

# Twelfth Five Year Plan (2012–2017)

Economic Sectors

Volume II



Planning Commission  
Government of India

## **RURAL DRINKING WATER AND SANITATION**

## RURAL DRINKING WATER AND SANITATION

## Review of National Rural Drinking Water Programme (NRDWP)

17.49. As against the target of 7,98,967 habitations for coverage under NRDWP during the Eleventh Plan, the coverage up to 31 March 2012 was 6,65,034 (83 per cent). States of Jharkhand, Chhattisgarh, Nagaland, Madhya Pradesh, Odisha, Himachal Pradesh and Tamil Nadu have exceeded their targets, whereas Sikkim, Punjab, Assam, Arunachal Pradesh and Jammu & Kashmir have reported low (less than 50 per cent) achievement against targets. As against the planned Central outlay of ₹39,300 crore in the Eleventh Plan the anticipated expenditure is ₹39,211 crore. In addition, the States are expected to spend

49,000 crore. The investments in rural drinking water (1951-2012) are given in Table 17.7.

**TABLE 17.7**  
**Investments in Rural Drinking Water, 1951-2012**

Plan Period	Investment made (₹ crore)	
	Centre	State
First (1951-56)	0	3
Second (1956-61)	0	30
Third (1961-66)	0	48
Fourth (1969-74)	34	208
Fifth (1974-79)	157	348
Sixth (1980-85)	895	1,530
Seventh (1985-90)	1,906	2,471
Eighth (1992-97)	4,140	5,084
Ninth (1997-2002)	8,455	10,773
Tenth (2002-07)	16,254	15,102
Eleventh (2007-12)	39,211	49,000

17.50. The difficulty has been that even as coverage becomes universal, there is a growing problem of 'slipback', with habitations suffering a fall in the water table and water quality, especially given the growing dependence on groundwater. Water quality has emerged as a growing concern, chemically due to geogenic leaching (arsenic and fluoride) and biologically due to bacteriological contamination. The fact that the same aquifer is being tapped for both irrigation and drinking water, without any coordinated management of the resource, has greatly aggravated availability of drinking water. Lack of convergence with sanitation, on the other hand, compromises water quality, even as it makes provision of improved sanitation difficult.

17.51. Poor operation and maintenance has resulted in high rates of attrition and dilapidated facilities. This has happened mainly because primary stakeholders do not feel a sense of ownership over the facility created and in the absence of sufficient support structures and professional capacities, upkeep suffers. On the other hand, where people have been centrally involved, they have both paid for the service provided and felt a stake in maintaining the assets, garnering adequate support for the same

through the revenues generated. There are also disturbing reports about social exclusion, with SCs, STs and minorities being discriminated against. Keeping this in mind, from 2011-12, earmarking of funds for expenditure under the SCSP (22 per cent) and the TSP (10 per cent) has been made mandatory under NRDWP. Appropriate use of IMIS and GIS maps in the planning process is being promoted to prevent social exclusion. Provision of drinking water in minority concentrated districts is one of the activities monitored under the Prime Minister's New 15 Point Programme. Implementation of rural water supply schemes is being closely monitored in the 90 minority concentrated districts.

### NRDWP in the Twelfth Plan

17.52. Based on this analysis of what is going wrong with NRDWP and drawing upon some successes, the Twelfth Plan envisages a major change in the way NRDWP projects are to be run:

- While the ultimate goal is to provide households with safe piped drinking water supply at the rate of 70 lpcd, considering that 40 lpcd has been the norm over the last 40 years and there is still a large population uncovered with this level, as an interim measure the goal has been kept at 55 lpcd for the Twelfth Plan.
- By 2017, it is targeted that at least 50 per cent of rural population in the country (as against 35 per cent today) will have access to 40 lpcd piped water supply within their household premises or within 100 metres radius (and within 10 metres elevation in hilly areas) from their households without barriers of social or financial discrimination. Individual States can adopt higher quantity norms.
- By 2017, it is targeted that at least 35 per cent of rural population have individual household connections (as against 13 per cent today).
- Convergence between drinking water supply and sanitation will be strengthened taking up villages covered with piped water supply to get open defecation free (ODF) status on priority and vice versa.
- A part of NRDWP outlay will be set apart for integrated Habitat Improvement Projects to provide housing, water and sanitation facilities in rural areas at par with urban areas.
- Participation of the beneficiaries, especially women, in water supply schemes will be ensured right from the conceptualisation and planning stage, spanning construction and post-scheme completion management stages. Capacity building of members of the Village Water and Sanitation Committees is of critical importance here.
- The subsidiarity principle will be followed and decisions made at the lowest level possible especially on issues like location, implementation, sustainability, O&M and management of water supply schemes, while retaining an umbrella role for the Gram Panchayats for effective implementation.
- The Ministry of Drinking Water and Sanitation has devised a Management Devolution Index (MDI) to track and incentivise more substantive devolution of functions, funds and functionaries to the Gram Panchayats. While allocating resources across States, 10 per cent weight is given to the population of GPs to whom drinking water supply schemes have been devolved weighted by the MDI for the State.
- The weakest aspect of rural water supply is Operation and Maintenance. Allocation for O&M has been increased from 10 per cent of NRDWP allocation at present to 15 per cent in the Twelfth Plan.
- All new drinking water supply schemes will be designed, estimated and implemented to take into account life cycle costs and not just per capita capital costs.
- All Government schools and anganwadis (in Government or community buildings) will be provided with water supply for drinking and for toilets as per relevant quantity norms by convergence of NRDWP for existing schools and SSA for new schools set up under SSA. For private schools, supply of water will be ensured by enforcement of the provisions of the Right to Education Act by the Education Department.
- All community toilets built with public funds and maintained for public use will be provided with running water supply under NRDWP.
- Solar powered pumps will be provided for implementation in remote, small habitations and those with irregular power supply, especially in IAP

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districts, by converging subsidy available under Ministry of New and Renewable Energy.

- Waste water treatment and recycling will be an integral part of every water supply plan or project. Management of liquid and solid waste will be promoted together with recycling and reuse of grey water for agriculture and groundwater recharge and pollution control. This will be done on priority in NGP villages.
- A holistic aquifer and surface water management approach with active community and PRI participation will converge in a District Water Vision that includes monitoring and recording of groundwater levels and rainfall at sub-block level and Aquifer Management Plans to protect and recharge drinking water sources.
- Care will be taken to ensure that minimum distance is maintained between the toilet systems and water sources, to alleviate the problem of nitrate contamination.
- Mining activity should only be carried out at a safe distance from major drinking water sources to protect the quality and sustainability of the source.
- A progressive tariff with different pricing tiers for different uses and different classes of consumers can be considered at various administrative levels, that is, the Gram Panchayat, district and State as appropriate. Incentives may be provided to the GPs for collecting user charges from the beneficiaries. A minimum collection of 50 per cent of O&M cost (including electricity charges) through user charges will be the target.
- Given the growing importance of water quality issues, dedicated funding will be provided to States with quality affected habitations, over and above the normal NRDWP allocation to the State. Within this dedicated funding highest priority will be given to arsenic and fluoride affected habitations. Part of the funding would also be made available to tackle bacteriological contamination in the priority districts with high incidence of JE/AES cases as identified by the Ministry of Health and Family Welfare.

#### REVIEW OF TOTAL SANITATION CAMPAIGN (TSC)

17.53. The TSC was launched in 1999 as a demand-driven, community-led programme with major IEC

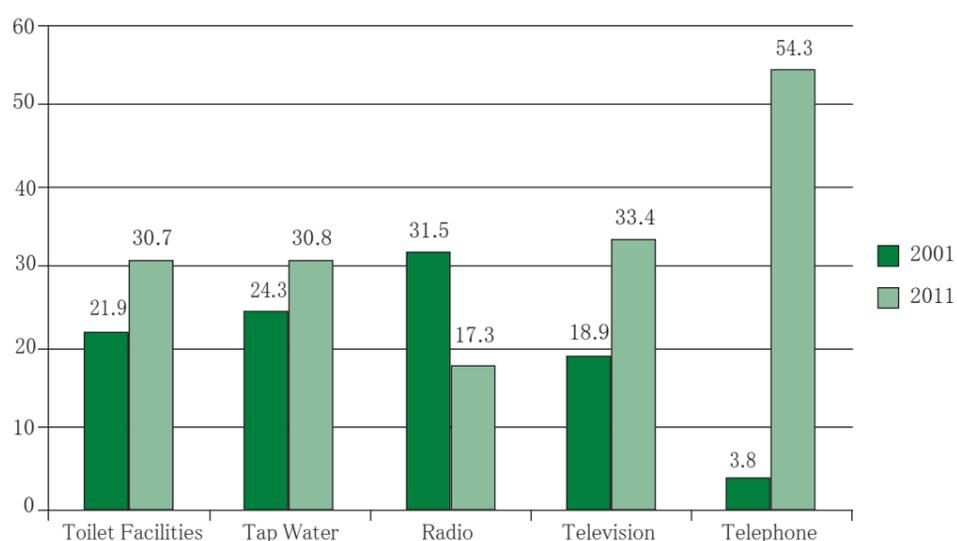
inputs to make sanitation a felt need of the people. The TSC has been able to accelerate sanitation coverage from 22 per cent as per the 2001 Census to 31 per cent in 2011, with over 28,000 PRIs becoming 'Open Defecation Free' (ODF). TSC received a major boost during the later half of the decade, with the introduction of the Nirmal Gram Puraskar (NGP) in 2005, an innovative incentive scheme for Gram Panchayats, blocks and districts, that have attained 100 per cent sanitation coverage.

17.54. However, progress remains far from satisfactory. Open defecation by around 600 million people is our biggest national shame. Since drinking water and sanitation continue to be treated in separate silos, both the quality of drinking water and that of sanitation gets compromised. Latest Census data reveals that the percentage of households having access to television and telephones in rural India in 2011 exceeds the percentage of households having access to toilet facilities and tap water (Figure 17.1).

17.55. Access to household amenities in ten worst performing States in terms of toilet facilities in rural India in the year 2011 (percentage of rural households) is given in Table 17.8.

17.56. The households by type of latrine facility in rural India as per Census 2001 and Census 2011 are given in Figures 17.2 and 17.3, respectively. The percentage of households with no latrine facilities in rural India in 2011; physical progress and financial progress during the Eleventh Plan of Total Sanitation Campaign are given in Table 17.9, Table 17.10 and Table 17.11, respectively.

17.57. Several independent assessments signal the need for a radical change in approach. The WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation estimates that in 2008 around 638 million people in India still defecated in the open and the reported usage of sanitation facilities at 30.7 per cent against the TSC sanitation coverage figure of 57 per cent for the same year. The JMP also revealed that 58 per cent of the world's population defecating in the open in 2008 was in India. A recent impact study by the World Bank's Water



Source: Census of India, 2001 and 2011.

FIGURE 17.1: Access to Household Amenities in Rural India (2001 to 2011)

**TABLE 17.8**  
Access to Household Amenities in Worst Performing States in Terms of Toilet Facilities in Rural India, 2011  
(Percentage of Rural Households)

Rank (worst as 1)	State	Toilet Facilities	Tap Water	Radio	Television	Telephone
1	Jharkhand	7.6	3.7	17.3	13.7	38.7
2	Madhya Pradesh	13.1	9.9	13	18.6	36.4
3	Odisha	14.1	7.5	10.6	19.4	33.6
4	Chhattisgarh	14.5	8.8	9.5	21.1	21.2
5	Bihar	17.6	2.6	25.8	10.2	53.5
6	Rajasthan	19.6	26.9	13.9	25.6	66.2
7	Uttar Pradesh	21.8	20.2	25	23.5	63.6
8	Tamil Nadu	23.2	79.3	18.7	85.3	66.3
9	Karnataka	28.4	56.4	17.6	46.3	62.6
10	Andhra Pradesh	32.2	63.4	6.1	49.3	54.8

Source: Census of India, 2011.

and Sanitation Programme in five States reveals that only 67 per cent of the toilets even in NGP villages were being used, while this percentage fell to just 46 per cent in non-NGP villages. A study, supported by UNICEF in 2008 revealed that in 56 per cent of NGP Gram Panchayats 70 per cent families were still defecating in the open and only 6 of the 162 NGPs had been able to sustain the NGP status. In a study for the Ministry of Drinking Water and Sanitation, the Centre for Media Studies (2010) found that the key factors explaining the gap between access to and

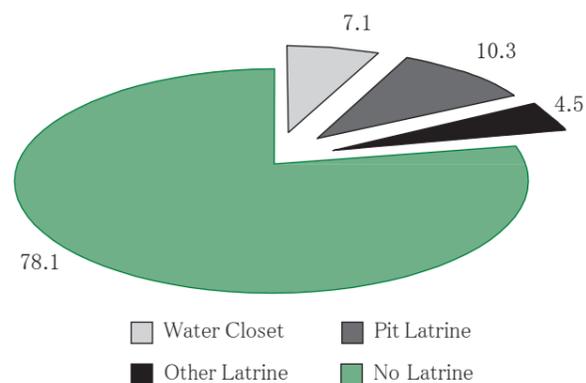
usage of sanitation facilities were poor quality of construction and unfinished toilets, a major reason for which was the very low incentive provided under the TSC.

17.58. The Twelfth Plan Working Group is of the clear view that the APL-BPL distinction and the very low incentive under the TSC have played havoc with the programme. Many slip-backs in the NGP villages have been attributed to non-availability of water, clearly indicating need to synergise the drinking

**TABLE 17.9**  
**Percentage of Households with No Latrine Facilities in Rural India, 2011**

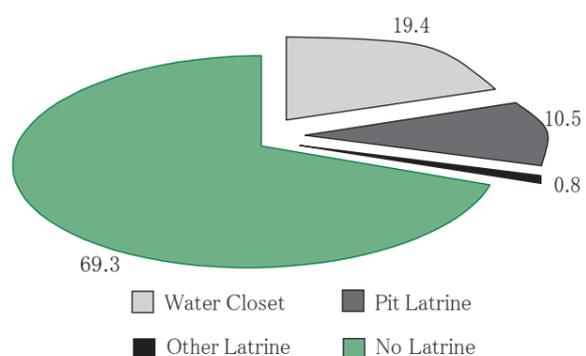
State	2011	2001
Jharkhand	92.4	93.4
Madhya Pradesh	86.9	91.1
Odisha	85.9	92.3
Chhattisgarh	85.5	94.8
Bihar	82.4	86.1
Rajasthan	80.4	85.4
UP	78.2	80.8
Tamil Nadu	76.8	85.6
D&N Haveli	73.5	82.7
Karnataka	71.6	82.6
Andhra Pradesh	67.8	81.9
Gujarat	67	78.3
Maharashtra	62	81.8
J&K	61.4	58.2
Puducherry	61	78.6
West Bengal	53.3	73.1
Daman & Diu	48.6	68
Arunachal Pradesh	47.3	52.7
Meghalaya	46.2	59.9
Uttarakhand	45.9	68.4
Haryana	43.9	71.3
Assam	40.5	40.4
A&N Islands	39.8	57.7
HP	33.4	72.3
Nagaland	30.8	35.4
Punjab	29.6	59.1
Goa	29.1	51.8
NCT of Delhi	23.7	37.1
Tripura	18.5	22.1
Sikkim	15.9	40.6
Mizoram	15.4	20.3
Manipur	14	22.5
Chandigarh	12	31.5
Kerala	6.8	18.7
Lakshadweep	2	6.9
India	69.2	78.1

Source: Census of India, 2011.



Source: Census of India, 2001.

**FIGURE 17.2: Households by Type of Latrine Facility in Rural India in 2001**



Source: Census of India, 2011.

**FIGURE 17.3: Households by Type of Latrine Facility in Rural India in 2011**

water and sanitation programmes. One of the limitations of the TSC is the narrow range of technology options offered in a country with such immensely diverse geographic, hydrologic, climatic and socio-economic conditions (high water table, flood prone, rocky ground, desert/water scarce areas and extreme low temperatures). This has led to many problems, including non-acceptance by local communities, water pollution especially in shallow water table regions, and waste of public funds. There is need to broaden the ranges of models permissible under TSC. Finally, the absence of a dedicated implementation agency at either the State/district or GP level, to implement TSC has emerged as a major bottleneck affecting quality of outcomes.

**TABLE 17.10**  
**Total Sanitation Campaign, Physical Progress, Eleventh Plan**

Financial Year	IHHL BPL	IHHL APL	Total IHHL	School Toilets	Sanitary Complexes	Anganwadi Toilets
2007-2008	57,63,430	57,64,460	1,15,27,890	2,36,259	3,006	86,489
2008-2009	55,70,899	56,94,983	1,12,65,882	2,53,004	3,245	68,995
2009-2010	58,69,608	65,38,170	1,24,07,778	1,44,480	2,230	66,227
2010-2011	61,55,933	60,87,798	1,22,43,731	1,05,509	3,377	50,823
2011-2012	47,34,816	40,64,048	87,98,864	1,22,471	2,547	28,409

**TABLE 17.11**  
**Total Sanitation Campaign, Financial Progress, Eleventh Plan**

Financial year	Total outlay (₹ in crore)	Total expenditure (₹ in crore)
2007-08	1,060	996
2008-09	1,200	1,193
2009-10	1,200	1,200
2010-11	1,580	1,580
2011-12	1,500	1,500
<b>Total (in crore)</b>	<b>6,540</b>	<b>6,469</b>

**Total Sanitation Campaign in the Twelfth Plan** 17.59. The Twelfth Plan visualises a major break from the past under TSC:

- The goal of the Twelfth Plan will be that 50 per cent of the Gram Panchayats attain Nirmal Gram status by the year 2017.
- The APL-BPL distinction and the focus on individual toilets are to be replaced by a habitation saturation approach. Rechristened the Nirmal Bharat Abhiyan (NBA), the programme will cover SC, ST, physically handicapped, small and

marginal farmers and woman-headed households in each habitation.

- The idea is not to sacrifice quality and sustainability of outcomes in the mad rush to attain targets, even if this means moving somewhat slower in reaching universal coverage.
- Through a convergence with MGNREGA, the unit cost of individual household latrines will rise to ₹10,000 as described in Table 17.12.
- Toilet designs will be fine-tuned in accordance with local social and ecological considerations.
- There will be a specific provision for capacity building at a rate not exceeding 2 per cent of district project outlay.
- In order to focus more centrally on sustainability of outcomes, the programme shall be taken up in a phased manner wherein GPs shall be identified, based on defined criteria of conjoint approach to sanitation and water supply, for achievement of NGP status. This would progressively lead to Nirmal blocks, Nirmal districts and eventually Nirmal States. The pattern of fund release will be tweaked with flexibility to the districts to prioritise funding to GPs identified for Nirmal Grams. Thus, Nirmal Grams with full access and usage of toilets, water availability and systems of

**TABLE 17.12**  
**Major Increase in Unit Cost Support for IHHLs during the Twelfth Plan**

IHHL	Centre	State	Beneficiary	Total TSC	MGNREGA	Total
Total Cost (₹)	3,200	1,400	900	5,500	4,500	10,000
Labour Cost (₹)				0	2,700	2,700
Material Cost (₹)				5,500	1,800	7,300
Labour: Material Cost				0:100	60:40	27:73

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waste disposal and drainage, shall be the outcome of NBA.

- A new strategy will be devised to facilitate convergence between drinking water and sanitation projects. NBA will give priority to coverage of areas with functional piped water supply systems (PWSS), followed by areas with ongoing PWSS that are nearest to completion. Next, new PWSS will be taken up in GPs of districts where IHHL coverage has reached higher milestones of coverage in a descending order. In all such new and ongoing PWSS, NBA should be implemented simultaneously with the planning and execution of PWSS to ensure that behavioural change for usage of toilets is generated. Care will be taken that PWSS are planned and executed covering entire habitations on a saturation basis, so that health and other impacts of safe water and sanitation are clearly discernable.
- Running water availability must also be ensured in all Government school toilets, anganwadi toilets and Community Sanitary Complexes under NRDWP.
- Child-friendly toilets will be developed in anganwadis and schools. This will be accompanied by capacity building of school teachers, ASHA and anganwadi workers and ANMs among others on hygiene and sanitation. Sanitation will be made a part of the school curriculum so that safe sanitation practices are ingrained in the minds of children who would be the torch bearers of sanitation in their households and the community.
- In order to ensure smooth O&M of toilets, a massive training campaign will be launched in convergence with the National Rural Livelihoods Mission in skills such as masonry work, brick-making, toilet pan making and plumbing. 'Nirmiti Kendras' will be set up for development and manufacture of cost-effective construction materials. The existing Production Centres and Rural Sanitary Marts will also be revitalised and appropriate SHGs entrusted with this task.
- Effective hand-holding with adequate IEC must continue for a period of time even after construction to ensure sustainability of outcomes. Comprehensive region-specific communication and information strategy will be deployed for

demand generation and sustainability. Office-bearers and members of GPs, VWSCs, BRCs, SHGs, Swachhata doots, women and youth groups, school committees, and so on will be involved in dissemination of information and effective communication. NGOs and CBOs of repute may be engaged for maximum results for individual contact, motivation and implementation. Key Resource Centres must also be identified within State/district for training of State/district level functionaries in IEC.

- NBA will be implemented at the GP level through VWSCs who could receive technical support from NGOs/CBOs identified by the District authorities. The VWSC must be mandatorily made a Standing Committee of the GP to ensure community participation in planning, construction, operation and management with the GP providing overall guidance to the VWSCs. A sense of ownership will be created through owner-driven construction through self labour and hiring of skilled labour.
- Solid and liquid waste management will be taken up in Nirmal Grams on a priority basis for which an assistance of ₹5,00,000 will be additionally available per 1,000 people from the redesigned MGNREGA 2.0.

17.60. Justification for the huge jump in outlays for sanitation and drinking water is provided by recent scholarly work on the relationship between sanitation and health. A recent article in *Lancet*<sup>2</sup> suggests that the impact of sanitation and hygiene interventions on child under-nutrition has been seriously undervalued in the existing research as this effect has been modelled entirely through diarrhoea. The study argues that a key cause of child under-nutrition is a subclinical disorder of the small intestine known as tropical enteropathy. This is caused by faecal bacteria ingested in large quantities by young children living in conditions of poor sanitation and hygiene. The study finds that provision of toilets and promotion of hand-washing after faecal contact could reduce or prevent tropical enteropathy and its adverse effects on growth; and that the primary causal pathway from poor sanitation and hygiene to under-nutrition is tropical enteropathy and not diarrhoea. Though based on field studies conducted

in Africa, This study has important policy implications for India. Accelerating provision of toilets and improved drinking water quality will prevent tropical enteropathy, which in turn will yield improvements in child growth, health and survival.

17.61. A study of the TSC completed in July 2012,<sup>3</sup> finds that at mean program intensity, infant mortality decreased by four per thousand and children's height increased by 0.2 standard deviations. Relative to other children born in the same districts or in the same years, rural children exposed to better sanitation in their first year of life were more likely to survive infancy. Districts in which more latrines were constructed over this period saw a greater decline in rural infant mortality rates, controlling for other changes. Rural children born in years and districts with more TSC latrines available in the first year of their lives are taller than children born in other years or districts.

Complete report can be viewed at following link...

[http://planningcommission.nic.in/plans/planrel/fiveyr/12th/pdf/12fyp\\_vol2.pdf](http://planningcommission.nic.in/plans/planrel/fiveyr/12th/pdf/12fyp_vol2.pdf)