the citizens of the country.

In response to various policy initiatives taken by the Government during 2010-11 there were unmistakable signs of revival of the economy after the slowdown in the previous year and a robust momentum had started to build up in most of the infrastructure sectors. The Report takes stock of these developments and attempts a critical analysis of the achievements during the year 2010-11.

In keeping with the priorities of the UPA Government augmentation of capacities and modernization of the infrastructure remains a focus area. The public sector is expected to play an important role in building capacities. However, the resources needed are much larger than the public sector can provide. Therefore, there is a need for public-private partnership to attract private sector investments to remove infrastructure bottlenecks.

For the first time, contribution of the private sector in total investments was targeted to exceed 30% during the 11<sup>th</sup> Plan. The success in mobilizing private sector investment in infrastructure through the Public Private Partnership (PPP) route during the 11<sup>th</sup> Plan has laid solid foundation for a substantial step up in private sector funding. These projects are expected to augment resource availability as well as improve the efficiency of infrastructure service delivery. Administrative Ministries and other Government agencies have adopted the standardized model concession

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agreement to streamline and accelerate the decision making in a fair, transparent and competitive manner.

It goes without saying that the performance of the infrastructure sector during 2010-11 as reflected here is a combined result of public and the private sector initiatives. I sincerely hope that this Report will generate a rich and constructive debate on various policy aspects, performance related issues and strategies that would help the Government provide better quality infrastructure services to the people of India in the coming years.

  
(Montek Singh Ahluwalia)

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## **EXECUTIVE SUMMARY**

Infrastructure services have shown signs of revival during 2010-11 from the recent global economic crisis that had affected many sectors. The unmistakable signs of revival were seen in the robust momentum of growth in telecom services and signs of recovery in power, ports, civil aviation, railways and roads. The report presents a critical analysis of the developments that took place in these sectors during 2010-11.

### **RAILWAYS**

2. Indian Railways (IR) with its vast network of more than 64,460 route kilometres is the third largest railway in the world under a single management. The Eleventh Five Year Plan (2007-2012) envisaged a 51 per cent increase in freight traffic and a 32 per cent increase in passenger traffic with focus on capacity enhancement, technological upgradation and service improvement. In 2010-11, railways recorded lifting of 921.73 million tonnes of revenue earning originating freight traffic and moving 7809 million passengers against the target of 944 millions tonnes of originating freight traffic and 7773 million passengers respectively. To enhance its existing capacity 709 kms of new lines were laid, work on 769 kms of track doubling was completed and gauge conversion of 837 kms carried out against a target of 709 kms, 769 kms and 837 kms respectively. It also electrified 975 Track Kilometres (TKM) against the target of 975 TKM. For 2011-12, the railways have set a target of construction of (a) 1075 kms new lines, (b) doubling of 867 kms; (c) gauge conversion of 1017 kms; (d) electrification of 1110 TKM and to move originating freight of 993 MT, besides moving originating passengers numbering 8271.61 million. Railways are undertaking an important project for creation of capacity through the setting up of 02 dedicated freight corridors, the Eastern Freight Corridor from Dankuni near Kolkata to Ludhiana and the Western Freight Corridor from JNPT near Mumbai to Dadri near Delhi. These projects are being executed by Dedicated Freight Corridor Corporation India Ltd. a PSU of the Ministry of Railways. There has been progress in these projects towards acquisition of land and other preparatory works. Railways are also undertaking projects for improvement of infrastructure facilities such as modernization of railway stations and improvement in passenger amenities

### **ROADS**

3. The total length of the National Highways (NHs) is 71,772 kms. This constitutes about two per cent of the country's total road network and carries 40 per cent of the total road traffic. The main objective of development of the NHs is to improve mobility. This objective is being achieved through implementation of the expanded National Highway Development Programme (NHDP). In 2010-11 5058.95 kms of road projects were awarded as against the target of 9000 kms. Under the NHDP programme 1780.34 kms could be constructed against the target of 2500 kms. The Ministry of Road Transport and Highways was able to spend Rs. 19,961.15 crores for road construction and related activities against an outlay of Rs. 25,155.00 crores for the year 2010-11. For the sections of the national highways which are not covered under NHDP, the Ministry could spend Rs. 4135.74 crores against the outlay of Rs. 3850.10

crores. The three main activities under this programme were widening of two lanes, strengthening and improvement of riding quality where the achievements were 1042 kms, 1016 kms and 2026 kms respectively against the targets of 1117 kms, 1213 kms and 2307 kms respectively. The Ministry has also undertaken a very ambitious programme of road development in the North-Eastern part of the country. This programme is called the Special Accelerated Road Development Programme for North East. Under this programme 146 kms could be completed in 2010-11. Progress has been slow due to short working season and law and order problem in the North East. Major initiatives have been taken to improve the capacity of execution of projects by National Highway Authority of India (NHAI) and other agencies. The progress under Pradhan Mantri Gram Sadak Yojana (PMGSY) has been satisfactory. This programme targets to provide connectivity to all the habitations with the population of more than 1000 in the plain areas and habitation with population of 500 or more in hilly and tribal areas as well as 250 and more in LWE affected areas.

## **PORTS**

4. About 95 per cent of India's merchandise trade accounting for 70 per cent of its total revenue is carried out through maritime transport. Ensuring efficient and safe ports is therefore the main goal of development of ports. Traffic handled by major ports in 2010-11 was 570.03 million tonnes which was 3.72% more as compared to the previous year. Capacity augmentation of ports in the first four years of the Eleventh Plan has not been satisfactory. In the year 2010-11, additional capacity of 53.40 MT was added which took the total capacity addition in the first four years of the 11<sup>th</sup> plan to 167.38 MT. as against the 11<sup>th</sup> plan target of additional capacity generation of 511.80 MT. Bulk of the capacity creation was envisaged to come up through private sector participation in the non-major port sector. 09 Public Private Partnership (PPP) projects were awarded in 2010-11 at an estimated cost of Rs.3356.65 crore and with a capacity of 57.76 Million Tonnes Per Annum (MTPA). In 2011-12, 23 projects are to be awarded. The private sector is estimated to invest Rs.16,743.00 crore in 2011-12..

## **AIRPORTS**

5. Upgradation and modernisation of a number of Metro and Non-Metro airports have been undertaken in order to meet the traffic demand as well as to create a world class airport infrastructure. With the completion of the Integrated Terminal- 3 project at Indira Gandhi International (IGI) Airport, New Delhi, in 2009-10, there has been a strong impetus to private sector participation in airport construction along with the efforts taken by Airport Authority of India to increase the airport infrastructure in the country. Work of modernization and expansion of capacity at CSI Airport, Mumbai is being carried out under PPP. Airport Authority of India has undertaken projects to enhance the capacity of Chennai and Kolkata Airports which are in progress. Out of 35 Non-Metro airports, 23 airports have been completed in 2010-11. Work is in progress at the remaining 12 airports. The ongoing works at Lucknow, Indore and Coimbatore will be completed in the year 2011-12. The work on 14 Non-Metro airports is also likely to be completed in 2011-12. Apart from expansion of airport infrastructure, thrust is being given to implementation of satellite base navigation system through

implementation of GAGAN and projects related to improvement of communication, navigation and surveillance are being undertaken.

## **POWER & ENERGY**

6. The power sector has received utmost priority in the successive Five-Year Plans, resulting in the utility-based installed generation capacity rising from 1,362 Mega Watt (MW) at the time of independence to 1,90,000 MW today. A capacity addition of 12,161 MW was achieved during the Annual Plan 2010-11, which though lower than the target (20,359 MW), has so far been the highest in any single Annual Plan period. The capacity will be increased to 17,601 MW during 2011-12. The total generation envisaged for 2010-11 was 830.76 Billion Unit (BU), against which the actual achievement has been at 811.14 BU (97.64 per cent). There was shortfall in the case of thermal based generation due to inadequate availability of coal, long duration forced outage, extended planned maintenance of existing thermal units, delay in commencement of generation from some of the newly commissioned units and low schedule in respect of liquid fuel based plants due to high cost as well as thermal units having to be put under reserve shutdown. Shortage of coal resulted in a generation loss of eight BUs. However, the shortfall in thermal generation was compensated by increased generation from hydro and nuclear based projects. Annual Plan 2011-12 has set a target of 855.00 BU. To ensure the availability of coal and gas several steps such as development of coal blocks and setting up of LNG terminal etc. have been initiated. All states participating in Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) have notified their rural electrification plan and notified formation of District Committees. Annual Plan 2010-11 set a target to electrify 17,500 un-electrified villages and 47 lakh Below Poverty Line (BPL) Households against which 18,306 villages and 58.80 lakh Households were electrified. For 2011-12, electrification target of 14,500 villages and 52 lakh BPL Households has been set.

7. The estimated medium-term (up to 2032) potential for renewable energy in the country from wind, small hydro, solar and biomass has been assessed at 88,000 MW, which includes the potential from wind (49000MW), small hydro (up to 25 MW station capacity) (15,000MW), biomass (crop residues & bagasse) (22000 MW), and urban & industrial wastes (3,800MW). In addition, there is the theoretical potential of solar power generation of 600,000 MW.

8. A plan target of generating 2000 MW through wind energy was fixed for the Annual Plan 2010-11 against which 2350 MW was achieved. The cumulative achievement during the first four years of the Eleventh Plan is 7063 MW. The target set for the Annual Plan 2011-12 for wind power is 2400 MW. So far small hydropower projects (SHP) aggregating to 2,902 MW have been set up in various parts of the country. Against the target fixed for Annual Plan 2010-11 of 300 MW, the achievement has been 307.22 MW. For the Annual Plan 2011-12, a target of 500 MW has been set. Solar power generation plants with an aggregate capacity of 26.59 MW have been installed during the Annual Plan 2010-11. The target for 2011-12 is 200 MW.



## COMMUNICATION AND INFORMATION TECHNOLOGY

### 9. *Telecommunication*

The telecommunication services have been recognised throughout the world as one of the important tools for the socio-economic development of a nation. Growth of telecom sector has direct and indirect bearing on the GDP of the country. Building of robust and secured telecom infrastructure is an asset valued more than capital stock. A study by the World Bank in 120 countries has concluded that there is an increase in growth by 0.73 per cent to 1.38 per cent for every 10 per cent increase in penetration of telecom services. The effects are more significant in the case of developing countries than developed ones. Investment in telecom infrastructure development such as broadband and others is crucial for a developing country like India.

Indian telecommunication infrastructure has grown over the last five years and is second after China. The subscriber base as on March 2011 reached 846.33 million with a tele-density of 70.89 per cent. . However the rural areas remained far behind the urban with rural tele-density being 33.79 per cent only. The mobile subscriber base reached to 811.60 million with enormous contribution from the private sector. The broadband penetration is 11.79 million. The rural subscriber base in both telephone and broadband connections is still much below average and more investment is required to develop infrastructure like optical fibre laying, towers, IP networks like IBS, DAS etc. To enable continued investment and creation of infrastructure both State and Central Government need to play an active role to resolve the issues related to Right of Way.

Ensuring availability of spectrum is required for the rapid development of the telecom infrastructure. Vacation of spectrum by transferring services on alternate communication network is urgent, for making it available for commercial use.

It is expected that the telecom subscriber base would reach one billion by 2014. TRAI has estimated the market for wireless infrastructures equipment in India at Rs. 50 000 crore in 2011. DoT has indicated that by 2015 over Rs. 3, 50, 000 crore of telecom equipment would be required. It is therefore imperative to take a suitable manufacturing policy, thereby creating a manufacturing base apart from job market.

### 10. *Information Technology.*

The technological advancement in ICT sector is increasingly dominating and shaping the intrinsic value of people, which is changing the scenario of social networking, business and marketing strategy, government activities and delivery system. This will continue to make a mark in human knowledge domain by further leveraging the Information Technology's positive, social, political and economic impact simultaneously on government, enterprise and civil society.

The IT-BPO sector has showcased India's ability to build world-class standard business practices, sophisticated and demanding customer bases. The Industry, being front-runner in practicing good corporate business culture, has been able to engage with 75 percent of the Fortune 500 companies.

E- governance is a major initiative ushering governance on national scale providing all government services accessible to the common people through the e-platform. Under

the scheme, Government has facilitated 1,00,000 Common Service Centres in rural areas of the country. Statewise Area Network (SWAN) connecting the State Headquarter to the Block level and State Data Centres providing secured storage for seamless delivery of Government services are the other components of the National e-Governance plan.

The Directorate of Standardisation, Testing and Quality Certification has established high quality testing labs throughout the country and are providing Testing and Calibration Services not only to the home entrepreneurs but also to clients from Germany, UK, Bahrain and SARRC countries.

R&D initiative has been taken up to develop indigenous technology in the area of Cyber security, which includes Cryptography and Crypto-Analysis, Network and System Security, Security Architectures etc.

National Knowledge Network is being established to provide a scalable multi gigabit network, connecting 1000 nodes covering all universities, research institutions, hospitals, laboratories etc. It is expected to open up new frontiers of knowledge collaboration and enrich the research efforts throughout the country.

## **WATER RESOURCES**

11. Expansion of the irrigation facilities and consolidation of the existing systems has been the main part of the strategy for increasing the production of food grains. The revised target for the Eleventh Five Year Plan was 9.50 m.ha through Major and Medium Irrigation (5.00 m.ha.) and Minor Irrigation (4.5 m.ha). The irrigation potential created by the States during the period 2007-08 to 2010-11 ( four years) is 3.701 m.ha through Major and Medium Irrigation and 3.466 m.ha through Minor Irrigation (total 7.167 m.ha.). For the Annual Plan 2011-12, the targets are 2.065 m.ha and 1.233 m.ha respectively in these sectors.

## **RURAL DRINKING WATER SUPPLY & SANITATION**

12. Rural Drinking Water Supply is one of the six components of “Bharat Nirman”, a programme to build rural infrastructure launched by Government of India in 2005. Under the programme, safe drinking water is to be provided to all uncovered habitations by 2012. Under Bharat Nirman Phase-I from 2005-06 to 2008-09, the targets were to cover 55067 ‘Not covered’ habitations, 3.31 lakh ‘slipped back’ habitations and 2.17 lakh ‘quality affected’ habitations, against which 54440 ‘Not covered’ habitations and 3,58,362 ‘slipped back’ habitations were covered and 3,10,698 ‘quality affected’ habitations were addressed in Phase-I. Phase-II of the programme is under implementation from 2009-10 onwards. Upto 2010-11, 59,236 quality affected habitations and all the 627 uncovered habitations have been reported to be covered in Phase-II.

13. Total Sanitation Campaign (TSC) is a Centrally Sponsored Scheme (CSS) for providing sanitation facilities in rural areas. Individual House Hold Latrines (IHHL), Sanitary Complexes, School Toilets, Toilets for Anganwadis, Rural Sanitary Marts and Production Centers are the components of this scheme.

14. The outlay of Rs.1580 crore was allocated during Annual Plan 2010-11 for Rural Sanitation under Central Plan and the full amount was released by Ministry of Drinking Water and Sanitation. At the end of 2010-11, the projects in 607 districts of different States in the country have been sanctioned for coverage under TSC. All these projects are targeted to be completed at the earliest. The achievements during 2010-11 under the Campaign are 1,22,43,731 Individual Household Latrines, 1,05,509 School Toilets and 50,823 toilets for Anganwadis.

#### **Goals for year 2011-12**

##### **(a) Drinking Water Supply**

All habitations in the country are to be covered by safe drinking water supply at the earliest. During the year 2011-12, 1,64,587 habitations are targeted to be covered.

##### **(b) Rural Sanitation**

Total Sanitation Campaign is a demand driven scheme and, therefore, no annual targets are fixed in advance.

#### **HOUSING AND URBAN DEVELOPMENT**

15. In 2001, India's urban population, living in approximately 5,200 cities and towns, was about 285 million. It has increased to 377 million in 7,935 cities and towns in 2011. Projections are that by 2031, over 600 million people may be living in urban areas. While the extent of urbanisation in India is relatively lower compared to other major developing countries, e.g. 45 per cent in China, 54 per cent in Indonesia, 78 per cent in Mexico, and 87 per cent in Brazil, the pace of urbanisation is set to accelerate as large number of people may move to urban areas in search of better avenues for livelihood.

#### **Flagship Scheme - Jawaharlal Nehru National Urban Renewal Mission (JNNURM)**

16. The programme has renewed focus on India's urban centres and has led to initiation of many reforms in accordance with the 74<sup>th</sup> Constitutional Amendment Act which mandated devolution of powers to the third tier of Government. The programme has four components, Urban Infrastructure and Governance (UIG) and Urban Infrastructure Development Scheme for Small and Medium Town (UIDSSMT); Basic Services to Urban Poor (BSUP) and Integrated Housing and Slum Development Programme (IHSDP).

17. The UIG component of JNNURM addresses inter-alia the needs of water supply, sanitation, sewerage and solid waste management in the urban areas for the identified 65 Mission cities which include seven megacities, 28 million plus cities and 30 identified cities/urban agglomerations. The total seven-year Mission period allocation for UIG is Rs. 31,500 cr.

Under UIG, a total of 532 projects worth Rs.60,529 crore have been sanctioned for which the Additional Central Assistance (ACA) committed is Rs. 27960 crore. In 2010-

11, a total of 16 projects amounting to Rs. 2965 crore have been sanctioned during the year 2010-11.

18. The Mission has observed that the sectors most amenable to PPP under JNNURM are Solid Waste Management (SWM) and Transportation, followed by water supply and sewerage.

Funding of urban transport projects under JNNURM - Under the Second Stimulus Package announced by the Government, it was decided that the States/UTs, would be provided assistance for Mission cities to be funded under UIG component of JNNURM as a one-time measure to strengthen their urban transport system. Accordingly, Ministry of Urban Development has approved 15,260 buses with admissible Central assistance of Rs.2089 crore out of which Rs.1215 crore has already been released. Most of the buses have been plying on road.

Further, under the UIG component of JNNURM, 21 projects with an approved cost of Rs.5,204 crore have been sanctioned for improvement in public transport. Others 117 projects like roads, flyovers, ROBs and parking projects with an approved cost of Rs.9,788 crore have been sanctioned for traffic improvement and parking. As on March 31, 2011, total 43 projects have been completed.

19. UIDSSMT aims at improvement of urban infrastructure in towns and cities (other than the 65 cities identified under JNNURM) in a planned manner. The scheme applies to all cities/towns as per 2001 census, excepting the 65 cities/towns covered under Jawaharlal Nehru National Urban Renewal Mission (JNNURM). Total allocation for the seven year period was Rs.11,400 crore.

An amount of Rs. 1223.44 crore has been released during Annual Plan 2010-11 against the allocation of Rs. 1508.71 crore. As releases are made on implementation of reforms, an amount of Rs. 285.27 crore could not be released to those states which have not implemented the reforms. A total of 131 projects (68 WS, 52 Roads, 8 SWD, 1 SWM, 1 Water Body & 1 Urban Renewal) have so far been completed.

20. BSUP and IHSDP- components of JNNURM emphasise on providing utilities to the urban poor through integrated development of slums with the help of projects for housing, basic services and other related civic amenities. The approved projects related to physical amenities and infrastructures such as water supply, sewerage, storm water drain, internal roads, multi-purpose community centres and parks etc. Central Assistance ranging from 50 to 90 per cent depending upon the city, is provided as ACA in two instalments. Beneficiary contribution is 12 per cent and for SC/ST/BC/OBC/PH and other weaker sections it is 10 per cent. Access of Central assistance is linked to implementation of reform agenda. Under IHSDP, integrated development of slums is taken in all urban areas except 65 identified Mission cities covered under BSUP.

### **Housing for Urban Poor**

21. Urban poor suffer from multiple deprivation. Of them, vulnerabilities arising out of lack of housing are perhaps the most debilitating ones. Besides slum rehabilitation

under BSUP and IHSDP, preparatory work was carried out in 2010-11 to launch the first phase of Rajiv Awas Yojana which was subsequently launched in June 2011 with a two year budgetary outlay of Rs. 5000 cr. A major innovation in the scheme is incentivizing the states to provide property rights to slum dwellers - a measure which would help in addressing the issues arising out of large number of urban workers being engaged in 'informal sector'. The RAY also stipulates States to legislate on pro-poor reforms viz. reservation of 20-25 per cent of developed land for economically weaker section/low income group and a non-lapsable earmarking of 25 per cent of the budget of all municipalities for projects benefitting urban poor. Yet another innovation in the scheme is creation of a Credit Mortgage Fund which would partly cover the losses of the banks in the event of the non-repayment of loans.

### **Urban Transport**

22. National Urban Transport Policy (NUTP) 2006 seeks to promote integrated land use and transport planning and offers Central Government's financial support for investments in public transport and infrastructure. It encourages capacity building at institutional and individual levels.

Delhi metro phase-II which included extension of metro line to Noida, Gurgaon and Ghaziabad has successfully been completed. Metro rail projects at Bangalore, Chennai and Kolkata are under implementation under Government sector and projects in Hyderabad and Mumbai are being developed on Public Private Partnership basis. In 2010-11, budgetary provision of about Rs. 4417.72 cr has been made for metro Rail projects. Government of India had approved the DMRC Phase II proposal on 30.3.2006 at an estimated cost of Rs.8118 crore and with revised alignment from IIT to Qutab Minar at an estimated cost of Rs.558 crore, the total cost is Rs.8676 crore for a stretch of 54.675 kms. With the revision of Inderlok-Mudrika Corridor (to be taken on standard gauge from earlier proposal of broad gauge), the revised cost for Phase-II is Rs.8605.36 crore. On inclusion of rolling stock cost of Rs.3086 crore, the grand total for Phase II is Rs.11691.36 crore.

Other metro projects viz., Bengaluru, Kolkata and Chennai Metros are at various stages of implementation. Equity of Rs.995 crore and PTA of Rs.3322.21 crore has been provided for all metro projects for 2010-11.

23. **Water supply and sanitation, sewerage system and solid waste management** are important basic needs affecting the quality of life and productive efficiency of the people. The State Governments /Union Territories and urban local bodies (ULB) are responsible for providing these services through planning, design, implementation, operation and maintenance of water supply, sanitation, sewerage and solid waste management. Government of India assists the State Governments/UTs and ULBs by providing guidance for policy formulation strategies and technical approval of schemes and provides Central funds for implementation of the projects.

24. **North Eastern Region Urban Development Programme (NERUDP)** - NERUDP is ADB aided project of Rs.1371.40 crore wherein 70 per cent of the cost is met by ADB and 30 per cent by GOI. Five capital cities of Meghalaya, Sikkim,

Mizoram, Tripura and Nagaland are covered under the programme to meet their development challenges in the priority urban services, viz., water supply, sewerage, sanitation, solid waste management, etc. The programme was approved by CCEA on February 26, 2009 for its implementation in the period 2009-15. ADB loan of USD30 Million for tranche-I has become effective from 19 November 2009 as against the total cost of Tranche – I at USD 42.7 million. Under the programme, the states will carry out Municipal level reforms and take action to constitute Urban Local Bodies. DPRs for the project in respect of Mizoram, Meghalaya and Nagaland have been finalised and hiring of contractors, etc. is underway.

25. **Scheme for Infrastructure Development in Satellite Towns of seven mega cities** – It has been observed that cities/town located on the periphery of mega cities have emerged as a centre of intense economic activities. To cover these satellite towns, Government of India has been implementing Urban Infrastructure Development Scheme in Satellite Towns (UIDSST) around seven mega cities on pilot basis since 30<sup>th</sup> July, 2009. Under the scheme the outlay of Rs. 500 crore has been further subdivided into outlays for creation of capital asset (Rs. 466 crore) and balance Rs. 34 cr for capacity building assistance to the selected towns. The scheme is operational in Vikarabad (AP), Vasai Virar (Maharashtra), Sri Perumbudur (Tamil Nadu), New Town (West Bengal), Kanakpura (Karnataka), Sanand (Gujarat), Sonapat (Haryana) and Pilkhua (Uttar Pradesh).

## CHAPTER-1

### RAILWAYS

1.1 Indian Railways (IR) with its 64,460 kilometre network is the third largest railway in the world under a single management. Some key statistics for Indian Railways have been shown in Table 1.1. The Eleventh Five Year Plan document stated that Indian Railways was at the threshold of major change. The thrust was on capacity enhancement, technology upgradation and service improvement to meet the Railways' key challenges of fast rising transport demand and providing high quality service. An increase of 51 per cent freight traffic and 32 per cent in

Route Kms	64015
Employees (lakhs)	13. 62
Number of Stations	7083
Number of Passengers Trains Run Daily	11765
Number of Goods Trains Run Daily	7845
Diesel electric locomotives	5022
Electric locomotives	3825
Coaches	57535
Wagons	219931

\* as on 31<sup>st</sup> March, 2009.

passenger traffic was expected during the Plan period. The Plan had anticipated an expenditure of Rs.2,51,000 crore on various capacity enhancement and replacement programmes. A major part of the investment was expected to come from internally generated resources besides feasible budgetary support. Around Rs.1,00,000 crore was expected from extra budgetary resources including that from Public Private Partnership (PPP), during the Plan period.

### 1.2 Goals, Targets & Achievements during 2010-11

#### Outlay and Target

An outlay of Rs. 41,426 crore comprising Rs.16,752 crore of Gross Budgetary Support (GBS), Rs.14,523 crore of internal resource generation and Rs.10,151 crore of market borrowing, was provided for 2010-11. As per the revised estimates 2010-11, the Railways could realise an amount of Rs.40,315 crore consisting of Rs.18,312 crore as GBS, Rs.12,215 crore as internally generated resources, and Rs.9,869 crore of extra budgetary resources. Annual Plan 2010-11 set a target for 944 million tonnes of revenue earning freight traffic against which it recorded lifting 921.73 million tonnes. It was a 33.94 million tonne more from 887.29 million tonnes that was lifted in 2009-10. As for passenger traffic, Indian railways achieved the movement of 7809 million passengers as against an estimated target of 7773 million passengers during 2010-11.

#### Capacity Enhancement

In view of the rise in freight and passenger traffic, new lines are being laid and gauge conversion and doubling is being carried out. Apart from these, dedicated

freight corridors are to be built. The following paragraphs give a brief overview of the progress of these works in 2010-11:

### **New Lines**

The Railways were able to construct 709 kms of new lines in 2010-11 as against the target of 1019 kms. Although the target could not be achieved, the performance in 2010-11 showed a major improvement compared to the previous years. The construction of new lines in the preceding three years were 150 kms in 2007-08, 363 kms in 2008-09 and 258 kms in 2009-10.

### **Doubling**

The year began with more than 126 approved doubling projects with an approximate throw forward of Rs.12,000 crore. The revised target of doubling 769 kms of tracks was achieved.

### **Gauge Conversion**

The Railways have increasingly sought to replace the Metre Gauge (MG) system with Broad Gauge (BG) in order to ensure seamless movement of traffic and passengers besides augmenting the carrying capacity. This Gauge conversion was started in the year 1992. In 2010-11, 837 kms were converted to Broad Gauge against the target of 834 kms.

### **Railway Electrification**

Electric traction not only reduces our dependence on diesel oil but also provides a pollution-free and energy efficient mode of transport. Presently, more than 21,000 route kilometres covering roughly 33 per cent of the total route kilometres are electrified. In the year 2010-11, railways have achieved electrification of 975 Track Kilometres (TKM) against the target of 1000 TKM.

### **Rolling Stock Programme**

Rolling Stock comprises locomotives, passenger coaches and wagons which are critically required to provide efficient services. Railways have continued the effort of introducing new technology in diesel and electric locomotives capable of carrying larger loads with a greater speeds. Newly designed coaches providing better conform and enhanced safety features are being inducted into the service. Following the introduction of the first rake of indigenously designed LHB coaches in December, 2003, 11 Rajdhani and 11 Shatabdi Express trains with conventional ICF design coaches have since been converted to LHB design. Conversion of the remaining Rajdhani/Shatabdi rakes to LHB design is in progress. In 2010-11, Railways manufactured 3660 coaches against the target of 4000 coaches. It manufactured 527 locomotives against the target of 530 and procured 16,638 wagons as against the target of 18,000 wagons.



## **Manufacturing Units**

The railway manufacturing units have the capacity to build 400-450 diesel and electric locomotives in a year. However, the Eleventh Plan assessed the annual requirement at 720 locomotives per year. To meet the gap, a diesel locomotive factory at Marhoura at a cost of Rs.2,052 crore and one electric locomotive factory at Madhepura at a cost of Rs.1,293.57 crore are to be set up. Both the projects have been approved by the Cabinet and Request for Qualification (RFQ) was issued in 2010. The bidders have been pre-qualified and short listed. Further process for finalisation of revised Request for Proposals (RFP) document is in process. RFP for Madhepura was issued on 11.06.2011 and for Marhoura on 11.10.2010. In both cases, a core group of officers is undertaking due diligence on these projects to take them forward.

An ancillary unit for Chittaranjan Locomotive Works and a unit to manufacture components and sub-assemblies for modern diesel locomotives are also being set up at Dankuni. These projects were sanctioned in 2009-10 at a cost of Rs.65.32 crore and Rs.110 crore, respectively. Production in Diesel Component factory at Dankuni has already begun.

Work on setting up of a new coach factory at Rae Bareilly began in 2009-10. To be built at a cost of Rs.1,685 crore, it will have a production capacity of 1000 coaches per year. According to the Eleventh Plan, there is a requirement of 5,000 coaches per year. However, the existing manufacturing units of the railways produce about 3,000 coaches, supplemented by another 500 coaches from private sector. The new coach factory is expected to meet the shortfall to an extent. To augment capacity, a new Rail Coach Manufacturing unit is to be set up at Kancharapara at a cost of Rs.860 crore for manufacture of Electrical Multiple Units (EMU) and Mainline Electrical Multiple Units (MEMU) coaches. This project was sanctioned in 2009-10. A new coach factory at Palakkad, Kerala, to be built a cost of Rs.550 crores has also been approved by the Cabinet. The factory is expected to manufacture 400 coaches per annum.

A wheels factory at Chhapra with an annual capacity of 1,00,000 wheels per annum to overcome the perennial shortage of wheels is being set up. The first arcing of furnace has been done and 78 wheels have been cast. Regular production trail was planned for March, 2012.

## **Service Improvements**

Apart from capacity enhancement works and rolling stock programme, improvement in services to the customer is also of paramount importance to the railways.

### *Amenities*

The allocation under the Plan Head "Passenger Amenities" in 2010-11 was Rs. 1,302.50 crore (Budget Estimate) and Rs. 997.30 crore (Revised Estimate). During the year 2010-11, it was proposed to develop 206 Adarsh Stations. Of the 579 stations identified as Adarsh Stations, 428 stations have been developed. It is proposed to develop 269 more stations during 2011-12. During the year, 120 stations were provided with water coolers and 46 stations were electrified.

### *Passenger Reservation System (PRS)*

During 2010-11, 294 computerized reservation offices were opened. As on 31<sup>st</sup> March, 2011, there were 2,355 locations over Indian Railways where Passenger Reservation System (PRS) was functional. Some of the above locations are dual purpose Passenger Reservation System-cum-Unreserved Ticketing System (PRS-cum-UTS). Computerized Unreserved Ticketing System (UTS) was opened at 1,125 locations during 2010-11 taking the tally to 4,739.

### *Railways User Amenities*

Railways User's Consultative Committee at different levels provides opportunities for consultation between the management and the rail users. Divisional Railway User's Consultative Committees (DRUCCs) have been re-constituted for two years, term w.e.f. 01.10.2011 to 30.09.2013. Zonal Railway User's Consultative Committee (ZRUCCs) and Konkan Railway User's Consultative Committee (KRUCC) have been reconstituted for two years term w.e.f. 01.12.2011 to 30.11.2013. Suburban Railway User's Consultative Committee and Station Consultative Committee at important stations also provide useful inputs.

### *Clean Train Station Scheme*

To bring about improvement in en route cleaning of trains, a new scheme 'Clean Train Stations' has been launched to provide mechanized cleaning to passing through trains during their halts at selected stations. 28 such Clean Train Stations have been made operational so far.

### *On Board House Keeping Service*

On Board House Keeping Service scheme has also been launched by the Railways in about 286 Mail/Express trains to carry out frequent on board cleaning of Mail/Express coaches through professional agencies.

### **Passenger Service Improvements**

During the year, Indian Railways introduced 284 trains, extended the run of 82 trains and increased the frequency of 36 trains in non-suburban segment. This includes introduction of 16 MEMU & 30 DMU/DEMU services and extension of the run of 3 MEMU & 3 DEMU services. For suburban/local passengers, 165 trains were introduced, the run of 37 trains were extended and the frequency of 2 trains was increased.

## **Freight Services**

### *Liberalised Wagon Investment Scheme (LWIS)*

LWIS allows investment in Special Purpose Wagons (SPW) and High Capacity Wagons (HCW) by end users, viz., producers, manufacturers and consumers. Under the scheme each rake procured by investor will have an associated loading and unloading point(s) over specific route(s) or close circuit(s) as approved by IR. Wagon Leasing Companies can also procure wagons under this scheme for leasing to end users. A freight concession of 15% will be granted for 20 years on each loading of SPW operating in approved close circuits. In case of HCW, a freight concession of 12% will be granted for 20 years on each loading and an additional freight concession of 0.5% will be granted for each additional tonne of payload.

### *Special Freight Train Operator Scheme (SFTO)*

In order to increase rail share in the commodities like fertilizers, molasses, edible oil, caustic soda, chemicals, petrochemicals, alumina, bulk cement and fly ash, etc., where rail co-efficient is traditionally very low, a new scheme namely Special Freight Train Operator Scheme (SFTO) has been launched on 31.05.2010 to attract private investment in special purpose wagons required for transportation of these commodities.

## **1.3 Vision 2020**

The Vision 2020 document brought out by the Ministry of Railways in December 2009 spells out the massive network expansion plan of adding 25,000 kms of new lines, doubling of more than 30,000 kms of route, completing the gauge conversion programme and electrifying 33,000 kms of route.

## **1.4 New Initiatives**

- (i) Special Freight Train Operator Scheme (SFTO) - To increase rail share in commodities such as fertilisers, molasses, edible oil, caustic soda, chemicals, petrochemicals, alumina, bulk cement and fly ash, the Special Freight Train Operator (SFTO) Scheme has been launched. The scheme looks to private investment in special purpose wagons required for transportation of these commodities. So far, proposal received from M/s. Fourcee for three rakes (tank wagons) for caustic soda has been finalized.
- (ii) Automobile Freight Train Operator Scheme (AFTO) - To increase the Railways' share in transportation of automobile i.e. two/three-wheelers, cars and tractors etc. by inviting private participation, the Automobile Freight Train Operator (AFTO) Scheme was launched in July 2010. Although no response has been received so far M/s Maruti Suzuki and Hind Terminals have shown interest in investing in the scheme. The policy is under revision to make it more customer-friendly.

- (iii) Wagon Leasing Scheme (WLS) - The scheme was launched to introduce the concept of leasing of railway wagons on Indian Railways. It aims at induction of rakes through PPP for High Capacity Wagons (HCW), Special Purpose Wagons (SPW) and wagons for container movement. So far M/s GATX and TOUAX have applied for registration.
- (iv) Private Freight Terminals (PFT) - To facilitate rapid development, through PPP, of a network of freight terminals to provide efficient and cost effective logistics services with warehousing solution to end users, a new scheme namely Private Freight Terminal was launched in May 2010. So far 19 proposals have been received, out of which eight viz., Timmapur (SCR), Wardha (CR), Bamanhari (NR), Nabha (NR), Rudrapur (NER), Tadali (CR), Kalamboli (CR) and Somathane (CR) have been finalised by the zonal railways. Proposals for Timmapur (SCR) and Wardha (CR) have been notified. Remaining proposals are under consideration with the concerned zonal railways.
- (v) Kisan Vision Project – With a view to encourage creation of facilities for cold storage and temperature controlled perishable cargo centres and its transportation through Public Private Partnership, a Task Force was constituted with representatives of the concerned ministries, Container Corporation of India Ltd. (CONCOR), Central Warehousing Corporation Ltd. (CWC) and cold chain operators. The Task Force drew a road map for implementation of the project and identified locations for the pilot project. Six locations namely Singur, Nasik, New Jalpaiguri, Naya Azadpur, Dankuni, and Mechheda were identified by the Task Force for setting up perishable cargo centres with temperature controlled storage facilities, these are to be developed by logistics-based PSUs like CONCOR and CWC. A policy guideline for implementation of the pilot project under Kisan Vision Project was issued in January 2010. The project at Singur, Nasik (Ojhar) and New Jalpaiguri was completed by CONCOR/CWC and these locations are now operational.
- (vi) Liberalised Wagon Investment Scheme (LWIS) - LWIS allows investment by end users (viz. producers, manufacturers and consumers of goods) in Special Purpose Wagons (SPW) and High Capacity Wagons (HCW). The policy was issued on in April 2008. So far, approval for procurement of 37 rakes at an approximate cost of Rs 846 crores has been given by the Railway ministry. Of these, six rakes have been procured and are running on the system.

With a view to make the scheme more liberal and customer-friendly, the Liberalised Wagon Investment Scheme (LWIS) has been reviewed and a policy guideline on Revised Liberalised Wagon Investment Scheme (LWIS) was issued in February 2012. The provisions/ terms & conditions of the revised Liberalised Wagon Investment Scheme (LWIS) will also be made applicable to the existing customers who have already made investment for procurement of wagons or obtained approval for procurement of wagons under the earlier LWIS.

## 1.5 Physical Targets – 2011-12

**Traffic:** A target of moving originating freight of 993 MT and originating passengers numbering 8271.61 million has been set for the year 2011-12.

**Capacity Enhancement:** For capacity enhancement, the railways have set a target for construction of 1075 kms of new lines; doubling of 867 kms; gauge conversion of 1017 TKM; and electrification of 1110 route kms.

**Construction of Dedicated Freight Corridors:** Work is progressing on the construction of the Western and Eastern Dedicated Freight Corridors (DFCs). The Western DFC (1499 km) extends from Jawaharlal Nehru Port to Rewari/Dadri and Eastern DFC (1839 km) from Ludhiana to Dankuni. Funding tie ups with Japan International Cooperation Agency (JICA) for Western Corridor and World Bank for Ludhiana-Khurja-Kanpur-Mughalsarai section (1183 km) of Eastern Corridor are in advanced stages. Funding for Phase-I of Western DFC has been tied up and funding for Phase-II of this Corridor is targeted for finalisation in 2012-13. World Bank funding for the first section of Eastern DFC (Khurja-Kanpur) 343 km is also tied up. Bidding process has commenced on both JICA Funded Western DFC and World Bank Funded Eastern DFC. Pre-Qualification for first two civil contract Packages (Rewari-Ajmer and Ajmer-Iqbalgarh) of Western DFC was opened in January 2012 and is under evaluation. On Eastern DFC, civil bid document has been issued to pre-qualified bidders in December.2011. Construction on the railway-funded portions of both corridors is in progress. Both the DFCs are targeted for commissioning in March 2017.

## 1.6 Way Forward

Issues that require to be addressed in the near future are: -

- Improving revenue generation and self-financing capacity of the Railways. This may require re-balancing of tariffs.
- There is a large portfolio of new lines. Schemes require to be prioritised so that available resources are not too thinly distributed over a large number of schemes.
- The development of railways requires huge resources. In order to bridge the gap between availability of resources and requirement of funds, there is a need to involve private sector in the whole range of railway development programmes.

## CHAPTER – 2

### ROADS

#### 2.1 National Highways

The National Highways (NH) with an aggregate length of 71,772 kms constitute only about two per cent of the road network in the country but carries 40 per cent of the total road traffic. The main objective of development of national highways is to improve mobility. The expanded National Highway Development Programme (NHDP) is being implemented under various phases to augment capacity and improve the quality of the highways.

#### 2.2 National Highway Development Project

Initiated in a phased manner, NHDP is the largest highway project ever undertaken by the country and is being implemented by the National Highway Authority of India (NHAI). The project which began with two phases and has since expanded to seven phases: -

**NHDP Phase I & II** envisaged four and six laning of about 14,000 km of National Highways, at an estimated cost of about Rs. 65,000 crore at 2004 prices. These two phases comprised the Golden Quadrilateral (GQ), North-South & East-West Corridors (NSEW), port connectivity and some other projects. With 5846 km of road network the GQ connects four metropolitan cities, i.e., Delhi, Mumbai, Chennai and Kolkata. The North-South-East-West corridors, totalling 7142 km, connects Srinagar in the North to Kanyakumari in the South including a Kochi-Salem spur while Silchar in the East connects Porbandar in the West. The NHDP also includes port connectivity project for improvement of roads connecting 12 major ports in the country, a length of 380 kms. Another 965 kms are to be part of other highway projects.

An ambitious project for development of national highways began in 2005 and is expected to be completed by 2015. Involving a total investment of Rs. 2,35,690 crore the programme envisages completion of NHDP Phase I and II, upgrading 12,109 km of national highways under NHDP Phase-III on Build, Operate and Transfer (BOT) mode, widening of 20,000 km of national highways to two lanes with paved shoulders under NHDP Phase-IV, six-laning of 6,500 km length of selected National Highways in NHDP Phase-V, development of 1,000 km of Expressways under NHDP Phase-VI and, construction of 700 km of ring roads in major towns and bypasses under NHDP Phase-VII as well as construction of other stand-alone structures such as flyovers, elevated roads, tunnels, underpasses, grade separated interchanges etc. on national highways.

National Highways stretches that are not covered by NHDP are being developed through other programmes [mainly National Highway(O)] of the Ministry of Road Transport & Highways.

In order to cater to the needs of remote, isolated, backward areas, two programmes were launched viz. Special Accelerated Road Development Programmes for North-East (SARDP-NE) and Development of Roads in Left Wing Extremist Affected Areas.

### 2.3 Financial and Physical Progress for 2010-11

Against an outlay of Rs. 25,155.00 crore for development of roads under various programmes of the Ministry of Road Transport & Highways, the actual expenditure during 2010-11 Rs.19,961.15 crore. The physical targets and achievements for the year 2010-11 are as given in the Table below:

**Table 2.1 Physical Targets and Achievements – NHDP Section**

Category	Target	Achievement
NHDP (km.)	2500	1780.34
Award of Projects (km.)	9000	5058.95

### 2.4 National Highways (Original) – Non-NHDP Sections of NHs

Certain sections of National Highways which are not covered under NHDP are being developed by the Ministry of Road Transport & Highways. Against the outlay of Rs.3850.10 crore, an expenditure of Rs.4135.74 crore was incurred during the year 2010-11.

**Table 2.2 Targets & Achievements 2010-11**

Sl. No.	Category	2010-11	
		Target	Achv.
1	Missing Link (km)	2	0.1
2	Widening to 2-lanes (km)	1117	1042
3	Strengthening (km)	1213	1016
4	Improvement of Riding Quality (km)	2307	2026
5	Widening to 4-lanes (km)	137	99
6	Bypasses (No.)	15	3
7	Bridges /ROBs (No.)	187	103

### 2.5 Other Programmes

#### 2.5.1 (a) Special Accelerated Road Development Programme for North East (SARDP-NE)

The programme is to be implemented in two phases *i.e.* Phase-A & Phase-B. Phase-A would include improving 6418 km. of roads (including 2319 km. of roads under Arunachal Package). This is likely to be completed by March, 2015. Phase-B involves two-laning of 3723 km of roads and it has been approved for Detailed Project Report preparation. Another 1610 km will be taken up for implementation in the Twelfth Plan. The work in progress at the start of financial year 2010-11 was 520 km, of which 146 km was completed during the year. Physical progress has been extremely slow due to inadequate implementation capacity, short working season and law-and-order problem in the North-East.

### **2.5.2 (b) Special Programme for Development of Roads in the Left Wing Extremism (LWE) affected areas**

The Government has approved in February, 2009 the proposal for development of about 1,202 km. of National Highways and 4,362 km. of state roads in the Left Wing Extremism (LWE) affected areas as a special project estimated to cost about Rs. 7,300 crore. The projects cover 34 districts in eight states namely, Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Orissa and Uttar Pradesh. Technical and financial sanction for all identified National Highways & State Road Projects would be as per stipulated procedure for National Highways works. The outlay of Rs.1000 crore in 2010-11 could not be spent because projects were not sanctioned in time. The pace of approval of projects has now picked up. Sanction has already been issued for 4942 kms to be built at an estimated cost of Rs.6590 crores. Tenders have been floated for 1250 kms estimated to cost Rs.2,168 crores.

### **2.5.3 Reasons for Slow Progress**

Several constraints were faced during the implementation of the aforementioned projects, resulting in slowdown of work. Some of these were:

- **Land acquisition:** Procedural formalities, court cases and lack of co-operation from the State Governments concerned led to inordinate delay in acquisition of land in some States.
- **Environment and Forest Clearances:** There have been considerable delays in getting the forest clearance both at the Central and State level.
- **Clearances of Railways for ROB designs:** Rail Over-Bridges (ROBs) and Rail Under-Bridges (RUBs) need to be constructed to make the NHDP free from level crossings. Obtaining clearance/approval from the Railways requires co-ordination with several departments within the Railways and necessary approvals take long time to come. .
- **Shifting of Utilities:** Shifting of utilities of such as electric lines, water pipelines, sewer lines, telecommunication lines have to be completed with the assistance of the concerned utility owning agencies. This took a considerable time.

**Law and order problems:** In many states, work was affected because of adverse law and order conditions and activities of anti-social groups. In addition, work was frequently stopped by protesting local population who demanded additional underpasses / bypasses, flyovers, etc. .

- **Poor performance by some contractors:** Performance of some of the contractors has been very poor, mainly due to cash flow problems. Termination of such contracts too results in long-drawn litigation and further delays in completion of works.



## 2.6 Major Initiatives

To generate a visible impact, a target of 20 km per day, i.e., 7000 km a year has been set up for improvement of national highways. In order to achieve the target, the following strategy has been adopted by NHAI:

- a) *Identification of work Plans I & II:* About 27,246 km of works have been identified under Work Plan I and Work Plan II.
- b) *Changes in Model Concession Agreement and Shri B.K. Chaturvedi Committee Report:* A Committee was constituted under Shri B.K. Chaturvedi, Member Planning Commission and its recommendations have been incorporated in the Model Concession Agreement. The 2nd report of Shri B.K. Chaturvedi Committee relating to Dispute Resolution Mechanism is under consideration for implementation.
- c) *Land acquisition:* 122 Special Land Acquisition Units have been constituted. A total of 9000 ha of land has been acquired in the last one year as against 3120 ha of land acquired in the previous year.
- d) *Decentralisation and delegation of powers:* Fourteen Regional Offices have been set up and powers delegated for better monitoring of projects. Manpower augmentation in NHAI is also being carried out as a continuous process.
- e) *Feasibility Studies (FS) / Detailed Project Reports (DPRs):* Consultancy studies for preparation of feasibility reports and DPRs were taken for projects involving 14,811 km of roadways. These tenders would be floated for these by the next financial year.
- f) Tenders would be floated for these by the next financial year. *Creation of EGoM mechanism unresolved issues:* An Empowered Group of Ministers has been constituted for resolution issues such as revised strategy for implementation of NHDP-framework and financing, amendments to fee rules, rationalisation of the procedures for environmental, forest and wildlife clearances and declaration of new national highways.
- g) *Signing of umbrella State Support Agreements with State Governments:* Twenty four State Governments have signed State Support Agreements to extend cooperation in implementing NHDP.
- h) *Liasoning with Railways:* A post of general manager has been earmarked for an officer on deputation from Railways for liaising with Railways as a number of projects involve construction of road over bridges in lieu of level crossings.
- i) *Appointment of nodal officers by State Governments:* State Governments have been requested to appoint nodal officers of the rank of Principal Secretaries for expediting the shifting of utilities by the respective state departments.

## 2.7 Re-structuring of NHAI

It has been decided to restructure NHAI with a view to augment capacity and skill. The important components of this re-structuring are as follows: -

- Selection of a Chairman by a Search Committee headed by the Cabinet Secretary. The tenure of the Chairman will be fixed for at least three years, to be extended up to

five years if required. Maximum age in case of the Chairman to be relaxed up to 62 years for a three year tenure, if required.

- NHAI to have six full time Members – The NHAI is to have full time Members each for finance, administration, public private partnership (PPP) besides two Members (Project) and one Member (Technical).
- Increase in the number of part-time Members by two who would be from the non-Government sector, one from IITs/IIMs and the other from financial institutions.
- Empowering the Authority to engage, where required, outside experts.

The following components of re-structuring of NHAI are under implementation:

- Twenty six additional posts of Chief General Managers (CGMs) have been created and these posts have been filled up in 2009-10 and 2010-11.
- Project Appraisal Cell, Planning Cell, Quality Assurance Cell, Standardisation and R&D Cell, Contract Management Cell, Legal & Arbitration Cell and Road Safety Cell, were created in September, 2006.
- Guidelines for identifying and retaining key persons and also recruiting personnel directly to build over a time, a core of permanent employees of NHAI, was approved by the Authority in October, 2009. The process of absorption is in progress.
- In addition to the above, to meet with the enhanced mandate of building 20 km. highways a day, the NHAI has decentralised its functions of project implementation and corridor management by opening ten regional offices and eight State level offices at various State capitals.

A Committee under the Chairmanship of Shri B.K. Chaturvedi, Member, Planning Commission was set up to review the reasons for slow progress in implementation and resolving the procedural issues in order to expedite the National Highway Development Project. The Committee made recommendations aimed at achieving the following objectives:-

- (a) expeditious implementation of NHDP
- (b) build the maximum road length through BOT toll mode
- (c) work out the broad work and financing plan to achieve the above objectives

A number of recommendations aimed at rationalisation of the processes and procedures made by the Committee have been accepted by the Government.

## **2.8 Programme for 2011-12**

An outlay of Rs.27,100.00 crore has been provided to the Ministry of Road Transport & Highways for the development of roads. The restructuring of NHAI will also help speed the implementation of NHDP. The 2011-12 targets for NHDP and non-NHDP sections on national highways are given in Tables below:

**Table 2.3 NHDP Sections of National Highways**

Sl. No.	Category	2011-12
		Target
1.	Construction to be completed (KMs.)	2,000.00
2.	Highway Length to be tolled (KMs.)	2,627.15
3.	Contracts / Concessions to be awarded (KMs.)	7,300

**Table 2.4 Non-NHDP Sections of National Highways**

Sl. No.	Category	2011-12
		Target
1	Widening from Single lane to 2-lanes (km)	1070
2	Strengthening (km)	1080
3	Improvement of Riding Quality (km)	1672
4	Widening to 4-lanes (km)	104
5	Bypasses (No.)	7
6	Bridges / ROBs (No.)	1295

## 2.9 Pradhan Mantri Gram Sadak Yojana (PMGSY)

### Goals & Objectives

The primary objective of the PMGSY (launched on 25<sup>th</sup> December, 2000 as a fully funded CSS) is to provide connectivity, by way of all-weather roads (with necessary culverts and cross-drainage structures, which is operable throughout the year), to the eligible unconnected habitations in rural areas. All unconnected habitations with a population of 1,000 persons and above were to be covered in three years (2000-2003) and all unconnected habitations with a population of 500 persons and above by the end of the Tenth Plan Period (2007). In respect to the Hill States (North-East, Sikkim, Himachal Pradesh, Jammu & Kashmir, Uttarakhand) and the Desert Areas (as identified in the Desert Development Programme) as well as the Tribal (Schedule V) areas, the objective was to connect habitations with a population of 250 persons and above.

The original targets set for PMGSY, however, were found to be too ambitious. Subsequently, PMGSY was re-phased to achieve time-bound targets of rural connectivity by folding it into Bharat Nirman programme initiated in 2005-06. The target of providing connectivity to all the habitations with a population of more than 1000 in the plain areas and habitation with a population of 500 or more in hilly or tribal areas were to be achieved in a time bound manner by 2009.

### 2.10 Financial Progress during Annual Plan – 2010-11

Against an outlay of Rs.22,000.00 crore, an expenditure of Rs.14910.98 crore has been incurred.

### 2.11 Physical Progress during Annual Plan – 2010-11

20,623 km. of roads were constructed and connectivity to 2,579 habitations was achieved by September 2010 against the set targets of 34,090 kms and 4,000 habitations, respectively.

For the Bharat Nirman component of PMGSY, the target set for the year 2010-11 was connectivity to 3,000 habitations and construction of 14,320 km of roads. As against the targets, 4627 habitations were connected and 19,391.15 kms of roads were constructed.

Progress has been varied across states. Assam, Chhattisgarh, Orissa, Bihar, Jharkhand, West Bengal, Jammu & Kashmir, Tripura and Uttarakhand are some of the states where achievements have been well short of the targets.

### **2.12 Reasons for Slow Progress**

The main reasons for slow progress are non-availability of qualified engineers, administrative delays including delay in awarding projects, inadequate institutional capacity of implementing agencies, non-availability of land, forest & environment clearance and law and order problems.

### **2.13 Action Taken / Proposed**

**Strengthening of institutional capacity** - States where the coverage of habitations under Bharat Nirman has been very low require a substantial increase in the number of Programme Implementation Units (PIUs). Creation of dedicated PIUs, deployment of central PSUs, outsourcing of project preparation, engaging independent project implementation consultants and reviewing the existing delegation of powers are some of the steps that are being taken by various States in order to strengthen institutional capacity.

**Augmentation of contracting capacity** - With massive step up in the investment in road construction, constraints in contracting capacity have emerged as a major implementation issue necessitating repeated bidding for awarding contracts in certain cases. Some of the steps taken to enhance the contracting capacities in the States include, increase in the size of the package, permitting joint ventures between big and small contractors and awarding performance incentives for timely completion of projects.

**Forest and environment clearance** - It usually takes 12-14 months to obtain forest clearance. States affected have to be pro-active in seeking forest clearances as soon as the survey for preparation of Detailed Project Reports (DPRs) commences.

**Availability of private land for road construction** - State Governments should ensure availability of private land required for road construction. Gram Panchayats and local revenue administration should be consulted to overcome any constraints.

**Law & order problems** - Left wing extremist activities are affecting the pace of implementation in some parts of Bihar, Chhattisgarh, Orissa and Jharkhand. These States have to ensure adequate security in order to effectively implement the programmes.

The Ministry of Rural Development has taken a number of steps to improve the implementation of projects under PMGSY. These include e-procurement, aimed at reducing time for processing bids increasing competitiveness and enhancing transparency, rationalisation of standards and stakeholders, review of performance of States which are lagging behind in achieving targets, strengthening maintenance, monitoring etc.

#### **2.14 Programme for 2011-12**

An outlay of Rs.20,000 has been provided to the Ministry of Rural Development for the development of rural roads for the Annual Plan 2011-12. Details of physical targets are: -

- (1) Connectivity to 13,000 habitations
- (2) Construction of 65000 kms. for new connectivity

## CHAPTER-3

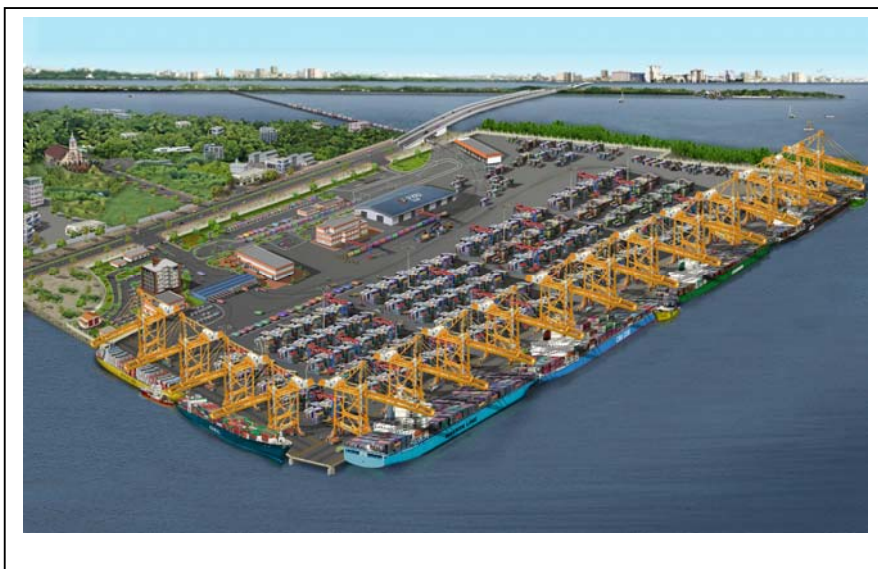
### PORTS

**3.1** Ports play a vital role in the overall economic development of the country. There are 12 major ports and over 200 non-major ports along India's coastline. The 12 major ports are located at Kolkata/Haldia, Mumbai, Nhava Sheva, Chennai, Cochin, Visakhapatnam, Kandla, Mormugao, Paradip, New Mangalore, Tuticorin and Ennore. The major ports are under the direct administrative control of the Central Government while the non-major ports are under the jurisdiction of the respective maritime State

Governments.

#### **3.2 Goals, Targets & Achievements during 2010-11**

Ensuring vibrant, efficient and safe Ports is the main goal of development of ports. In the past, our ports have suffered from capacity constraints. The major thrust in the medium term is to



improve capacity by construction of new berths and improving productivity through replacement of old equipment and improving the draft and development of associated infrastructural facilities.

Traffic at ports has been increasing at the rate of 10-12 per cent in the past. However, in 2008-09 the growth of traffic at major ports was modest (2.7 per cent). During 2009-10 and 2010-11 major ports handled 561.09 MT and 570.03 MT respectively registering an average increase of 3.72 per cent.

The Eleventh Plan has envisaged an additional capacity generation of 511.80 MT taking the total capacity of major ports to 1016.55 MT by the end of the Plan. However, the capacity addition was a mere 167.38 in the first four years of the Eleventh Plan. While in first three years the average additional capacity of 38.00 MT per annum was achieved; it was 53.40 MT in 2010-11. The Second Container Terminal at Chennai Port which added a capacity of 9.6 MT was an important project which became operational in 2009-10. The other project, International Container Trans-shipment Terminal (ICTT) at Vallarpadam Container Terminal at Cochin Port has added a capacity of 12.50 MT in 2010-11.

The Eleventh Plan envisaged augmentation of port capacity mainly through investment by the private sector. It took some time to firm up the processes and procedures that

would facilitate private investment in port sector. The various documents including Model Concession Agreement are now in place. It is expected that private sector participation in ports would pick up. This is extremely important for augmenting much needed capacity.

In 2010-11, a total of nine PPP projects at an estimated cost of Rs. 3356.65 crore and capacity of 51.76 MTPA were awarded. List of nine PPP projects is given in Table-I:

**Table-I Award of PPP Projects in 2010-11**

<b>S. No.</b>	<b>Projects</b>	<b>Port</b>	<b>Cost (Rs. in Cr.)</b>	<b>Capacity (MT)</b>
1	Construction of NCB-II	Tuticorin	332.16	7.00
2	Development of Container Terminal at Ennore	Ennore	1407.00	18
3	EQ1 Project for handling coal replacing EQ1 and part of EQ2	Visakhapatnam	323.18	6.40
4	EQ1-A Project for handling coal replacing EQ1 and part of EQ2	Visakhapatnam	313.39	7.36
5	Development of Multipurpose Berth to handle clean cargo including containers on BOT basis	Paradip	387.31	5.00
6	Development of 14 <sup>th</sup> multipurpose cargo berth	Kandla	188.87	2.00
7	Development of 15 <sup>th</sup> multipurpose cargo berth	Kandla	188.87	2.00
8	Development of 16 <sup>th</sup> multipurpose cargo berth	Kandla	188.87	2.00
9	Captive Jetty to IFFCO	Kandla	27.00	2.00
<b>Total</b>			<b>3356.65</b>	<b>51.76</b>

Progress with regard to improvement in productivity has not been satisfactory. The comparison of average turnaround time for the years 2009-10 and 2010-11 indicates that there has been an increase in average turnaround time of vessels from 4.42 to 4.67. Only five ports viz. Paradeep, New Mangalore, Chennai, Mumbai and Haldia have shown some improvement. The average turnaround time on port account has also shown marginal deterioration from 2.60 to 2.66 during the same period. This is mainly because augmentation of capacity at major ports fell short of the Eleventh Plan projections.

Several projects are under construction at various ports. ICTT Vallarpadam at Cochin Port is one of the important projects. The ICCT Vallarpadam Container Terminal at Cochin Port was made operational during the year adding a capacity of 12.50 MT. The building of rail connectivity to ICTT at Vallarpadam was taken up at an estimated cost of Rs. 298.17 crore and revised a second time to Rs. 373.22 crore and approved by PIB during the year. Construction of this project has already been completed.

Establishing a four lane national highway connectivity to ICTT was taken up at an estimated cost of Rs. 871.17 crore and is expected to be commissioned by 2012-13. In addition, the implementation of project relating to capital dredging for deepening and widening of the approach channel and berth basin of ICTT to provide draft of 14.5 m at Vallarpadam has been initiated.



### **3.2 Sethusamudram Project**

As per the orders of the Hon'ble Supreme Court dredging work in Adam's Bridge area has been suspended. The Supreme Court suggested that the alternative alignment between Dhanushkodi and Lands' End on Rameshwaram Island may be examined keeping in view of the technical aspects, cost benefit analysis, social and cultural impact, environmental impact assessment (EIA), law & order and any other related issue.

Accordingly, the Central Government constituted a Committee of Experts to consider the re-alignment of Sethusamudram Channel. The Committee has decided that the National Institute of Oceanography (NIO) may be nominated to carry out the proposed EIA. The NIO has started work on the EIA and installed equipment for collection of data etc. Due to prolonged court cases and some other internal problems, dredging works at PalkBay/Palk Strait too have been stopped since July.2009.

### **3.3 Tsunami Rehabilitation Programme**

The Tsunami Rehabilitation Programme (TRP) for ports is being implemented by the Andaman & Lakshwadeep Harbour Works (ALHW) for the Central Sector. Under the TRP, besides commissioning of jetties, restoration of cargo handling equipment and other allied structures like passenger hall, cargo godowns, port offices, navigational aids etc., at various ports has been carried out for facilitating smooth operations. Out of a total revised number of 62 schemes under the TRP, 33 projects of reconstruction/restoration and 15 projects of additional facilities of TRP have been



completed and 14 are under progress. Six projects are expected to be completed by March, 2012 while eight are likely to spill over to the Twelfth Five Year Plan.

The expenditure on development of port facilities by ALHW was Rs.110.00 crores during 2009-10 but reduced to Rs. 80.72 during 2010-11.

### **3.4 Targets 2011-12**

In 2011-12, it is proposed to award 23 PPP projects for augmentation of port capacity. These projects mainly relate to construction of additional berths. The aggregate additional capacity to the tune of 231.63 MT would be generated by these projects. The private sector is expected to invest a sum of Rs.16743 crores in 2011-12. The target for Dredging for 2011-12 has been set at 19.84 million cubic meters.

### **3.5 Way Forward**

During the coming years, several major issues need to be resolved and work undertaken to take ports development programme to higher level. Some of these are:

- Speed up award of projects relating to capacity augmentation in order to make up for the slow progress in the past.
- Identifying lack of capacity both port wise and commodity wise. There is a need to undertake a comprehensive commodity wise analysis of each port to project traffic and capacity requirements for the next 3-4 years.
- Firming up dredging plan and improving productivity through adequate infrastructure and seamless connectivity with other modes, etc.
- Review of institutional and regulatory arrangements to ensure speedy development of ports.
- Rationalisation of procedure regarding security and environment clearance.

## CHAPTER-4

### AIRPORTS

**4.1** Aviation Sector in India has undergone a sea change in the last five years. The number of passengers at Indian airports increased from 40 million in 2000-01 to 143 million in 2010-11. With a view to create world class airport infrastructure, upgradation/modernisation of a number of Metro and Non-metro airports have been undertaken by Airports Authority of India (AAI) as well as through Joint Venture Companies. In addition, AAI has also initiated a project in consultation with Indian Space Research Organization (ISRO) namely Global Positioning System (GPS) aided Geo Augmented Navigation (GAGAN) project, which is a Satellite Based Augmentation System (SBAS) aimed at providing augmented GPS information to aircrafts. This is expected to be more reliable and accurate. The system is expected to improve the navigation facility, enabling more efficient Air Traffic Management.

#### **4.2 Goals, Programmes, Targets & Achievements 2010-11**

The major objectives of the development of airports are to provide (i) world class infrastructure facilities; (ii) air connectivity to remote and inaccessible areas with special reference to north eastern part of the country.

##### **Brownfield Airports:**

(a) *Indira Gandhi International (IGI) Airport, New Delhi:* With the completion of Phase-I work of IGIA in 2010 a new integrated Terminal-3 with passenger handling capacity of 34 million passenger per annum (mppa) became operational on 3<sup>rd</sup> July 2010. Among other things, it has 168 check-in counters, 49 (outbound) and 46 (inbound) immigration counters, 78 boarding bridges, 92 travellators, 71 elevators, 34 escalators, executive lounges and restaurants, Eaton Smart, Transit Hotel, Drinking water fountains, ample washrooms, shower & nap, snooze chair, foot massagers, in-terminal medical facilities, prayer rooms, kids play areas, wheel chair and buggies for passengers, ample choices for retail, including duty free, and food & beverage, multiple communication options, Forex, ATM and travel insurance, car parking, new CAT IIIB enabled code F complaint runway 29/11, rehabilitation of existing Runway 28, multiple rapid exit taxiways, etc. IGI airport is equipped to handle aircraft operations up to 50 meters RVR (Visibility of Marking & Lights on Runway) thereby enabling aircraft operations during foggy situation.

(b) *Chhatrapati Shivaji International (CSI) Airport, Mumbai:* CSI Airport is being developed and modernised by M/s Mumbai International Airport (P) Limited (MIAL) at an estimated cost of Rs. 12,380 crores. International operations at the new terminal will commence from the end of 2013 and domestic operations from the end of 2014. Till 31<sup>st</sup> March 2011 a total expenditure of Rs. 4,943 crores was incurred on various development and modernisation works at CSI airport. In 2010-11, MIAL invested Rs. 1608 crores in the development and modernisation of CSI airport. Some of significant achievements of Financial Year 2010-11 are the re-carpeting and reconstruction of runway 14/32 (second runway), new airside infrastructure including taxiways and rapid

exit taxiways to upgrade the cross runway system and create an efficient airside infrastructure and the reconstruction of the primary runway 09/27.

#### **Greenfield Airports:**

(a) *Rajiv Gandhi International Airport, Shamshabad, Hyderabad*

The Greenfield airport at Hyderabad developed by M/s Hyderabad International Airport (P) Ltd. (HIAL) at a cost of Rs.2202 crores became operational in March, 2008. During the year 2010-11, HIAL incurred an expenditure of Rs.26 crores for setting up a compost plant building, expansion of arrivals area at airport village, under vehicle scanning system at the car park and building of a road near the passenger transportation centre.

(b) *Bangalore International Airport, Devenhalli, Bangalore*

The work relating to setting up of a Greenfield airport at Devanahalli, Bangalore was undertaken by Bangalore International Airport (P) Ltd. (BIAL) in 2005 and commissioned in May 2008. In 2010-11, BIAL had undertaken various development works such as terminal expansion project, apron expansion, construction of new project office, new reserved lounge and IT equipment upgradation. The overall investment during 2010-11 was Rs.64.1 crore. Spread over an area of approximately 1, 50,000 sq. mt, the airport is expected to handle about 17 million passengers annually.

(c) *Pakyong airport:* Construction of a Greenfield Airport at Pakyong (Sikkim) has been undertaken by the AAI at a project cost of Rs. 309.26 crore. Package –I of the work involving heavy earth work of cutting and filling, construction of geo-synthetic reinforced earth retaining wall of height up to 74 m, channelising of existing water streams by constructing culverts. An amount of Rs. 264.29 crore has been sanctioned for these works against which, an expenditure of Rs. 94.19 crore was incurred in 2010-11 taking the total expenditure to Rs. 136.56 crore by 31<sup>st</sup> March 2011. The project is likely to be completed by 2013.

(d) *Other Greenfield Airports:* The Central Government has accorded “in-principle” approval for setting up of Greenfield airports at Mopa in Goa, Navi Mumbai, Sindhudurg & Shirdi in Maharashtra, Bijapur, Gulbarga, Hassan & Simoga in Karnataka, Kannur in Kerala, Durgapur in West Bengal, Kushinagar in Uttar Pradesh, Karaikal in Puducherry and Dabra in Madhya Pradesh (for Cargo).

#### **4.5 Development of infrastructure facilities at metro and non-metro airports by AAI**

Modernisation and expansion of International airport at Kolkata and at Chennai had been undertaken by AAI at an estimated cost of Rs.1942.51 crore Rs.1808.25 crore respectively. The costs have now been revised to Rs. 2325 crores and Rs. 2015

crores respectively. Physical and financial progress of modernisation works at Kolkata and Chennai airports during 2010-2011 is as under.

Development programme of Chennai airport has three components:

*Domestic Terminal Phase-II and expansion of Anna International Terminal:*

An expenditure of Rs.867 crore including a sum of Rs.394 crore in 2010-11 has been incurred so far and 72 per cent of the work completed. The expanded international terminal will have a capacity of seven million passengers as against the present three million passengers per annum while the new domestic terminal will have a capacity of ten million passengers against six million at present.

Rs.186 crore has been sanctioned for the construction of Reinforced Cement Concrete (RCC) pre-stressed bridge across Adyar river. Expenditure amounting to Rs.230 crores has been incurred and 100 per cent physical progress has been achieved at site, upto March 2011. The original completion date of project was Sept.2010 but the same has been revised to November 2010, due to extended rainy season, and delay in closure of secondary runway 12-30 for execution of these works.

The work on the expansion of secondary runway and related taxi track along with other works was sanctioned at a cost of Rs.210 crore with a completion period of 18 months. The original Projected Date of Completion (PDC) was April 2010 which was revised to July 2010 due to extended rainy season and delay in closure of secondary runway 12-30. An amount of Rs.246.78 crore has been spent and 100 per cent progress achieved at site, as on March 2011.

*(b) Development work of Kolkata Airport:*

Work on integrated passenger terminal and expansion of secondary runway and other related works amounting to Rs. 1942.51 crores are in progress at Kolkata Airport. By March 2011, 70 per cent of the work had been completed and a total expenditure of Rs. 1104.54 crores incurred. Expansion of runway and related work were already completed in December 2010 at a cost of Rs.104.46 crores.

**4.6 Development and modernisation of 35 non-metro airports:**

- (a) Out of 35 non-metro airports, development and modernisation of 23 airports have been completed. Work in eight of these airports, namely: Ahmedabad, Bhopal, Chandigarh, Madurai, Mysore, Pune, Srinagar & Varanasi were completed in the financial year 2010-11. Up till 31<sup>st</sup> March 2011 a total expenditure of Rs. 3430.44 crores was incurred for the development of these 35 non-metro airports. These development works have enhanced the capacity of terminal buildings, parking bays for aircrafts and extension of runway length for higher category of aircraft operations.
- (b) Work is in progress at the remaining 12 non-metro airports. The on-going works at Lucknow, Indore & Coimbatore will be completed in the year 2011-12. Delay in completion of some of these projects is due to non-availability of land or shifting of services like roads etc under State Government or Defence, slow work by agencies

and consultants. To ensure better progress, work is now being regularly monitored by dedicated project teams. Besides, an independent department i.e. Project Monitoring and Quality Assurance (PMQA) department has been set up at Corporate Headquarters of AAI to carry out periodic site visits to ensure regular monitoring and quality assurance at site and holding review and coordination meetings to remove hindrances and expedite progress.

- (c) Airports i.e. Port Blair and Jammu, for which detailed planning and engineering have already been taken up by AAI, are likely to be awarded during financial year 2012-13 and completed by 2015-16. Development of New Terminal Buildings at Patna, Guwahati, Rajkot & Agatti have been kept in abeyance due to non-availability of adequate land for total development of these projects.

#### **4.7 Establishment of Airports Economic Regulatory Authority (AERA)**

The Airports Economic Regulatory Authority of India Act, 2008 has been enacted to regulate tariff and other charges for aeronautical services rendered at major airports and to monitor performance of such airports. Following its establishment, the Authority had issued a 'White Paper' in December 2009, listing out major issues impacting its regulatory philosophy, objectives, principles systems and procedures. Comments and suggestions for the White Paper were taken from the stakeholders who were part of the consultation process. Besides, the Authority also considered the statutory procedures, contractual requirement and international practices. A Consultation Paper laying down the proposed approach of the Authority on various issues relating to regulation of Airports and Air Navigation Services (ANS) services was issued in February 2010. In 2010-11, the AERA issued 17 Consultation Papers, 17 Orders and six Directions, towards regulation of Airports and Air Navigation Services.

#### **4.8 Implementation of GAGAN**

*GAGAN-FOP (Final Operational Phase) Project as on 31<sup>st</sup> March 2011:*

- (i) Civil & Electrical work has been completed at the seven new (FOP- Final Operational Phase) Indian Reference Stations (INRES) at Bhubaneswar, Gaya, Goa, Nagpur, Jaisalmer, Dibrugarh & Porbandar
- (ii) UPS has been installed at all the above mentioned INRES stations
- (iii) Installation & Site Acceptance Test (SAT) of INRES has been completed at the seven new INRES sites. Site Acceptance Test of 2<sup>nd</sup> Indian Master Control Centre (2<sup>nd</sup> INMCC) & 2<sup>nd</sup> Indian Navigation Land Uplink Station (INLUS) at Bangalore were completed. Site Acceptance Test (SAT) of 3<sup>rd</sup> Indian Reference Equipments (3<sup>rd</sup> INRES) have been completed at the eight old INRES sites at Ahmedabad, Bangalore, Kolkata, Delhi, Jammu, Port Blair, Trivendrum & Guwahati. Single Optical Fibre Cable (OFC) link has been established between 15 INRES stations and INMCC Bangalore. Preliminary System Acceptance Test (PSAT) of GAGAN System was completed in December 2010 at Bangalore. Soil Testing has been completed for installation of 3<sup>rd</sup> INLUS Antenna at Nangloi, Delhi
- (iv) DSCN link (2<sup>nd</sup> com-link for GAGAN) between six INRES sites and INMCC Bangalore has been established

#### 4.9 Projects related to Communication, Navigation & Surveillance (CNS)

Creation of adequate and sufficient Communication, Navigation & Surveillance (CNS) infrastructure is imperative to safe and efficient aircraft operation in all phases of flight. While cruising, an aircraft needs to know the position as well as the direction it is flying in. For landing at a destination it needs to follow procedures based on the CNS infrastructure provided at the place of landing.

##### Projects completed in 2010-11:

1. Instrument Landing System (ILS) co-located along with Low Power Distance Measuring Equipment (LP – DME) (Replacement / New Facility)

*Commissioned:*

Delhi (RWY - 28) ,Delhi (RWY-10),Calicut (RWY – 10), Lucknow (Up-graded to CAT-II),Chandigarh, Silchar, Srinagar

*Installed, Awaiting Flight Calibration & Commissioning:*

Delhi (RWY – 09), Dehradun, Lengpui, Gondia, Tirupati, Kanpur

*Trans – Installation & Commissioning of Glide Path (GP) along with Low Power Distance Measuring Equipment (LP – DME):*

BIAL (RWY – 09), BIAL (RWY – 27), Delhi (RWY – 27) & Coimbatore

2. DEDICATED SATELLITE COMMUNICATION NETWORK (DSCN) (80 No.):

*Operationalised: 63 Sites*

*Physical Installation Completed: 12 Sites*

3. Doppler Very High Frequency Omni Directional Range (DVOR) along with co - located High Power Distance Measuring Equipment (HP - DME) : (Replacement / New Facility)

*Commissioned:*

Kolkata, Mysore (Operationalised as homing facility), Dehradun, Cochin, (CIB), Aurangabad

*Installed, Flight Calibrated & Awaiting Commissioning:*

Indore, Mysore, Chennai, Katihar, Rajahmundry, Jaipur, Allahabad, Amritsar

4. Flight Information Display System (FIDS) (10 No.):

*SAT completed & Commissioning Awaited:*

Jaipur, Mangalore, Mysore, Surat, Ahmadabad, Varanasi, Madurai

*Under Installation:*

Chandigarh, Indore, Lucknow

5. Up-gradation of Digital Airport Terminal Information System (DATIS)

*Commissioned (46 No.):*

Jaipur, Guwahati, Kolkata, Ahmedabad, Calicut, Chennai, Cochin, Hyderabad (Begumpet), Trivandrum, Mumbai, Patna, Nagpur, Varanasi, Vadodra, Ranchi,

Coimbatore, Mangalore, Trichy, Bhopal, Indore, Dibrugarh, Agartala, Rajkot, Aurangabad, Amritsar, Raipur, Gaya, Imphal, Dimapur, Udaipur, Khajuraho, Madurai, Bhavnagar, Surat, Dehradun, Vijayawada, Tirupati, Gondia, Jabalpur, Hubli, Bhuntar, Bhubaneswar, IGI Airport, Pune, Lucknow, CATC, Allahabad

6. Advanced Surface Movement Guidance and Control System (A - SMGCS) (03 No.):

*Installation Completed & SAT / Commissioning Awaited:*

Mumbai, Chennai, Kolkata

7. Non – Radar Procedural ATC Simulator Labs (16 NO.) at CATC, Allahabad (12 NO.) & Gondia (04 NO.):

Equipment dispatched.

8. Voice Communication Control Systems\_(VCCS) (30 No.):

*Commissioned (30 No.):*

Coimbatore, Madurai, Trichy, Vijayawada, Tirupati, Hubli, Indore, Bhopal, Bhavnagar, Surat, Rajkot, Aurangabad, Raipur, Bhubaneswar, Gaya, Ranchi, Vadodra, Patna, Gondia, Jabalpur, Khajuraho, Dehradun, Bhuntar, CRSD, CATC, Allahabad, Agartala, Imphal, Dimapur, Jaipur, Udaipur

9. EPABX

*Installation completed (07 No.):*

Bhopal, Gondia, Guwahati, Silchar, Agartala, Dimapur, Ranchi

10. Non - Linear Junction Detector (NLJD) (03 No.):

*Supply completed (03 No.):*

Chennai, Kolkata, Srinagar

11. Test & Measuring Equipment:

Radio Communication Test System (RCTS) (17 No.)

- Supply completed & sent to stations.  
ILS / VOR Signal System (21 No.)
- Supply completed & sent to stations.

12. GAGAN: Final Operational Phase P - SAT completed.

13. Mono-Pulse Secondary Surveillance Radar\_(MSSR) :

*SAT completed & Integrated to Automation System at Chennai:*

- Chennai, Bellary  
*SAT Awaited: Bhopal*  
*Under Installation: Porbandar*

14. Tower ATS Automation System at 38 Airports:

*Supply completed:*

- Type 'C' System (06 Nos.) at Varanasi, Mangalore, Trivandrum, Nagpur, Ahmedabad, Guwahati.
- Software Support Facility (01 No.) at Ahmedabad.
- Training Simulator (01 No.) at Ahmedabad.

**4.10 Airport infrastructure development works to be undertaken during 2011-12**

**IGI Airport, New Delhi**

- Upgradation work of existing brownfield cargo terminal is being completed in a phased manner. Construction of New Greenfield Cargo terminal in phase I is already completed and is awaiting customs & security clearance.
- Upgradation of roads network & metro rail connectivity to IGI airport T-3 (this is out of OMDA scope).
- Creation of a new post office building.

IGI Airport has been ranked the second best airport in the world in the category of 25-40 MPPA. IGI airport's T3 is among the first airports in the world to be awarded green building "Leed India Gold" rating from IGBC thereby making it one of the largest green buildings in the world. IGI airport has become the first airport in the world to be ISO 50001:2011 certified for Energy Management System.

**CSI Airport, Mumbai**

During 2010-11, MIAL commissioned 14 parking stands and completed the upgradation of Runway 09/27 to make it ICAO Code F compliant. As part of on-going efforts to enhance the overall airside efficiency at CSI airport, a new taxiway is being constructed between Taxiway E1 and E2 which would be beneficial in reducing the chances of scalloping the localiser for Runway 14/32. Expenditure of Rs. 2,698 crores is likely to be incurred during the FY 2011-12. On the cargo handling front, MIAL has commissioned a state-of-the-art temperature controlled facility for export handling of perishable and pharma cargo in May 2011.

CSI airport was rated the third best airport (out of 22 airports) worldwide in the 25-40 million passengers per annum category for the year 2011 in the Airport Service Quality (ASQ) survey carried out by Airport Council International (ACI). CSI airport was also the runners up for stat times International Award for Excellence in Air Cargo in the Cargo Airport of the Year (region-India) category.

**RGI Airport, Hyderabad**

The airport won the 2009-10 India' National Tourism Award instituted by the Ministry of Tourism. The airport was awarded the National Energy Conservation Award by Ministry of Power and green certification by IATA thereby making RGIA the second airport in India after Bangalore to obtain this certification. The airport was also given ISO-10002:2004 Certification for Complaint Handling System.



## **Bangalore International Airport**

BIAL has embarked on a terminal expansion project in September 2011. After completion of the project, the airport would cover an area of 134,000 square metres and handle approximately 17.2 million passengers annually. It is the first airport in Asia Pacific region and second in global civil aviation industry to be BS 25999 certified. BIAL has been awarded 'Best Emerging Market Airport Award' for Indian subcontinent in Dubai in June 2011.

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## CHAPTER-5

### POWER & NEW AND RENEWABLE ENERGY

5.1 Power sector has been given the utmost priority in the successive Five Year Plans. Regarded as crucial to economic growth, it has displayed phenomenal potential and over the years, generation, transmission and distribution capacities have increased manifold. Utility-based installed generation capacity has risen from 1362 Mega Watt (MW) at the time of independence to nearly 1,90,000 MW today. Although much has been achieved, the country is still dogged by shortage of power and lack of access continues to be a major constraint. The enactment of the Electricity Act in June 2003 was a major milestone that paved the way for development of the power sector within a competitive and liberal framework while protecting the interest of the consumers as well as creating an environment that was conducive for attracting investments in the sector. Subsequently, the National Electricity Policy and National Tariff Policy were also formulated to give direction to the power sector within the ambit of the Electricity Act. The Regulatory framework has been in operation now for six to ten years. However, competition and a robust regulatory regime that supports such competition are still to be realised.

#### 5.2 Targets and Achievements during 2010-11

Targets & achievements in respect of capacity addition, energy generation, transmission lines, and village electrification in 2010-11 are given in Table 5.1.

**Table 5.1: Targets & Achievements**

Particulars	2010-11
Capacity addition (MW)	Target- 20359 Actual- 12161
Energy generation (BU)	Target- 830.77 Actual- 811.10
Transmission Lines(ckt. Kms.)	Target- 18,563 Actual- 15,161
<b>RGVY</b>	
I) Village electrification(Nos)	Target- 17,500 Actual- 18,306
II) BPL H/Holds(in lakhs)	Target- 47.00 Actual- 58.8

### 5.3 Targets for 2011-12

The targets in respect of capacity addition, energy generation, transmission lines, and village electrification in 2011-12 are shown in Table 5.2

**Table 5.2 : Targets for Annual Plan 2011-12**

Particulars		2011-12
Capacity addition (MW)		Target- 17601
Energy generation (BU)		Target- 855 BU
Transmission Lines(ckt.kms)		Target – 27173
RGGVY		
i)	Village electrification (Nos)	Target- 14500
ii)	BPL H/Holds ( in lakhs)	Target-52.00

### 5.4 Capacity Addition

A net 12161 MW was added to the generating capacity during the Annual Plan 2010-11 which was about 59.7 per cent of the target of 20359 MW. The Table 5.3 summarises below the capacity additions realised during 2010-11.

**Table 5.3 : Addition in Capacity (MW)**

Mode-wise	2009-10 Actual	2010-11	
		Target	Achievements
Hydro	39	1346	690
Thermal	9106	17793	11251
Nuclear	440	1220	220
Total	9585	20359	12161

### 5.5 Reasons for shortfall in capacity addition during 2010-11

Some of the factors that contributed to shortfall/delay in commissioning of projects were:-

- Delay in placement of order for main plant.
- Delay in placement of order for civil works.
- Poor geology.
- Contractual dispute between project developer and contractor and their sub-vendors/sub-contractor
- Delay in land acquisition
- Environmental concern
- Law and order problem/local issues
- Difficult area and accessibility

### 5.6 Capacity Addition during 2011-12

A capacity addition target of 17,601 MW comprising 13611 MW thermal, 1990 MW hydro and 2000 MW nuclear has been proposed for 2011-12.

## 5.7 Generation

The total generation envisaged for 2010-11 was 830.76 Billion Unit (BU), which was about 5.23 per cent higher than the target for the preceding year. The generation programme for 2010-11 included 6.55 BUs from the Chukha, Kurichu, and Tala Hydel Projects in Bhutan. Source-wise generation targets and achievements for 2010-11 are summarised in Table 5.4.

**Table 5.4: Source-wise Electricity Generation (Million Units)**

Particulars	2009-10 Actual	2010-11	
		Target	Achievements
Hydro	103896	111352	114257
Thermal (Coal)	640538 (514732)	690857 (556134)	665008 (535340)
Nuclear	18636	22000	26267
Import from Bhutan	5359	6548	5611
Total	768429	830757	811143

As can be seen from Table 5.4, there was shortfall in the case of thermal-based generation. This was due to inadequate availability of coal, long duration forced outage, extended planned maintenance of existing thermal units, delay in commencement of generation from some of the newly commissioned units and low schedule in respect of liquid fuel based plants due to high cost as well as thermal units having to be put under reserve shutdown. Shortage of coal resulted in a generation loss of eight BUs. However, the shortfall in thermal generation was compensated by increased generation from hydro and nuclear based projects.

## 5.8 Details of Coal Import for Power Sector (Utilities)

**Table 5.5 : Coal Import for Power Sector in the Eleventh Plan Period**

Year	Import (Million Tonnes)
2007-08 (actual)	10.2
2008-09(actual)	16.1
2009-10(actual)	20.8
2010-11 (actual)	21.0
2011-12 (target)	55.0

## 5.9 Monitoring mechanism for supply of coal to power stations on daily basis

The coal supply position to thermal power stations is monitored by the Central Electricity Authority on a daily basis.

### **5.10 Generation Target during 2011-12**

A generation target of 855 Billion Units (BU) has been proposed by the ministry for 2011-12. This is 2.92 per cent higher than the target for 2010-11 and 5.41 per cent higher than the actual generation in 2010-11.

### **5.11 Coal and gas requirement for power sector**

Out of the total installed power generation capacity of 1,73,626 MW in the country, 54 per cent, i.e., 93,918 MW was coal/lignite based, till March 2011. Around 66 per cent of total generated power comes from coal fired power stations. Shortage of coal, has led to generation ranging from 1.6 BUs in 2005-06 to about 8 BUs in 2010-11. On the other hand, the overall Plant Load Factor (PLF) of Thermal power stations in the country has improved over the years. Out of 98 thermal power stations, 19 thermal power stations achieved higher than 90 per cent Plant Load Factor. One power station viz. Dahanu TPS of Reliance Energy in the private sector achieved more than 100 per cent PLF. To ensure coal and gas availability, following steps have been initiated:

- Setting up of coal washeries for reducing burden on railways and to improve efficiency of power stations.
- Development of adequate port, railways and roads infrastructure for transportation of coal to power projects.
- Development of specialized port/jetties well-equipped with coal handling infrastructure.
- Development of Dedicated Freight Corridor.
- Expeditious development of coal blocks: Development of coal blocks by Coal India Limited (CIL) in Public Private Partnership (PPP) mode through price-based bidding.
- Intensifying exploration and production activities for gas and coal.
- Setting up of Liquefied Natural Gas (LNG) terminals.

### **5.12 New initiatives**

#### **Ultra Mega Power Projects**

A major initiative for adding to the power generation capacity is the Ultra Mega Power Projects (UMPPs) Programme. So far four UMPPs of 4,000 MW each have been awarded through competitive tariff based bidding. These are based in Sasan (Madhya Pradesh), Mundra (Gujarat), Krishnapatnam (Andhra Pradesh) and Talaiya (Jharkhand). Twelve more super critical UMPPs have been proposed to be planned covering Chhattisgarh, Gujarat, Tamil Nadu, Andhra Pradesh, Odisha, Maharashtra and Karnataka. An important element of this programme is super critical technology, which is an important shift towards energy efficiency. Sudden spurt in the price of imported coal have affected the functioning of those UMPPs that are depended on it.

#### **Emergence of Natural Gas as preferred fuel**

Due to its inherent benign nature, easy transportability, ease of use, greater efficiency and cost effectiveness of power plants, natural gas has emerged as the preferred fuel for power generation. The last two decades have seen a sharp rise in the global demand for natural gas. However, the supply of natural gas in the power sector has not kept pace with demand. Supply of gas from LNG terminal is likely to be at 70 MMSCMD by the end of the Eleventh Plan period. However, availability of gas needs to be ensured for 8,782 MW gas based projects commissioned during the Eleventh Plan period and for at least 10,000 MW of additional capacity during the Twelfth Plan.

## Transmission System Development

Actual progress for 2010-11 and target for 2011-12 are given in Table 5.6.

**Table 5.6: Progress of Transmission System**

	<b>Target- 2010-11</b>	<b>Actual- 2010-11</b>	<b>Target- 2011-12</b>
<b>Transmission Lines (ckm)</b>			
500 kV HVDC	<b>0</b>	<b>0</b>	0
765 kV	<b>0</b>	<b>0</b>	824
400 kV	12515	7996	12401
220 kV	6048	7165	6567
<b>Total</b>	<b>18563</b>	<b>15161</b>	<b>19792</b>
<b>Sub-Stations (MVA/MW)</b>			
500 kV	0	0	0
765 kV	0	0	4315
400 kV	15960	13970	8410
220 kV	11776	17687	14655
<b>Total</b>	<b>27736</b>	<b>31657</b>	<b>27380</b>

### 5.13 Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY)

The rural electrification under Bharat Nirman is being implemented through RGGVY. The target under Bharat Nirman was to cover 125,000 unelectrified villages out of which 25,000 were to be covered by Ministry of New and Renewable Energy through non-conventional sources. RGGVY was launched in March 2005 with the goal to provide access to electricity to all households; electrification of about 1.15 lakh unelectrified villages and electricity connections to 2.34 crore BPL households by 2009. RGGVY was approved for continuation in the Eleventh Plan. The scheme provides 90 per cent capital subsidy for the project. Electrification of 102280 villages was completed and connections given to 182.81 lakh BPL households by mid February 2012.

### 5.14 Status of electrification

All states participating in RGGVY have notified their rural electrification plan and notified formation of District Committees. The electrification of 18,306 villages exceeded the target of 17,500 villages set for 2010-11. Year-wise RGGVY targets and achievements of electrification of un-electrified villages and release of connections to BPL households are given in Table 5.7.

**Table 5.7: Progress of RGGVY**

Year	Un-electrified villages (No.)			BPL Households (lakh)		
	Target	Achieved	% Achieved	Target	Achieved	% Achieved
<b>10<sup>th</sup> Plan</b>						
2005-06	10000	9819	98.2%	3	0.17	5.7%
2006-07	40000	28706	71.8%	40	6.55	16.4%
Total	50000	38525	77.1%	43	6.72	15.6%
<b>11<sup>th</sup> Plan</b>						
2007-08	10500	9301	88.6%	40	16.21	40.5%
2008-09	19000	12056	63.5%	50	30.85	61.7%
2009-10	17500	18374	104.9%	47	47.18	100.3%
2010-11	17500	18306	104.6%	47	58.84	125.2%
<b>CUMULATIVE 31.3.2011</b>	<b>114500</b>	<b>96562</b>	<b>84.3%</b>	<b>227</b>	<b>159.80</b>	<b>70.4%</b>

While progress in village electrification was a little above 84 per cent and was picking up, progress under BPL household coverage was far below the target. A target of 14,500 of village electrification and 52 lakh BPL households has been set for 2011-12.

#### **5.15 Restructured – Accelerated Power Development and Reforms Programme (R-APDRP)**

The focus of the R-APDRP programme is on actual demonstrable performance in terms of AT&C loss reduction. Projects under the scheme are to be taken up in two parts. Part-A includes projects for establishment of baseline data and IT applications for energy accounting/auditing & IT based consumer service centres and Part B is regular distribution strengthening projects. To facilitate the State utilities for expediting the implementation of R-APDRP, the Ministry of Power has finalised the model Detailed Project Reports (DRPs), empanelled IT consultants, IT implementing agencies, proposed setting up of Supervisory Control and Data Acquisition (SCADA)/Document Management System (DMS) implementing agencies, finalised the model Request of Proposal (RIP) for appointment of above consultants and agencies. Year-wise progress achieved on R-APDRP is given in Table 5.8.

**Table 5.8: Financial progress on R-APDRP (as on 31-01-2012)**

(Rs. Crore)

YEAR	Project Sanctioned			Budget Allocation			Actual Releases		
	Part-A	Part-B	Total	Loan	Grant	Total	Loan	Grant	Total
2008-09	1947.70	0.00	1947.70	325	25	350	325.00	25.00	350.00
2009-10	3183.00	3059.28	6242.28	1364	66	1430	1331.46	1.26	1332.72
2010-11	715.40	12915.31	13630.71	2471	100	2571	2246.42	100.00	2346.42
2011-12	736.27	7683.59	8419.86	1959	75	2034	1350.00	25.99	1375.99
<b>TOTAL</b>	<b>6582.37</b>	<b>23658.18</b>	<b>30240.55</b>	<b>6119</b>	<b>266</b>	<b>6385</b>	<b>5252.88</b>	<b>152.25</b>	<b>5405.13</b>

## **5.16 Way Forward**

### **Generation**

- It is clear that achieving a quantum jump in capacity addition is going to be a major challenge. Presently, the monitoring is done at the level of CEA. The Power Project Monitoring Panel (PPMP) with the Ministry of Power is being used for periodic zone-wise review of the programme for quick removal of bottlenecks.
- It has been recommended that the web-based MIS used by NTPC for its Dadri Plant should be used for monitoring project implementation programme of all new plants.
- Incentives for indigenous manufacturing capacity for super critical unit suppliers, in both in public and private sectors.
- Policy measures need to be initiated to encourage setting up of open cycle gas based plants for meeting peak demand. Differentiated tariff for peak and off-peak supply will encourage investors to build such plants.

### **Transmission**

- Establishment of gas-insulated sub-stations should be promoted to bring down the pressure on land acquisition.
- Transmission of power requirements should be reassessed in view of open-access requirements.
- Private investments in transmission projects should be actively promoted.
- Transmission corridors need to be identified and reserved in high density population areas like metros and other upcoming urban areas to meet future demand

### **Distribution**

- The SERCs should ensure that the prescribed retail tariffs cover the full cost of supply. Distribution companies are in a poor financial health since the commissions are leaving an uncovered gap.
- The distribution sector requires a robust and reliable MIS to overcome existing information and capability deficiencies. Distribution utilities that have been proactively accountable and have showed better governance have performed significantly better than others in finance and operation.
- The distribution sector requires substantial improvements in business planning and forecasting to manage its finances and operations better. This would require facilitating Multi Year Tariff (MYT) frameworks, as mandated by the Electricity Act 2003 in the States.
- . Much of the present cost problems are on account of poor power procurement, planning and contract management. Enhancing power procurement and portfolio optimisation skills are necessary.
- Improvement of network forecasting, planning and execution skills on an accelerated pace is required. Networks need to be strengthened to ensure that power distribution capabilities are adequate and efficient. Studies demonstrate that the present levels of technical losses in the networks are unacceptably high in some of the large States.
- Customer service and management methods need to be improved substantially for great consumer satisfaction and overall reduction in service costs. This would also facilitate implementing cost reflective tariffs and timely payments from consumers.
- Adequate emphasis needs to be placed on quality and monitoring of the restructured APDRP programme interventions and outputs.
- There should be greater focus on the rights of the customer. There are documented cases of distribution utilities switching off supplies to their own customers to sell power at profit in the short term power market sales. Supply obligations should be enforced and utilities should not be allowed the discretion of cutting off customers to sell in the power market.



### **5.17 New & Renewable Energy**

The estimated medium-term (up to 2032) potential for renewable energy in the country from wind, small hydro, solar and biomass has been assessed at 88,000 MW, which includes potential energy from wind (49000MW), small hydro (up to 25 MW station capacity) (15,000MW), biomass (crop residues & bagasse) (22000 MW), and urban & industrial wastes (3,800MW). In addition, there is the potential of solar power generation of 600,000 MW.

India is among the top rankers in the installation of grid interactive renewable power plants. A cumulative grid-interactive power generation installed capacity of around 22,644 MW from various renewable energy sources mainly wind, small hydro, biomass and solar energy has already been set up as on 31<sup>st</sup> December 2011. This corresponds to over 12 per cent of the total power generation installed capacity from all sources in the country.

#### **5.18 . Constraints in exploration of renewable energy sources:**

- Inherent intermittent nature of renewable energy sources leading to low capacity utilisation ranging from about 17 per cent to 70 per cent, depending on resource and location
- Lack of financial support for small scale entrepreneurs
- Insufficient expenditure on R&D for development of efficient technologies.
- Grid synchronization limitations on account of intermittent nature of supply
- Relatively higher capital investment compared to conventional power projects
- Requirement of preferential tariffs apart from other fiscal and/or financial concessions to make investment in renewable power a commercially attractive proposition.

#### **5.19 Policy /incentives framework**

The implementation of wind, small hydro, solar and biomass programmes for power generation is being promoted mainly with private investment. This is backed by various fiscal and financial incentives that include capital/ interest subsidy, accelerated depreciation and nil/ concessional excise and customs duties. The accelerated depreciation incentive will be phased out by the end of Eleventh Plan while the Twelfth Plan will have added focus on performance based incentives. Under the Electricity Act 2003, it has been made obligatory upon State Electricity Regulatory Authorities to fix a minimum percentage for purchase of electricity from renewable sources taking into account local factors. Several States have announced such renewable energy purchase obligations. However, these obligations are seldom enforced. In this background it has been proposed to make them mandatory. Additionally, it has also been proposed to include sub-sector obligations such as for solar and wind to take care of the non-uniformly distributed technology specific potential. Preferential tariff for grid interactive renewable power is being given in most potential States following the provisions made under the National Electricity Policy (NEP) and National Tariff Policy – 2006. Normative guidelines by Central Electricity Regulatory Commission (CERC) for fixing preferential tariffs have also been issued recently. State Electricity Regulatory Commissions (SERCs) in 17 States have announced preferential tariff for purchase of power.

In case of solar power projects, it is envisaged that NTPC Vidyut Vyapar Nigam Ltd. (NVVN), a wholly owned subsidiary company of NTPC, engaged in the business of trading of power will be designated as the nodal agency by the MoP for entering into a Power Purchase Agreement (PPA) with Solar Power Developers. The PPAs will be signed with developers setting up solar projects within next three years (i.e. by March 2013) and are connected to the grid at 33 KV level and above. The PPAs will be valid for a period of 25 years. For each MW of solar power installed capacity for which PPA is signed by NTPC Vidyut Vyapar Nigam Ltd. (NVVN), Ministry of Power shall allocate to NVVN an equivalent amount of MW capacity from the unallocated quota of NTPC stations. NVVN will bundle this power and sell this bundled power at a rate fixed as per CERC regulations. In case of significant price movement in the market rate, the Government will review the situation. When NVVN supplies the bundled power to distribution utilities, the distribution utilities will be entitled to use part of the bundled power to meet their Renewable Purchase Obligation (RPO), as determined by the regulatory authorities.

## **5.20 Progress**

### **Wind Power**

A target of generating 2000 MW through wind energy was fixed for the Annual Plan 2010-11 against which 2350 MW was achieved. The cumulative achievement during the first four years of the Eleventh Plan is 7063 MW. The target set for the Annual Plan 2011-12 for wind power is 2400 MW.

### **Small Hydro Power**

So far small hydropower projects (SHP) aggregating to 2,902 MW have been set up in various parts of the country. Against the target fixed for Annual Plan 2010-11 of 300 MW, the achievement has been 307.22 MW. For the Annual Plan 2011-12, a target of 500 MW has been set.

### **Solar Power**

Solar power generation plants with an aggregate capacity of 26.59 MW have been installed during the Annual Plan 2010-11. The target for 2011-12 is 200 MW.

## CHAPTER 6

### TELECOMMUNICATIONS AND INFORMATION TECHNOLOGY

#### Department of Telecommunications

**6.1** Indian telecom industry is one of the fastest growing telecommunication networks in the world. During the last decade it has contributed significantly to socio-economic development of the country. The services have become more competitive with nearly a dozen of operators providing services in most of the circles and introduction of 3G services and Mobile Number Portability. The rapid growth of telecom sector has been possible due to a policy shift from wire line to wireless phones and opening up the telecom sector to private service providers.

**6.2** A large portion of the equipment that is needed to run the network is currently imported. Although the complete range of telecom equipment is manufactured in India, it meets only a small part of the vast requirement. This provides an excellent opportunity for domestic and foreign manufacturers to invest in the sector.

#### **6.3 Achievements during 2010-11**

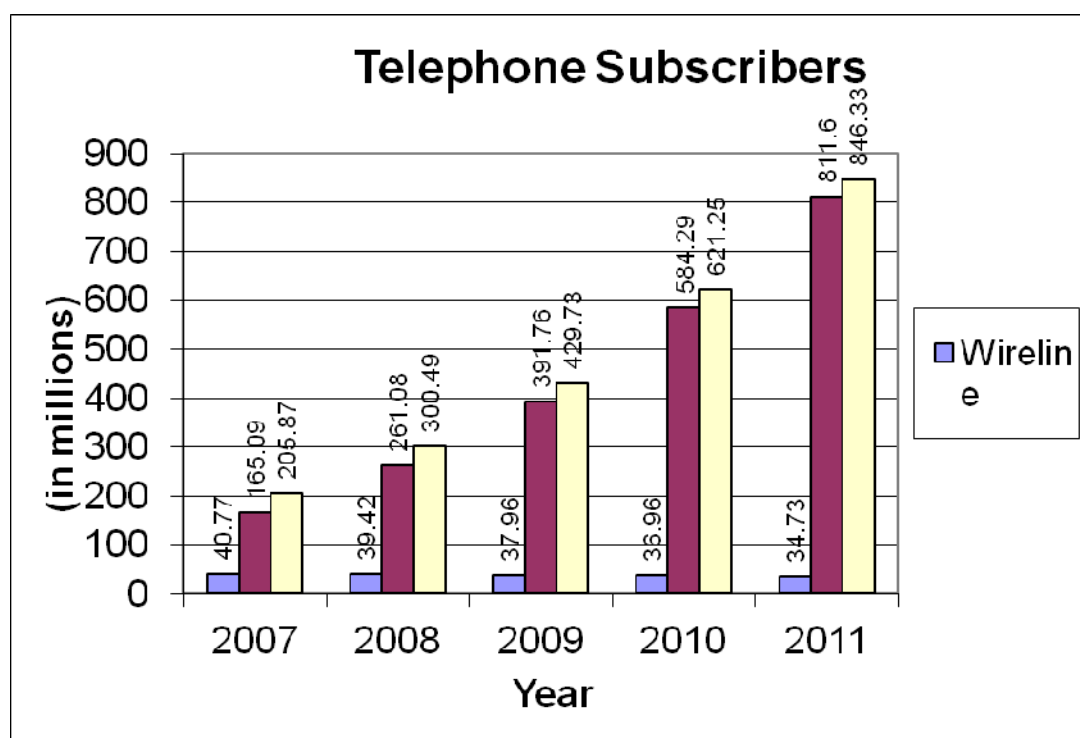
Indian Telecom revolution has been acknowledged the world over. The sector has grown phenomenally over the years. The subscriber base has reached 846.33 million of which 225.08 million were added in 2010-11. Tele-density increased to 70.89 per cent from last financial year's 52.74 per cent. The goals and objectives envisaged for the telecom sector during the Eleventh Five Year Plan have already been met although connectivity and subscriber base in rural India has much scope for improvement. The number of telephone connections in rural areas increased from 200.80 million to 282.23 million in 2010-11. Tele-density increased from 24.29 to 33.79 during the year. The private sector has progressed from 515.41 million to 720.33 million in the same period. Wireless connectivity has increased from 584.32 to 811.60 million while wire line connectivity has decreased from 36.96 million to 34.73 million.

Broadband connectivity in 2010-11 has grown to 11.89 million against 8.77 million the year before and the number of Internet connections in the same period grew to 16.67 million from 16.18 million. Although growing steadily, the Internet and Broadband connectivity in the country has not kept pace with the fast paced growth of telephone connectivity. This is most apparent in the rural areas.

The status of telecom network as on 31<sup>st</sup> March, 2011 is shown in Table 6.1. Its growth during the Eleventh Plan period is given in Figure-6.1.

**Table 6.1 Status of Telecom Network as on March 2011**

Items	Status on March
Number of Telephone subscribers (in Million)	846.33
Number of Telephone Exchanges (PSUs)	38526
Switching Capacity (PSUs) (in Million)	137.68
Village Public Telephones (VPTs) (PSUs)	575663
Number of wireless subscribers (in Million)	811.60
Broadband Subscribers (in Million)	11.79
Optical Fiber Cable RKms (PSUs)	698557
Microwave Systems RKms (PSUs) (digital)	50430



**Figure 6.1 Growth of telecom network during the Eleventh Plan period**

#### **6.4 Performance of Public Sector Undertakings (PSUs) in the Telecom Sector**

- Bharat Sanchar Nigam Limited (BSNL)*: In order to keep pace with technological advancement across the world, BSNL is in the process of modernising its equipment. Wireless Local Loop (WLL) is being used to provide fixed telephones in the rural areas along with Cellular Mobile Services. 3G services have been introduced in a number of cities throughout the country. An IP based backbone and New Generation Network (NGN) are also planned for introduction in the network. BSNL has taken several new initiatives like infrastructure sharing, commercial utilisation of fixed assets, enterprise business and fixed mobile convergence with the objective of increasing its revenue.

- *Mahanagar Telephone Nigam Limited (MTNL)*: During 2010-11, MTNL provided 4.79 lakh new connections and added 9.52 lakh lines of additional switching capacity in Delhi and Mumbai. MTNL is continuing to upgrade and modernise its network and has undertaken expansion work in 3G/4G, WI-Max, new generation wireless and DWDM in backbone and junction work.

**6.5** Centre for Development of Telematics (C-DoT), an R&D establishment under DoT undertook technology development programmes in line with broad objectives of the Eleventh Plan period, emphasising on NGN, wireless broadband, telecom network security, infrastructure sharing to accelerate the penetration of telecom network in rural areas.

## **6.6 Licensing and Spectrum**

Ever since 1991-92, when the telecom sector opened to the private sector for the delivery of services, there have been many changes in the Telecom policy. Policy initiatives in 1999 enabled multiple operators to provide services for a particular circle/area. Keeping pace with the developments in technology an unified license regime was introduced in 2003 which enabled the operators to use core infrastructure for both fixed and mobile services under the same license. This created a huge subscriber base with demand for more and more spectrum in various frequency bands. Moreover, technological upgradation made it possible to converge not only audio/video services but also the broadcasting and telecommunications services through one media/carriage. That too raised the demand for spectrum. Spectrum is a scarce resource and is limited to every country by international regulations. The future of communication lies in high-speed data communication in bulk and this requires a huge bandwidth of spectrum.

In view of these demands, policy initiatives were taken to explore utilisation of unused spectrum with various government departments, provisioning alternate path, like fibre optics to release spectrum for commercial use, optimal utilisation of available spectrum, better technological application and sharing of spectrum. Re-farming of spectrum is also under consideration to get prime zone spectrum freed for commercial use by transferring the services to non-prime zone.

Vacating spectrum from Defence has been taken up by providing an alternate optical fibre path. As a part of this exercise, an alternate communication network has already been provided to the Air Force. Laying Optical Fibre Cable (OFC) network for Army and Navy is underway and additional spectrum is expected to be made available for commercial use in the near future.

## **6.7 Internet and Broadband**

Spectrum for 3G and Broadband Wireless Access (BWA) have already been auctioned and service providers have already rolled out 3G services The BWA is expected to boost mobile broadband connectivity in the country.

## 6.8 Targets for 2011-12:

### *BSNL: Proposed Targets*

- Telephone connections: 185 lakh, GSM mobile: 200 lakh, Broadband connections 75 lakh (35 lakh wire line, & 40 lakh wireless); Trunk Automatic Exchange: (TAX) 1000K circuits and OFC of 30,000 Rkm.
- WiMax service, Next Generation Network, ERP System, Fixed mobile convergence network and providing value added services both on 3G and Broadband.
- NE Region Plan: 6 lakh telephones on fixed lines and Mobile, 80K Broadband and 300 Rkm of OFC
- Tribal Sub plan: 25 lakh switching capacity, 3 lakh of Broadband capacity, 4000Rkms OFC.

### *MTNL:*

- New connections including WLL & Cellular: 7 lakh; Switching capacity including WLL & GSM, NGN, IMS: 10 lakh; TAX 64 K; Broadband 500 K ports; Laying of 60K Rkm of OFC.
- Expansion of service areas on IPTV, VOIP, 3G services, GPON based FTTC/FTTH. Conventional TDM to Internet protocol based network, Data services, Wireless Broadband (WiMax) etc.

## 6.9 Policy issues and Way Ahead

Various measures have been taken to overcome connectivity deficiency in the rural areas. Some of these are:

- Setting up of Broadband access centres known as Common Service Centres (CSCs), telecentres, kiosks, other public access points and PCOs.
- Connecting educational institutions.
- Providing Internet services as primary means of rural broadband access
- Utilising existing infrastructure of private and government as well as cable operators
- Providing contents in local language with affordable low cost end user equipment.

Digital literacy is one of the drivers for expansion of rural broadband. Once rural schools are provided access to broadband along with government utility services in local languages it will help generate awareness among the rural people leading to more demand for broadband and internet.

Telecom infrastructure (sharing of towers etc.) in rural areas can be utilised for reducing cost of operation.

Provision of Village Public Telephones (VPTs) to cover the uncovered villages has been undertaken under the Universal Service Obligatory Fund (USOF). This has not only improved connectivity, but has also helped in expanding broadband services in the villages.

Broadband service can be useful in providing tele-education, tele-medicine, e-governance, entertainment as well as employment generation. For greater penetration

of broadband, availability of affordable access devices, connectivity and local content will have to be addressed along with steps for higher computer penetration.

Right of Way (RoW) procedure is one of the major impediments in laying wire line infrastructure. TRAI has recommended that a committee be formed at district level to study RoW requirement and it should evolve duct sharing mechanism among service providers.

Power supply continues to be a key concern in the rural areas. Alternative sources of energy including introduction of green telephony needs to be encouraged.

## **6.10 Department of Information Technology**

The activities under infrastructure developments by the Department of Information Technology (DIT) include the creation of core infrastructure under various programmes / schemes namely i) National e-Governance Plan (NeGP), ii) Standardisation Testing and Quality Certification (STQC), iii) Cyber Security, iv) Education & Research Network (ERNET), v) National Informatics Centre Network (NICNET), and vi) National Knowledge Network (NKN).

## **6.11 Goals / Programmes / Targets and Achievements during 2010-11**

### **i) National e-Governance Plan (NeGP)**

The National e-Governance Plan (NeGP) was approved by the Government to provide public services to the common man in his locality at affordable cost. A brief of various components that support the creation of the core infrastructure under NeGP is as under:

#### *State Wide Area Networks (SWANs)*

SWAN is the converged backbone network for data, voice and video communications throughout a State or Union Territory and is expected to cater to the information communication requirements of all the departments. The vertical component of SWAN comprises of network connectivity from the State/ UT Headquarter to the Block Headquarter through District Headquarter. The bandwidth provision for network connectivity is a minimum of 2 Mbps up to the Block level. For the horizontal component, various offices at State, District, and Block level are be connected.

As on 31<sup>st</sup> March 2011, SWAN was implemented in 26 States/ UTs namely Andhra Pradesh, Haryana, Himachal Pradesh, Punjab, Tamil Nadu, Gujarat, Karnataka, Kerala, Jharkhand, West Bengal, Chhattisgarh, Maharashtra, Orissa, Chandigarh, Delhi, Tripura, Puducherry, Lakshadweep, Sikkim, Uttar Pradesh, Assam, Bihar, Madhya Pradesh, Uttarakhand, Manipur and Arunachal Pradesh. In the remaining States/UTs, it is at different stages of implementation.

### *Common Service Centres (CSCs)*

The Government has approved the Common Services Centres (CSCs) Scheme for providing support for establishing 100,000 CSCs in 600,000 villages of India. The CSCs are envisioned as the front-end delivery points for government, private and social sector services to rural citizens of India.

As on 31<sup>st</sup> March 2011, a total of 93,163 CSCs have been rolled out in 31 States/ UTs.

### *State Data Centres (SDCs)*

State Data Centre (SDC) has been identified as one of the important elements of the core infrastructure for supporting e-Governance initiatives under NeGP. The scheme proposes to establish data centres in all the States/ UTs so that common secure IT infrastructure is created to host State level e-Governance applications and data to enable seamless delivery of government services to the public.

As on 31<sup>st</sup> March 2011, SDCs have been made operational in nine States / UTs namely Gujarat, Tripura, Rajasthan, West Bengal, Puducherry, Tamil Nadu, Meghalaya, Karnataka and Andhra Pradesh. In other States/ UTs, it is at different stages of implementation.

### **ii) Standardisation Testing and Quality Certification (STQC)**

STQC Directorate, a premier organisation for Quality Assurance in the field of Electronics and Information Technology has established a well-developed network of test laboratories across the country. It also provides Test & Calibration, Training and Certification services through its well developed and countrywide network of test laboratories such as the Electronics Regional Test Labs (ERTL), Electronic Test & Development Centres (ETDC), STQC Information Technology (IT) Services Centres etc. Some of the major achievements of the STQC Directorate during the year are :

- A number of e-Governance projects of Central and State governments have been tested.
- STQC has certified many organisations as per ISO27001 (Information Security Management System) in India and abroad. Number of training programmes on information security have been designed and delivered.
- The services of Electronics Regional Test Labs (ERTL) include among others evaluation of Solar Photovoltaic Panels, participation in Space Programmes through screening, packages & modules testing and environmental testing, providing testing & calibration services to defence and space centres.
- Test and calibration services have been provided to overseas clients from Germany, United Kingdom, Bahrain and South Asian Association for Regional Cooperation (SAARC) countries.

### **iii) Cyber Security**

The increasing complexity of IT systems and networks has led to mounting security challenges for both the providers and consumers. During the year 2010-11, 11 R&D



projects were initiated in the areas including i) packet marking schemes for trace back network security attacks, ii) reactive roaming scheme for honey pots, iii) enterprise level security metrics, iv) steganalysis covering digital multimedia objects, v) trust models for cloud computing .

Indian Computer Emergency Response Team (ICERT) is the national nodal agency for responding to computer security incidents as and when they occur. It provides Incident Prevention and Response services as well as Security Quality Management services. The activities carried out by the ICERT during the year 2010-11 are briefly given in Table 6.2:

**Table 6.2: Activities of ICERT during 2010-11**

<b>Activities</b>	<b>Total Number in the year 2010-11</b>
Security Incidents handled	4,727
Security Alerts issued	22
Advisories published	46
Vulnerability Notes published	142
Security Guidelines published	1
White Papers published	1
Trainings organised	21
Indian Website Defacements tracked	10,593
Open Proxy Servers tracked	1,585
Bot Infected Systems tracked	16,35,212

#### **iv) Education & Research Network (ERNET)**

ERNET India serves academic and research institutions in the country by connecting them on Intranet and Internet. The ERNET network is a mix of terrestrial and satellite based wide area network and supports both Internet Protocol version-4 (IPv4) and Internet Protocol version-6 (IPv6). ERNET provide four types of services, namely, Network Access Services, Network Applications Services, Hosting Services and Operations Support Services. A key mandate of ERNET India is to provide a reliable and robust network infrastructure to facilitate the target user community to develop and disseminate related applications and contents. The internet bandwidth was upgraded to more than 600 Mbps. More than 1300 user institutions covering diverse application domains are now connected to ERNET network. A total of 5610 '.in' domains under 'edu.in', 'ac.in' and 'res.in' have been registered.

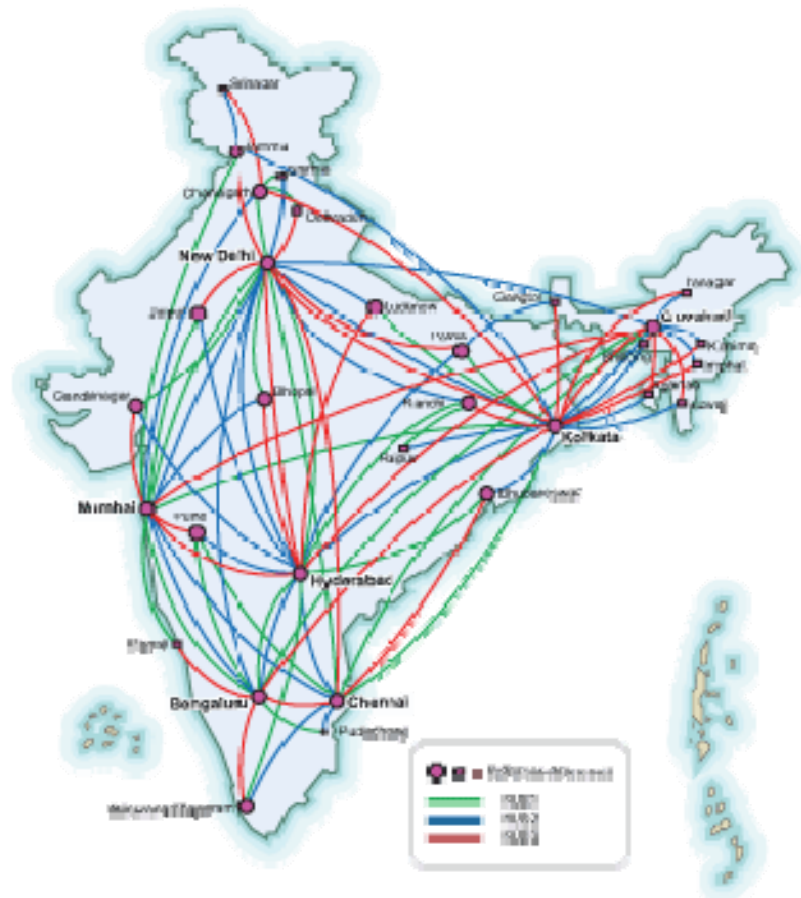
#### **v) National Informatics Centre Network (NICNET)**

6.33 NICNET, the pan India computer communication network of the National Informatics Centre (NIC) has been the backbone for the e-Governance applications of NIC. NICNET utilises variety of technologies including terrestrial, wireless and VSAT networking to provide connectivity to all Central government ministries / departments and all 35 States and 616 Districts of India. State government secretariats are connected to the Central government with very high speed links on Optical Fibre Cable

(OFC). Districts are connected to respective state capitals through leased lines. 550 districts have 34 Mbps connectivity on Wide Area Network (WAN) from their respective State capitals. Over 50,000 nodes of Local Area Networks in Central government offices and State government secretariats including 6500 nodes in NE States are operational. The Integrated Network Operations Centre (INOC) at Delhi manages and monitors all NIC centres in States, Districts and Bhavans.

**vi) National Knowledge Network (NKN)**

In March 2010, the Government approved the establishment of the National Knowledge Network (NKN), to be implemented by NIC over a period of ten years. The objective of NKN is to bring together all the stakeholders in science, technology, higher education, R&D, and governance. The output of the project would be a high capacity countrywide infrastructure at education & research institute level, which will be available 24x7 to support education, research and other applications as envisaged by these institutions which require very high bandwidth. The NKN will facilitate knowledge sharing, collaborative research and countrywide classrooms and help the country to evolve as a Knowledge Society. Figure 6.2 gives the architecture of NKN. The achievements during 2010-11 are as follows:



**Figure 6.2: Architecture of National Knowledge Network**

- 3 Points of Presence have been established with 2.5 Gbps capacity for core backbone.
- A total of 38 institutions have been connected to NKN and nine virtual classrooms set up.
- Trans Eurasia Information Network (TEIN3) link is integrated with NKN

### **6.12 Policy Issues**

Some of the important policy issues of the Department are given as under:

- “Standards in e-Governance” is a high priority activity, which will ensure sharing of information and seamless interoperability of data and e-Governance applications under NeGP. The Policy on Open Standards for e-Governance has been released in November 2010.
- Cyber security strategy towards securing country’s cyber space is being pursued with major initiatives like Security R&D and Security Policy, Compliance and Assurance.

## CHAPTER-7

### WATER RESOURCES

#### Irrigation

7.1 Expanding and rejuvenating existing irrigation infrastructure is essential to increasing food production and ensuring food security. The Eleventh Plan envisaged a four per cent growth in Agriculture and towards this end, targeted creating an irrigation potential of over 16 million hectare (m.ha) through major, medium and minor projects of which an estimated nine m.ha was to be covered by major and medium irrigation projects. These include Extension, Renovation and Modernisation (ERM) Projects. Minor irrigation works are to cover seven million hectares. This includes one m.ha restored potential through renovation of water-bodies. However, a review of the Eleventh Plan performance shows a reduction in the annual rate of creation of irrigation potential from the targeted 3.2 m.ha to an average rate of 1.83 m.ha. Keeping this in view, the target for Eleventh Plan had to be scaled down to 9.5 m.ha with 5.00 m.ha under Major and Medium Irrigation and 4.5 m.ha under Minor Irrigation. The allocations for 2007-10 (cumulative) were Rs 1,33,830 cr against the Eleventh plan outlay of Rs 2,32,311 cr representing 58 per cent realisation of the overall outlay.

#### 7.2 Goals for year 2010-11 and over medium term

Keeping in line with the revised Eleventh Plan target, the target for 2010-11 was 2.02 m.ha. From 2005 to 2009, 7.316 m.ha or new and restored irrigation potential was achieved against a target of 10 m.ha under Bharat Nirman and the remaining target is expected to be achieved by 2010-11. The outlay for the sector for 2010-11 was Rs.52,494.28 crore (for both Centre and States). The States have since reported revised outlay of Rs 46,034.50 cr.

**Table 7.1 Targets and Achievements for 2010-11**

	Target(in m.ha)	Achievement(in m.ha)
<b>Major and Medium Irrigation</b>	1.516	0.9445
<b>Minor Irrigation</b>	1.385	0.7583

For the year 2011-12, the approved allocation to the irrigation sector is Rs 64033.84 cr. The targets under the Major and Medium Irrigation and Minor Irrigation sectors are 2.065 m.ha and 1.233 m.ha respectively.

#### 7.3 Policy/Strategy adopted to achieve the goal

The following strategy has been adopted to achieve the goals of enhancing irrigation potential:

- Enhanced assistance under Accelerated Irrigation Benefit Programme (AIBP) to the States. Rs.11,500 crore has been allocated under this programme for 2010-11 against

Rs.9700.00 crore in 2009-10. For the year 2011-12, the Budget allocation for the Accelerated Irrigation Benefit Programme is Rs 12650 cr.

- Providing liberal grant assistance under AIBP for drought prone areas, tribal areas and flood prone areas at 90 per cent grant competent.
- The coverage under AIBP has been widened and accordingly projects benefiting tribal areas, projects falling in the Prime Minister's agrarian distressed districts and projects in the States with irrigation development below national average are being included without insisting on the stipulation of completion of one project for inclusion of another
- Separate funding for repair, renovation and restoration of water bodies both through external assistance and through domestic support.
- Revamped Command Area Development and Water Management programme in the Eleventh Plan to bridge the gap between the created and utilised potential.
- Convergence of NREGA funds for water sector for both Minor Irrigation and maintenance of irrigation systems.
- Encouraging the formation of water users association through specific legislation in States for maintaining the irrigation systems that have been handed over to them.
- Separate package for Bhudelkhand area in Madhya Pradesh and Uttar Pradesh for development of water resources.
- Fourteen multipurpose projects under irrigation sector declared as National Projects. Ninety per cent grant assistance to be provided to them under Accelerated Irrigation Benefit Programme. Three projects are ongoing, namely Teesta Project in West Bengal, Gosikhurd in Maharashtra and Shahpur Kandi in Punjab.

#### **7.4 Core macro policy issues for consideration and debate**

- Emphasis on demand side management such as formation of water users associations, participatory irrigation management, command area development and selection of crops
- Strategies and action plan for water use efficiency in irrigation distribution network, field application efficiency and efficiency in water management
- Need for an integrated institutional set-up for converging the institutions in water sector (various Ministries, departments etc.)
- Inter State water dispute settlement concept of Standing Tribunals
- Inter linking of rivers
- Control of pollution of water resources through effective measures

#### **7.5 Way Forward**

- Protect and rehabilitate traditional water harvesting structures
- Rapidly move towards rainwater harvesting and recharging of groundwater through investments under the Integrated Watershed Management Programme and MGNREGA.

- Bridge the gap between irrigation potential created and utilised in surface water irrigation projects.
- Improve efficiency of water use in AIBP projects through management and technology innovations.

## CHAPTER-8

### RURAL WATER SUPPLY AND SANITATION

#### 8.1 Rural Drinking Water Supply

The Centrally Sponsored Scheme viz., Accelerated Rural Water Supply Programme (ARWSP) is a continuing scheme since 1972-73. Except for a few small components, major portion of the assistance is to be matched equally by the State Government. Accelerated Rural Water Supply Programme (ARWSP) has been restructured and renamed as “National Rural Drinking Water Programme (NRDWP)” with effect from 1<sup>st</sup> April, 2009. The scheme is being funded on a 50:50 sharing basis between Government of India and State Government, except for North Eastern States and Jammu & Kashmir, where it is 90:10 (Centre : State).

Rural Drinking Water Supply is one of the six components of the programme to build rural infrastructure called “Bharat Nirman” launched by Government of India in 2005. Under the programme, safe drinking water is to be provided to all uncovered habitations by 2012. Under Bharat Nirman Phase-I from 2005-06 to 2008-09, the targets were to cover 55,067 ‘Not covered’ habitations, 3.31 lakh ‘slipped back’ habitations and 2.17 lakh ‘quality affected’ habitations, against which 54,440 ‘Not covered’ habitations and 3,58,362 ‘slipped back’ habitations were covered and 3,10,698 ‘quality affected’ habitations were addressed in Phase-I. Phase-II of the programme is under implementation from 2009-10 onwards. Up to 2010-11, 59,236 quality affected habitations and all the 627 uncovered habitations were covered under Phase-II.

#### 8.2 Rural Sanitation

Rural Sanitation is now gaining momentum in the country. Total Sanitation Campaign (TSC) is a Centrally Sponsored Scheme (CSS) for providing sanitation facilities in rural areas. Individual House Hold Latrines (IHHL), Sanitary Complexes, School Toilets, Toilets for Anganwadis, Rural Sanitary Marts and Production Centres are components of this scheme. The incentive amount to a Below Poverty Line (BPL) household for construction of one unit of IHHL is Rs.3,200 (Rs.3,700 for hilly and difficult areas). The Central share out of this is Rs.2,200 (Rs.2,700 in case of hilly and difficult areas) and State Government share is Rs.1,000. Minimum beneficiary share is Rs.300. The type of facilities to be provided is based on the need and full participation and involvement of Gram Panchayats, the people, particularly the women and the NGOs.

Funding for School Sanitation in a TSC Project is provided by the Central and State Government in the ratio of 70:30. Accordingly the Central assistance per unit is restricted to 70 per cent for a unit cost of Rs.35,000 (Rs.38,500 in case of hilly and difficult areas).

Construction of one toilet for each Anganwadi or Balwadi in the rural areas costing up to Rs.8,000 (Rs.10,000 in case of hilly and difficult areas) is also part of the scheme.

The incentive amount given by Government of India is restricted to Rs.5,600 (Rs.7,000 in case of hilly and difficult areas).

The target set by the Ministry of Drinking Water and Sanitation is to cover 100 percent sanitation at the earliest. The programme is to ensure sanitation facilities in rural areas with the main goal of eradicating the practice of open defecation and ensuring clean environment.

### **8.3 Goals for 2010-11 and achievements**

#### **Drinking Water Supply**

All habitations in the country are to be covered by safe drinking water supply at the earliest. A Plan outlay of Rs.9,000 crore was allocated during the Annual Plan 2010-2011 for Rural Water Supply under Central Plan against which an amount of Rs.8,941.81 crore was released by the Ministry of Drinking Water and Sanitation. The targets/ achievements in "Rural Drinking Water Supply" during 2010-11 are given in Table 8.1.

**Table 8.1: Targets and Achievements in Rural Drinking Water Supply during 2010-11**

	Number of Habitations			
	Uncovered	Partially Covered	Water affected	Total
<b>Targets</b>	376	80,342	41,094	<b>1,21,812</b>
<b>Achievements</b>	376	91,918	27,107	<b>1,19,401</b>

#### **Rural Sanitation**

The outlay of Rs.1580 crore during Annual Plan 2010-11 for Rural Sanitation under Central Plan was released in full by the Ministry of Drinking Water and Sanitation. At the end of 2010-11, the projects in 607 districts of different States in the country have been sanctioned for coverage under TSC. All these projects are targeted to be completed at the earliest. The achievements during 2010-11 under the Campaign are 1,22,43,731 Individual Household Latrines, 1,05,509 School Toilets and 50,823 toilets for Anganwadis.

### **8.4 Goals for year 2011-12 and over medium term**

#### **Drinking Water Supply**

All habitations in the country are to be covered by safe drinking water supply at the earliest. As many as 1,64,587 habitations are to be covered in 2011-12.



## **Rural Sanitation**

Total Sanitation Campaign is a demand driven scheme and, therefore, no annual targets are fixed in advance.

### **8.5 Policy/Strategy**

The following strategy is being adopted for achieving the goals:

#### **Drinking Water Supply**

- To ensure sustainable water supply sources and systems through rainwater harvesting and artificial ground water recharge, proper maintenance with the help of community participation and Panchayati Raj Institutions (PRIs).
- Addressing water quality problems like the presence of excess fluoride, arsenic, iron, salinity, nitrate, etc.. Identifying safe sources, adopting new technologies etc.
- Promoting decentralised operation and maintenance of water supply systems.
- Promoting Management Information System (MIS) for dissemination of information, transparency and accountability.
- Enhanced funding under NRDWP is required to cover all the population by safe drinking water supply for achieving the goal.
- Convergence of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and National Rural Health Mission (NRHM) funds for water supply sector for operation and maintenance of the systems.

#### **Rural Sanitation**

- Adopting area specific design and development for IHHLs.
- Ensuring sustainability of all types of latrines with the help of community participation/ PRIs.
- Information Education and Communication (IEC) to be implemented not just to create demand but also for use, maintenance and upgradation.
- Motivate individual households and community to adopt cleanliness and personal hygiene practices.
- Adopting new and advanced technologies for Solid Waste Management
- Promoting local Production Centres for manufacturing and installation of sanitary hardware and other accessories.
- Convergence of MGNREGS and NRHM funds for sanitation sector for operation and maintenance of the systems.
- Ensure community participation for sanitation and awareness through providing incentives like Nirmal Gram Puruskars.

## **8.6 Core macro policy issues for consideration and debate**

- Need for water resources augmentation such as, rainwater harvesting and ground water recharge.
- Emphasis on demand side management by efficient use of water, adoption of improved technologies, recycling and reuse of water, etc.
- Thrust on addressing water quality problems in drinking water sector e.g. excess fluoride, arsenic, iron, salinity, nitrate, etc.
- Handing over of the management of water supply systems to the Panchayats with technical support from the line-department.
- Need for an integrated institutional set up for convergence of the institutions in water sector (various Ministries, departments etc).

## **8.7 Way Forward**

- Protect sources of drinking water both in terms of levels and quality.
- Ensure water supply for sustained use of toilets in rural areas.
- Improve systems of waste disposal.

## CHAPTER - 9

### HOUSING & URBAN DEVELOPMENT

**9.1** In 2001, India's urban population, living in approximately 5,200 cities and towns, was about 285 million. It has increased to 377 million in 7,935 cities and towns in 2011. Projections are that by 2031, over 600 million people may be living in urban areas.

While the extent of urbanisation in India is relatively lower compared to other major developing countries, e.g. 45 per cent in China, 54 per cent in Indonesia, 78 per cent in Mexico, and 87 per cent in Brazil, the pace of urbanisation is set to accelerate as large number of people may move to urban areas in search of better avenues for livelihood.

As noted in the Report of a High Power Expert Committee on Indian Urban Infrastructure and Services (March 2011) chaired by Dr. I. J. Ahluwalia, this transition is not simply a shift of demographics. It places cities and towns at the centre of India's development trajectory. Hence in the coming decades, the urban sector will play a critical role in the structural transformation of the Indian economy and in sustaining the high rates of economic growth. The report has noted that although ensuring high quality public services for all in the cities and towns of India is an end in itself, managing urbanisation will also facilitate the full realisation of India's economic potential and concluded that for sustaining economic growth momentum and for inclusive growth, urbanisation needs to be actively facilitated.

#### **9.2 Flagship Scheme - Jawaharlal Nehru National Urban Renewal Mission (JNNURM)**

The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) has been a major intervention by Government of India in the urban sector since 2005. It is a flagship scheme, being implemented in a Mission mode with a seven-year programme outlay of about Rs. 66,000 cr. the core objective of the programme is to incentivise the State Governments and the urban local bodies to carry out urban reforms in accordance with the spirit of 74<sup>th</sup> Constitutional Amendment Act (CAA) and to make them financially sustainable. Another thrust is to make our cities more inclusive. JNNURM envisages investment by the private sector in order to meet the goals.

The programme has renewed focus on India's urban centres and has led to initiation of many reforms which mandated devolution of powers to the third tier of Government. The programme has four components, Urban Infrastructure and Governance ( UIG) and Urban Infrastructure Development Scheme for Small and Medium Town (UIDSSMT); Basic Services to Urban Poor ( BSUP) and Integrated Housing and Slum Development Programme (IHSDP).

The UIG component of JNNURM addresses inter-alia the needs of water supply, sanitation, sewerage and solid waste management in the urban areas for the identified 65 Mission cities which include seven megacities, 28 million plus cities and 30 identified cities/urban agglomerations. The total Mission period (seven year) allocation for UIG is Rs. 31,500 cr.

Under UIG, a total of 532 projects worth Rs.60,529 cr have been sanctioned for which the Additional Central Assistance (ACA) of Rs. 27960 cr has been committed. The details of the sanctioned projects as on March 31, 2011 are given in Table 9.1

**Table 9.1: Implementation status of UIG projects as on March 31, 2011**

Sl. No	Sector	Number of Projects sanctioned	Approved Cost (Rs. In Crore)
1	Water Supply	152	19,681.17
2	Sewerage	109	14,771.94
3	Drainage	70	8,208.81
4	Solid Waste Management	43	2,059.84
5	Roads & Flyovers	97	8,121.97
6	MRTS	21	5,203.88
7	Other Urban Transport	15	805.88
8	Urban Renewal	11	487.90
9	Development of Heritage Areas	5	210.46
10	Preservation of Water Bodies	4	116.71
11	Parking projects	5	860.42
	<b>Total</b>	<b>532</b>	<b>60,528.98</b>

As on 31<sup>st</sup> March 2011, a total of 105 projects for eight States amounting to Rs. 4,221 cr have been completed. The details of the completed projects as on 31<sup>st</sup> March 2011 are given in Table 9.2.

**Table 9.2: Completion status of UIG projects as on 31<sup>st</sup> March 2011**

Sl. No	Sector	Number of Projects completed	Approved Cost (Rs. In Crore)
1	Water Supply	33	1,690.69
2	Sewerage	15	439.10
3	Drainage	8	449.52
4	Solid Waste Management	3	190.87
5	Roads & Fly Overs	36	1,030.12
6	MRTS	2	190.72
7	Other Urban Transport	5	159.54
8	Urban Renewal	2	27.05
9	Development of Heritage Areas	1	43.13
	<b>Total</b>	<b>105</b>	<b>4,220.74</b>

In 2010-11, a total of 16 projects amounting to Rs. 2965 crore were sanctioned. Projects approved under UIG in 2010-11 are given in Table 9.3.

**Table 9.3: Status of implementation of projects approved under UIG in 2010-11**

Sl.No	Sector	Number of Projects approved	Approved Cost (In Rs. Cr)	ACA Committed (In Rs. Cr)	ACA released (including for the projects sanctioned during 2005-2010) (in Rs. Cr)
1	Water Supply	2	272.33	107.16	551.12
2	Sewerage	4	1,508.27	543.40	516.74
3	Drainage	3	154.76	54.16	153.40
4	Solid Waste Management	2	42.67	24.13	30.79
5	Roads & Fly Overs	3	553.73	193.81	434.78
6	MRTS	2	432.91	178.52	74.48
7	Other Urban Transport				37.56
8	Urban Renewal				3.87
9	Development of Heritage Areas				
10	Preservation of Water Bodies				9.95
11	Parking projects				
	<b>Total</b>	<b>16</b>	<b>2964.67</b>	<b>1101.18</b>	<b>1812.69</b>

### 9.3 Role of State and Private Sector

One of the identified strategies for JNNURM was to incorporate private sector efficiencies and attract private capital in the development, arrangement and financing of projects, through Public Private Partnership (PPP). To achieve this, Mission is facilitating cities to undertake reforms for improvement of governance, financial sustainability and, land and market related reforms. Encouraging private partnership and Public Private Participation (PPP) models for provision of various services is one of the key reforms under the Mission. The Mission has also prepared a toolkit for guiding cities for preparing projects on PPP basis. So far 67 projects at a total cost of Rs 7483 crore have been approved under UIG and have been undertaken either on PPP Mode or with some component of PPP.

**Table 9.4 – Sector-wise approval of projects of PPP under UIG-JNNURM**

Sl. No	Sectors	Projects	Approved Cost (Rs. In Crore)
1	Solid Waste Management	40	1,967.30
2	Water Supply	4	572.75
3	Sewerage	2	65.55
4	Others	2	106.42
5	BRTS	19	4,770.97
	<b>Total</b>	<b>67</b>	<b>7,482.99</b>

(Source: Ministry of Urban Development)

The Mission has observed that the sectors most amenable to PPP under JNNURM are Solid Waste Management (SWM) and Transportation, followed by water supply and sewerage.

*Funding of urban transport projects under JNNURM* - Under the Second Stimulus Package announced by the Government, it was decided that the States/UTs, would be provided assistance for Mission cities as a one-time measure to strengthen their urban transport system. This is done under the UIG component of JNNURM. Accordingly, Ministry of Urban Development has approved 15,260 buses with admissible Central assistance of Rs.2089 crore out of which Rs.1215 crore has already been released.

Further, under the UIG component of JNNURM, 21 projects with an approved cost of Rs.5,204 crore have been sanctioned for improvement in public transport. Others 117 projects like roads, flyovers, railway overhead bridges (ROBs) and parking projects with an approved cost of Rs.9,788 crore have been sanctioned for traffic improvement and parking. Forty three projects were completed by March-end 2011.

#### **9.4 Urban Infrastructure Development Scheme for Small and Medium Town (UIDSSMT)**

The scheme aims at improving urban infrastructure in towns and cities as per 2001 census (other than the 65 cities identified under JNNURM) in a planned manner. Total allocation for the seven year period was Rs.11,400 crore.

Under UIDSSMT, an amount of Rs. 7342.96 crore has been released for 766 projects with an approved cost of Rs.12933.04 crore. Out of the 766 projects sanctioned since inception, 418 projects were for Water Supply at a cost of Rs 7867.11 crore, 97 projects for Sewerage at a cost of Rs 2894.04 crore, 64 projects for Storm Water Drains at a cost of Rs 729.76 crore, 10 projects of Preservation of Water Bodies at a

cost of Rs. 32.29 crore, 56 projects for Solid Waste Management at a cost of Rs 342.02 crore, 10 projects of Urban Renewal/Heritage at a cost of Rs. 42.46 crore, one project of Prevention of Soil Erosion at a cost of Rs. 1.89 crore, one project of Parking at a cost of Rs. 0.37 crore and 109 projects of Roads at a cost of Rs. 1023.10 crore.

An amount of Rs 1223.44 crore has been released during Annual Plan 2010-11 against the allocation of Rs. 1508.71 crore. As releases are made on implementation of reforms, an amount of Rs. 285.27 crore was withheld from States which had not implemented the reforms. A total of 131 projects (68 WS, 52 Roads, eight SWD, one SWM, one Water Body & one Urban Renewal) have so far been completed.

### **9.5 Basic Services to Urban Poor (BSUP) and Integrated Housing and Slum Development Programme (IHSDP)**

These components of JNNURM emphasise on providing utilities to the urban poor through integrated development of slums with the help of projects for housing, basic services and other related civic amenities. The approved projects related to physical amenities and infrastructures such as water supply, sewerage, storm water drain, internal roads, multi-purpose community centres and parks etc. Central Assistance ranging from 50 per cent to 90 per cent, is provided as ACA in two instalments. Beneficiary contribution is 12 per cent and for SC/ST/BC/OBC/PH and other weaker sections, 10 per cent. Access of Central assistance is linked to implementation of Reform Agenda. Under IHSDP, integrated development of slums is taken in all urban areas except 65 identified Mission cities covered under BSUP.

An allocation of Rs. 23,184.66 cr has been made for BSUP and IHSDP for the 7- year Mission Period.

**Table 9.5 Cumulative Physical and Financial Progress (As on 31.03.2011)**

<b>CUMULATIVE PHYSICAL PROGRESS</b>	<b>BSUP</b>	<b>IHSDP</b>	<b>Total</b>
No of cities/covered	63	864	927
No. of Projects approved	499	1018	1517
No. of DUs approved	10,66,161	5,40,756	16,06,917
No. of DUs completed	2,96,081	1,21,421	4,17,502
No. of DUs under progress	3,07,985	1,35,580	4,43,565
No. of DUs occupied	1,45,592	75,219	2,20,811
<b>Cumulative Financial Progress</b>	<b>Commitment &amp; Release (Rs. in crores)</b>		
	<b>BSUP</b>	<b>IHSDP</b>	<b>Total</b>
Revised Allocation- 7- year Allocation	16,356	6,828	23,185
ACA Commitment	14,706	7064	21770
Release (Total including PMU, PIU etc.)	7,732	4,717	12,448
Total project cost approved	28,972	10,959	39,932

During the year 2010-11, 27 projects under BSUP and 74 projects under IHSDP were sanctioned for the construction of 73,536 and upgradation of 36,914 dwelling units respectively. These 101 projects were approved with total project cost of Rs. 4397 cr comprising central share of Rs. 2275 cr.

### **9.6 Housing for Urban Poor**

Urban poor suffer from multiple deprivation. Of them, vulnerabilities arising out of lack of housing are perhaps the most debilitating ones. Besides slum rehabilitation under BSUP and IHSDP, preparatory work was carried out in 2010-11 to launch the first phase of Rajiv Awas Yojana (RAY) which was subsequently launched in June 2011 with a two-year budgetary outlay of Rs. 5000 cr. A major innovation in the scheme is incentivizing the States to provide property rights to slum dwellers - a measure which would help in addressing the issues arising from large number of urban workers being engaged in 'informal sector'. The RAY also stipulates States to legislate on pro-poor reforms viz. reservation of 20-25 per cent of developed land for economically weaker section/low income group and a non-lapsable earmarking of 25 per cent of the budget of all municipalities for projects benefitting urban poor. Yet another innovation in the scheme is creation of a Credit Mortgage Fund which would partly cover the losses of the banks in the event of the non-repayment of loans.

To incentivise the poor to access institutional credit, Government of India had earlier launched Interest Subsidy Scheme for Housing the Urban Poor (ISSHUP). Now the scheme has been subsumed under RAY. While the implementation of ISSHUP was slow, it is now expected that with the operation of Credit Mortgage Fund the flow of institutional credit to the urban poor would increase and progress under the scheme of ISSHUP would improve.

### **9.7 Urban Transport**

National Urban Transport Policy (NUTP) 2006 seeks to promote integrated land use and transport planning and offers Central Government's financial support for investments in public transport and infrastructure. It encourages capacity building at institutional and individual levels.

Delhi metro phase-II which included extension of metro line to Noida, Gurgaon and Ghaziabad has been completed successfully. Metro rail projects at Bangalore, Chennai and Kolkata are under implementation under Government sector and projects in Hyderabad and Mumbai are being developed on Public Private Partnership basis. In 2010-11, budgetary provision of about Rs. 4417.72 cr was made for metro Rail projects. Government of India had approved the DMRC Phase II proposal at an estimated cost of Rs.8118 crore and with revised alignment from IIT to Qutab Minar at an estimated cost of Rs.558 crore, the total cost is Rs.8676 crore for a stretch of 54.675 kms. With the revision of Inderlok-Mudrika Corridor (to be taken on standard gauge and not on broad gauge as proposed earlier), the revised cost for Phase-II is Rs.8605.36 crore. On inclusion of rolling stock cost of Rs.3086 crore, the grand total for Phase II is Rs.11691.36 crore.



**Table 9.6 Summary of financial progress in respect of Delhi MRTS projects for 2010-11 is as under:-**

(Rs.in Crore)

S. No.	Item	Total amount released to DMRC 2010-11
1.	Equity	1256.92
2.	Subordinate debt for land	-
3.	Subordinate debt for Central taxes	-
4.	PTA against DMRC loan	2130.00
5.	Grant	2.97
<b>Total</b>		<b>3389.33</b>

*Bangalore Metro Rail Project*

A total length of 42.3 kms from Yashwantpur North to Puttenahally was approved on 11.5.2006 at a completion cost of Rs. 11609 crore. The project is now targeted to be completed by December, 2013. Till March 2011, Rs 4236 crore was released by Centre as equity/grant and loan disbursement from JICA. This included release of Rs. 578 cr in 2011. Approximately 39 per cent of the work was completed by March 2011.

*Kolkata Metro –*

Covering a length of 14.67 kms the East West Metro Corridor was approved in July 2008 at an estimated cost of Rs.4875 crore. The project is scheduled to be completed by 2014-15. Till March 2011, a sum of Rs 641.30 cr was released and 13.50 per cent of the work completed.

*Chennai Metro*

Rail Project for length of 46.5 kms was approved in January.2009 at an estimated cost of Rs.14600 crore to be completed by 2014-15. Rs 976.45 crore were released and 11.98 per cent of the work was completed till March 2011.

Metro Rail projects have the potential to transform the urban landscape. In view of this, preparatory activities were undertaken in 2010-11 to approve significant expansion of Delhi Metro network in phase-III including extension of the alignment to Faridabad. These proposals were subsequently approved in August 2011.

**9.8 Urban Water Supply, Sanitation, Sewerage and Solid Waste Management**

Water supply and sanitation, sewerage system and solid waste management are basic needs that affect the quality of life and productive efficiency of the people. State Governments /Union Territories and urban local bodies (ULB) are responsible for providing these services through planning, design, implementation, operation and maintenance of water supply, sanitation, sewerage and solid waste management. Government of India assists the State Governments/UTs and ULBs by providing guidance for policy formulation strategies and technical approval of schemes and provides Central funds for implementation of the projects.

The HPEC (March 2011) has estimated that a large Capital expenditure would be required for next 20 years in the aforesaid sectors. This include water supply (3.2 lakh

cr), Sewerage (2.4 lakh cr) and Solid Waste Management (0.48 lakh cr.). HPEC has also indicated a significant jump in requirement for Operation and Maintenance (O&M) of these sectors over the next 20-year period. As per the HPEC estimates, the O&M expenditure for water supply is about Rs. 5.4 lakh cr and 2.3 lakh cr for sewerage and another 2.7 lakh cr for solid waste management. Under JNNURM, water supply and sanitation have been accorded highest priority among the eligible components and a large component of JNNURM funds have been invested in these basic services. An important strategy adopted under JNNURM is to carry out reforms related to rationalisation of user charges so that ULBs can provide these services on a sustainable basis.

*Brihan Mumbai Storm Water Drainage Project (BRIMSTOWAD)* was approved by CCEA in July .2007 for Rs.1200.53 cr under Special Plan Assistance with a view to address the problems of storm water in Mumbai, especially during the rainy seasons. Likely completion cost of the project is Rs 2,412 cr. The project is being implemented by Municipal Corporation of Greater Mumbai. The project is expected to be completed by March, 2012. So far, ACA of Rs.1000 crore has been released. Physical progress was about 56.25 per cent as on 31<sup>st</sup> March 2011.

*Nemmeli Desalination Plant, Chennai* - The objective of the project is to provide potable drinking water to the citizens of Chennai. The project, costing Rs.908.28 cr was approved by CCEA January.2009 with Central grant of Rs.871.24 cr. Fifty six per cent of the work has been completed and an amount of Rs 218.87 cr released.

## **9.9 Other Urban Infrastructure Schemes**

### *North Eastern Region Urban Development Programme (NERUDP)*

The NERUDP is an ADB aided project of Rs.1371.40 crore wherein 70 per cent of the cost is met by the bank and 30 per cent by Central Government. Five Capital cities of Meghalaya, Sikkim, Mizoram, Tripura and Nagaland are covered under the programme to meet their requirements of water supply, sewerage, sanitation, solid waste management, etc. The programme was approved by CCEA on 26<sup>th</sup> February, 2009 for implementation in the period 2009-15. Under the programme, the States will carry out Municipal level reforms and take action to constitute Urban Local Bodies. DPRs for the project in respect of Mizoram, Meghalaya and Nagaland have been finalised and hiring of contractors, etc. is underway.

### *Scheme for Infrastructure Development in Satellite Towns of seven mega cities*

It has been observed that cities/town located on the periphery of mega cities have emerged as centres of intense economic activities. To cover these satellite towns, Government of India has been implementing Urban Infrastructure Development Scheme in Satellite Towns (UIDSST) around seven mega cities on pilot basis since 30<sup>th</sup> July, 2009. Under the scheme the outlay of Rs. 500 crore has been further subdivided into outlays for creation of capital asset (Rs. 466 crore) and balance Rs. 34 cr for capacity building assistance to the selected towns. The scheme is in operation in Vikarabad (AP), Vasai Virar (Maharashtra), Sri Perumbudur (Tamil Nadu), New Town (West Bengal), Kanakpura (Karnataka), Sanand (Gujarat), Sonapat (Haryana) and Pilkhua (Uttar Pradesh).

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## Abbreviations

3G	Third Generation
BSNL	Bharat Sanchar Nigam Limited
BTS	Base Transceivers Station
BWA	Broadband Wireless Access
CAGR	Compounded Annual Growth Rate
C-DoT	Centre for Development of Telematics
CETE	Centre for Electronic Test Engineers
CMS	Centralised Monitoring System
DoT	Department of Telecommunications
DIT	Department of Information Technology
DSLAM	Digital Subscriber Line Access Multiplexed
DWDM	Dense Wave Division Multiplexing
ERTL	Electronics Regional Test Labs
ERNET	Education & Research Network
ETDC	Electronic Test & Development Centres
ERP	Enterprise Resource Planning
FTTH	Fibre-To-The Home
Gbps	Gigabit Per Second
GDP	Gross Domestic Products
GSM	Global System for Mobile
GPON	Gigabit Passive Optical Network
ICERT	Indian Computer Emergency Response Team
IPV4	Internet Protocol Version 4
IPV6	Internet Protocol Version 6
IMS	IP Multimedia Subsystems
Mbps	Megabit Per Second
MTNL	Mahanagar Telephone Nigam Limited
NGN	Next Generation Network
NKN	National Knowledge Network
NIC	National Informatics Centre
NICNET	National Informatics Centre Network
NREGA	National Rural Employment Guaranty Act
NRHM	National Rural Health Mission
NeGP	National e-Governance Plan
NE	North East
OFC	Optical Fiber Cable
PSU	Public sector undertakings
RKm	Route Kilometer
RoW	Right of Way
STQC	Standardisation Testing and Quality Certification
SCA	Services Centre Agency
SDC	State Data Centre
SAARC	South Asian Association for Regional Co-operation
SWAN	State Wide Area Network
TAX	Trunk Automatic Exchange
TEIN3	Trans Eurasia Information Network

TRAI	Telecom Regulatory Authority of India
USOF	Universal Service Obligation Fund
VLE	Village Level Entrepreneurs
VRC	Village Resource Centre
VPT	Village Public Telephones
WLL	Wireless Local Loop
WAN	Wide Area Network