

Status of Health and Sanitation in Rural Communities: Situation Analysis for India

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Abstract-- Rural Sanitation in India is a subject of primal concern and among the top agendas of GOI (Government of India) for the development of the nation. This report focuses on the importance of sanitation and its current status in India. Various aspects of development are intertwined with sanitation which includes the economic losses due to the lack of sanitation, health aspects, aesthetic appearance for tourism etc. Every year the Union Budget allocates more than one lakh crore rupees for rural development and around fifty thousand crore rupees for the development in health sector (as per fiscal year'18), these enormous figures suggest that government of India analyzes this area as a critical parameter for the development of the nation. The inter-relationship between health and drinking water sources are discussed referring to the Arsenic and Lead poisoning found in various regions in India. Data analysis have been harnessed to fullest extent for extensive and elaborative view of the sanitation scenario in the rural and urban Indian households. The health and sanitation schemes that were/are employed by the GoI and their status have been discussed thoroughly with the use of graphs, maps, tables and charts.

Keywords-- Data Analysis, Health, Hygiene, Poverty, Rural Communities, Sanitation, Union Budget.

1 INTRODUCTION

IF water is life, sanitation is most likely a 'lifestyle' and access to such provisions affects the nature of human life and wellbeing. An all encompassing meaning of sanitation incorporates safe drinking water; fluid and solid waste administration, natural cleanliness and individual cleanliness.

Neglecting to guarantee any of these can have undeviating ramifications on the - singular/family/group's wellbeing. Natural cleanliness and sanitation were subjects nearest to Mahatma Gandhi's heart who broadcasted that "cleanliness is next just to righteousness". Sanitation programs in India have generally depended intensely on elevated amounts of appropriations for lavatory development. This approach has been censured for neglecting to rouse and maintain more elevated amounts of sanitation scope which likewise became gradually between 1990-2000. The high sponsorship approach has now changed with the presentation of the Total Sanitation Campaign (TSC) in 1999. The TSC change standards are request driven and group drove. The idea of sanitation, which was already restricted to the transfer of human excreta by cess pools, open trench, pit toilets, bucket system, has now been extended to incorporate fluid and solid waste transfer, nourishment cleanliness, individual, local and additionally natural cleanliness.

The Government of India (GOI) has announced fast development in scope levels over the most recent five years because of the TSC, which has now been actualized in 426 locale the nation over. Department of Drinking Water Supply (DDWS) gauges that 9.45 Mn toilets were developed for provincial family units under the CRSP up to the finish of the Ninth Plan. Provincial sanitation was nearly non-existent until 1990 and developed at only 1% yearly all through the 1990s. The advance in rustic sanitation scope (characterized as far as family units with toilets) as per test study insights cited by UNICEF (alongside WHO and the Planning Commission) is

appeared in Figure. In 1990, 6% of rustic families had a toilet. This figure expanded to 15% in 2000 (the 2001 Census evaluated 22% of family units had a WC or pit latrine).The DDWS assessed scope at 20% of families in 2001. Utilizing the UNICEF insights, 7.4 Mn additional individuals for each year, between 1990 to 2000, had a can in their family. For India to meet the Millennium Development Goal (MDG) target 21.9 Mn individuals for every year, between 2000-15, would need to access a toilet, a gigantic provocation. This additionally expect every one of the toilets are working, sterile and that all individuals from the family utilize them; a major presumption. The lofty upward inclining bend in Figure 1 highlights the required advance from 2000 onwards expected to meet the MDG target. These insights likewise just demonstrate the extent of individuals with a restroom in their family unit, they don't consider the sterile states of toilet utilization, which are key segments of sanitation. They likewise don't survey sanitation all the more extensively, for example considering cleanliness practices, for example, hand washing.

The DDWS gauges that scope was around 30% in 2004, which implies that 19.09m individuals for each year should be secured to meet the MDG target. Field thinks about have indicated low levels of toilet use as a result of absence of attention to the significance of sanitation, water shortage, poor development norms and the past government accentuation on costly standardized lavatory plans. Beginning signs of an assessment by the GoI and (United Nation Children's Fund) UNICEF's Child Environment Program demonstrate that critical number of individuals, particularly in below poverty line (BPL) families, are not utilizing their lavatories.

A WAI study in Andhra Pradesh and Tamil Nadu had to

revise the state governments' coverage figures down 20% in order to account for a lack of latrine usage, which the state governments' figures did not measure. If variables such as usage are also included in a definition of sanitation coverage, the national picture is likely to be worse than that shown in Figure 1 with a corresponding impact on the number of people who need to be reached to meet the MDG target. The test of poor country sanitation scope emerges for an assortment of social and financial components and not just from individual behavioral resistance, which has been the overwhelming talk for clarifying poor scope. The challenge of poor rural sanitation coverage arises for a variety of social and economic factors and not simply from individual behavioral resistance, which has been the dominant discourse for explaining poor coverage. The way rural livelihoods are structured in India, the increasing migration from their rural areas to unsanitary urban areas, has a negative impact on attitudes and behavioral change. Social taboos of caste and class in handling human fecal excreta have

weakened but still hold sway in many rural and urban areas. A lack of gender sensitivity in villages, with sanitation not being considered a priority by men, also hinders latrine take-up although the enhanced social status associated with having a latrine often has the opposite effect. Congested villages with little room for latrine construction and where the risk of contamination of ground water is high, needs to be taken into account when propagating pit based latrines.

Other than the above reasons, geological and territory elements, for example, bumpy regions where level ground is restricted, flood fields and waterfront belts with high water tables, make the formation of sanitation framework more confounded. There is little proof, either from research or field thinks about, that draws out important connections on how the above variables affect on low scope levels in rustic regions however these issues are genuine and are reflected in the low national scope circumstance.

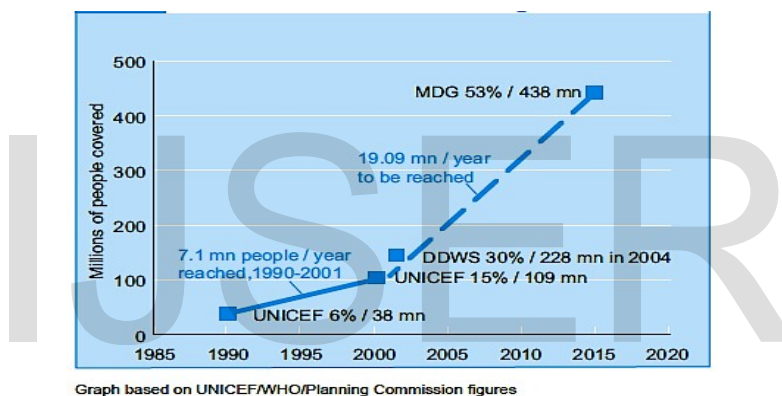


Fig.1: Target of people to be covered for the use of toilet

2 IMPORTANCE OF HEALTH AND SANITATION

Sanitation is Vital for Health:

Of the roughly 120 million kids conceived in the developing world every year, half will live in family units without access to enhanced sanitation, at grave hazard to their survival and improvement. Poor cleanliness and absence of access to sanitation together add to around 88% of deaths from diarrhoeal infections, every year.

Sanitation leads to Social Development

Schools that have water and sanitation attract and hold students, particularly young women. One in four young women does not complete primary school, differentiated and one in seven young fellows. Young women bear the heaviness of water aggregation, which can take various hours a day, surrendering them with no time or imperativeness for school.

Likewise, young women, particularly those develop enough to drain, are reluctant to go to schools without toilets, and their

people are reluctant to send them. All things considered, sound children go to class progressively and get more consequently.

WHO estimates that 194 million schooldays, resulting from fewer incidents of diarrhoea, would be gained annually if the MDGs for water and sanitation were met. Studies have shown that children with intense worm infestations perform poorly in learning ability tests, cognitive function and educational achievement and those heavy infestations can result in a six-month delay in development. Some infected children attend school only half as much as their uninfected peers.

Accomplishing the sanitation MDG would significantly affect accomplishing a large portion of alternate MDGs, for example:

1. Poverty and Hunger
2. Universal Primary Education
3. Gender Equality
4. Reduced Child Mortality
5. Combating Diseases (HIV, malaria...)
6. Global Partnerships.

Sanitation is a good economic investment

Research exhibits that for each 10% extension in female capability, a country's economy can create by 0.3 percent. Educated young women will most likely raise sound, all around encouraged, instructed kids, to shield themselves from mishandle and AIDS and to make capacities to add to their social requests. Children incapacitated by visit detachment of the insides scenes are also more inclined to be affected by feeble wellbeing and entrepreneurial defilements, for instance, extraordinary respiratory infections – the other genuine child killer. The WHO Commission developed that reducing child mortality is basic to fiscal improvement. Cutting down infant tyke mortality is connected with more conspicuous limits of families to place assets into prosperity and preparing, in less wards per worker and general addition in per capita GNP (Gross National Product) and money related improvement.

Sanitation helps the environment

At present, every year more than 200 million tons of human waste – and tremendous amounts of waste water and strong waste go uncollected and untreated around the globe, fouling the earth and uncovering a huge number of youngsters to ailment and messiness. Enhanced sanitation prompts less ecological debasement, expanded supportability of natural assets and a more secure future for kids.

Sanitation is achievable

Right now is an ideal opportunity to act. We can impact political pioneers to act now. The assessed \$10 billion yearly cost to split the extent of individuals without essential sanitation by 2015 is reasonable. On the off chance that managed, a similar venture could accomplish fundamental sanitation for the whole world inside maybe a couple decades.

3 INTERVENTION STRATEGIES INVENTION IN RURAL INDIA

Various creative ways to deal with enhance water supply and sanitation have been tried in India, specifically in the mid 2000s.

These incorporate request driven methodologies in country water supply since 1999, community-led total sanitation, and public-private associations to enhance the coherence of urban water supply in Karnataka, and the utilization of microcredit to ladies keeping in mind the end goal to enhance access to water.

TSC gives solid accentuation on Information, Education, and Communication (IEC), limit building and cleanliness instruction for compelling conduct change with inclusion of panchayati raj establishments, people group based associations and nongovernmental associations (NGOs), and so on. The key intercession ranges are individual household latrines (IHHL), school sanitation and cleanliness instruction, people group sterile complex, Anganwadi toilets bolstered by Rural Sanitary

Marts (RSMs), and generation focuses (PCs). The primary objective of the administration of India (GOI) is to annihilate the act of open poop by 2010. To stimulate this attempt, GOI has implemented Nirmal Gram Puraskar to recognize in terms of

monetary awards for completely covered PRIs and those people and organizations who have contributed essentially in guaranteeing full sanitation scope in their general vicinity of operation. The venture is being actualized in rural zones taking region as a unit of execution.

The part of the WHO Guidelines for Drinking Water Quality makes a more prominent way to deal with water quality evaluation and administration from source to customers. It underscores on quality assurance and avoidance of defilement and encourages to be proactive and participatory, and address the requirements of those in creating nations who have no entrance to piped group water supplies. The water supply circulation in India saw an amazing movement by acknowledgment of fresher innovation in country and urban families. The rules underline the upkeep of microbial quality to counteract waterborne irresistible illness as a fundamental objective.

When sanitation conditions are poor, water quality improvements may have minimal impact regardless of amount of water contamination. If each transmission pathway alone is sufficient to maintain diarrheal disease, single-pathway interventions will have minimal benefit, and ultimately an intervention will be successful only if all sufficient pathways are eliminated. However, when one pathway is critical to maintaining the disease, public health efforts should focus on this critical pathway. The positive impact of improved water quality is greatest for families living under good sanitary conditions, with the effect statistically significant when sanitation is measured at the community level but not significant when sanitation is measured at the household level. Improving drinking water quality would have no effect in neighbourhoods with very poor environmental sanitation; however, in areas with better community sanitation, reducing the concentration of fecal coliforms by two orders of magnitude would lead to a 40% reduction in diarrhoea. Providing private excreta disposal would be expected to reduce diarrhoea by 42%, while eliminating excreta around the house would lead to a 30% reduction in diarrhoea. The findings suggest that improvements in both water supply and sanitation are necessary if infant health in developing countries is to be improved. They also imply that it is not epidemiologic but behavioural, institutional, and economic factors that should correctly determine the priority of interventions. Another study highlighted that water quality interventions to the point-of-use water treatment were found to be more effective than previously thought, and multiple interventions (consisting of combined water, sanitation, and hygiene measures) were not more effective than interventions with a single focus. Studies have shown that hand washing can reduce diarrhoea episodes by about 30%. This significant reduction is comparable to the effect of providing clean water in low-income areas.

Absence of safe water supply, poor ecological sanitation, uncalled for transfer of human excreta, and poor individual cleanliness help to sustain and spread diarrheal ailments in India. Since diarrheal ailments are caused by 20–25 pathogens, immunization, however an alluring infection counteractive

action system, is not practical. Be that as it may, as the greater part of youth diarrhoeas are caused by *Vibrio cholera*, *Shigellae dysenteriae* sort 1, rotavirus, and enterotoxigenic *Escherichia coli* which have a high grimness and mortality, antibodies against these life forms are basic for the control of plagues. A solid political will with proper budgetary distribution is basic for the control of adolescence diarrheal sicknesses in India.

4 COMMUNITY-BASED MANAGEMENT APPROACH

National water strategies are moving to group based administration approach since neighbourhood experts are in every day contact with clients, of whom around half are ladies. Generally, national strategy moved from thoughtfulness regarding dispersion of interests in the water division to redesign of water offices and to working up the limit of private or deliberate offices. The nearby setting considers more productive and viable reactions to neighbourhood conditions. Neighbourhood foundations and gatherings are better prepared to request nearby interest. Neighbourhood water asset arranging is imperative in reinforcing the monetary and individual limit of needy individuals in immature ranges.

Giving private excreta transfer would be relied upon to decrease loose bowels by 42%, while disposing of excreta around the house would prompt a 30% lessening in looseness of the bowels. The discoveries recommend that changes in both water supply and sanitation are fundamental if baby wellbeing in creating nations is to be moved forward. They likewise suggest that it is not epidemiologic but rather behavioural, institutional, and monetary elements that ought to effectively decide the need of intercessions.

Dreariness and mortality because of waterborne illnesses have not declined comparable with increment in accessibility of consumable water supply. All the more critically, youthful kids bear a gigantic piece of the weight of sickness coming about because of the absence of cleanliness. India still loses in the vicinity of 0.4 and 0.5 million kids under 5 years because of looseness of the bowels. While newborn child mortality and under 5 death rates have declined throughout the years for the nation all in all, in many states, these have stagnated lately. One reason is the inability to make noteworthy progress in enhancing individual and home cleanliness, particularly being taken care of by youthful kids and the conditions encompassing birth.

5 SOLUTIONS TO TACKLE POOR SANITATION IN RURAL INDIA

As indicated by a review, just 32% of rural families have their own toilets and that not as much as half of Indian families have a can at home. There were a larger number of families with a cell phone than with a latrine. Truth be told, the last Census information uncovers that the rate of family units approaching TV and phones in rural India surpasses the rate of families with

access to latrine offices. Of the evaluated millions of individuals on the planet who defecate in the open, the greater part dwell in India.

Poor sanitation disables the wellbeing prompting high rates of ailing health and profitability misfortunes. India's sanitation deficiency prompts misfortunes worth about 6% of its total national output (Gross Domestic Product) as per World Bank gauges by bringing the infection load up in the nation. Youngsters are influenced more than grown-ups as the uncontrolled spread of ailments hinders kids' capacity to ingest supplements along these lines hindering their development. A huge piece of India's ailing health load is inferable from the unhygienic condition in which youngsters grow up. Poor sanitation and high populace thickness go about as a twofold calamity on Indian kids half of whom grow up hindered. It is not an incident that states with the poorest levels of sanitation and most elevated amounts of populace thickness, for example, Bihar, Jharkhand and Madhya Pradesh likewise have the largest amounts of hygiene and sanitation in the nation.

This unhygienic condition is because of India's memorable disregard of general wellbeing administrations. The absence of a successful general wellbeing system in a thickly populated nation has brought about a remarkably high ailment load.

About 48 per cent of children in India are suffering from some degree of malnutrition. According to the UNICEF, water-borne diseases such as diarrhoea and respiratory infections are the number one cause for child deaths in India. Children weakened by frequent diarrhoea episodes are more vulnerable to malnutrition and prone to infections such as pneumonia. With 638 million people defecating in the open and 44 per cent mothers disposing their children's faeces in the open, there is a very high risk of microbial contamination (bacteria, viruses, amoeba) of water which causes diarrhoea in children. Also, diarrhoea and worm infection are two major health conditions that affect school children impacting their learning abilities.

Due to non accessibility to public health care and low quality of health care services, a majority of people in India turn to the local private health sector as their first choice of care. If we look at the health landscape of India 92 percent of health care visits are to private providers of which 70 percent is urban population. However, private health care is expensive, often unregulated and variable in quality. Besides being unreliable for the illiterate, it is also unaffordable by low income rural folks.

6 CHALLENGES CONFRONTING PUBLIC HEALTH

The new agenda for Public Health in India includes the epidemiological transition (rising burden of chronic non-communicable diseases), demographic transition (increasing elderly population) and environmental changes. The unfinished agenda of maternal and child mortality, HIV/AIDS pandemic and other communicable diseases still exerts immense strain on the overstretched health systems.

Silent epidemics: In India, the tobacco-attributable deaths range from 800,000 to 900,000/year, leading to huge social and economic losses. Mental, neurological and substance use disorders also cause a large burden of disease and disability. The rising toll of road deaths and injuries (2–5 million hospitalizations, over 100,000 deaths in 2005) makes it next in the list of silent epidemics. Behind these stark figures lies human suffering.

Role of Government within the Health Sector: Health System Strengthening

Essential issues that the wellbeing frameworks must defy are absence of money related and material assets, wellbeing workforce issues and the stewardship test of actualizing star value wellbeing approaches in a pluralistic situation. The National Rural Health Mission (NRHM) implemented by the Administration of India is a jump forward in setting up viable joining and meeting of wellbeing administrations and influencing design revision in the medicinal services conveyance framework in India.

- a) Health information system: The Integrated Disease Surveillance Venture was set up to build up a devoted thruway of data identifying with illness event required for counteractive action and regulation at the group level, yet the moderate pace of usage is because of poor endeavours in including basic performers outside people in general division. Wellbeing profiles distributed by the administration ought to be utilized to enable groups to organize their medical issues and to educate neighbourhood basic leadership. General wellbeing labs have a decent ability to bolster the administration's analytic and research exercises on wellbeing dangers and dangers, however are not being used proficiently. Instruments to screen epidemiological difficulties like psychological wellness, word related wellbeing and other condition dangers are yet to be set up.
- b) Health research system: There is a requirement for fortifying examination framework in the bureaus of community medicine in different organizations and to cultivate their associations with state wellbeing administrations.
- c) Regulation and enforcement in public health: A great arrangement of control is principal to fruitful general wellbeing results. It decreases presentation to illness through authorization of sterile codes, e.g., water quality checking, slaughterhouse cleanliness and sustenance wellbeing. Prominent faults exist in the authorization, checking and assessment, bringing about a frail general wellbeing framework. This is somewhat because of poor financing for general

wellbeing, absence of authority and duty of general

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wellbeing functionalities and absence of group association.

- d) Health promotion: Ceasing the spread of sexually transmitted diseases and HIV/AIDS, helping youth perceive the risks of tobacco smoking and advancing physical movement. These are a couple of cases of conduct change correspondence that emphasis on ways that urge individuals to settle on sound decisions. Improvement of group wide instruction programs and other wellbeing advancement exercises should be fortified. Much should be possible to enhance the viability of wellbeing advancement by stretching out it to provincial regions too; watching days like "Diabetes day" and "Heart day" even in towns will help make mindfulness at the grass root level.
- e) Human resource development and capacity building: There are a few deficits that should be configured in the improvement of HR for general wellbeing administrations. There is a desperate need to set up offices for general wellbeing and at the same time distinguishing the degree for their commitment in the field. The General Wellbeing Establishment of India is a positive stride to change the constrained institutional limit in India by reinforcing preparing, research and approach advancement in general wellbeing. Changes in the undergrad educational modules are fundamental for limit working in rising issues like geriatric care, immature wellbeing and psychological well-being.
- f) Public health policy: Recognizable proof of wellbeing destinations and targets is one of the more obvious systems to coordinate the exercises of the wellbeing area, e.g. in the United States, the "Healthy People 2010" offers a straightforward yet capable thought by giving wellbeing targets in an arrangement that empowers assorted gatherings to join their endeavours and work as a group. Also, in India, we require a guide to "better wellbeing for all" that can be utilized by states, groups, proficient associations and all divisions. It will likewise encourage changes in asset distribution for general wellbeing intercessions and a stage for deliberate between sectoral activity, in this way empowering arrangement cognizance.
- g) Scope for further action in the health sector: School wellbeing, emotional well-being, referral framework and urban wellbeing stay as frail connections in India's wellbeing framework, regardless of highlighting in the national wellbeing strategy. School wellbeing programs have turned out to be practically old in view of regulatory, administrative and calculated issues.

Emotional wellness has stayed subtle even subsequent to actualizing the National Psychological wellness Program.

On a positive note, imaginative plans through public-private associations are being attempted in different parts of the nation in advancing referrals. So also, the greatly anticipated National Urban Wellbeing Mission may offer arrangements with respect to urban wellbeing.

The Census 2011 has provided a lot of data related to sanitation, the findings released in May 2013 shows the availability of latrine facility in each of the household. There are 246,692,667 households (in 2001 it was 191,963,935) with provision for latrines (see table below) in India. For the first time in India's history, census enumeration listed household latrines facilities on an integrated basis. The table below shows the present status of household sanitary facilities.

Latest Data on Household Sanitary Facilities in India

1: Sanitary Facilities At Household Level

Sl. No.	Type of Facility	2011	2001
1.	Water Closet(WC)	36.4	18.0
2.	Pit Latrine	9.4	11.5
3.	Other Latrine Types	1.1	6.9
4.	No Latrine	53.1	63.6

2: World Bank Funded Project In India

Sl. No.	State	Project Name	Project Years
1	Maharashtra	Rural Water Supply & Sanitation Project (RWSS)-I	1991-1998
2	Karnataka	Rural Water Supply & Sanitation Project (RWSS)-I	1993-2000
3	Uttar Pradesh	Rural Water Supply & Sanitation Project (RWSS)-I	1996-2002
4	Kerala	Rural Water Supply & Sanitation Project (RWSS)-I	2001-2008
5	Karnataka	Rural Water Supply & Sanitation Project (RWSS)-II	2002-present
6	Maharashtra	Rural Water Supply & Sanitation Project (RWSS)-II	2003-2009
7	Uttarakhand	Rural Water Supply & Sanitation Project (RWSS)-II	2006-2014
8	Punjab	Rural Water Supply & Sanitation Project (RWSS)-I	2007-2013
9	Andhra Pradesh	Rural Water Supply & Sanitation Project (RWSS)-I	2009-2014
10	Kerala	Rural Water Supply & Sanitation Project (RWSS)-II	2011-2017

3: National Level Sanitation Performance-Sanitation Coverage in Rural Areas

Sl. No.	Year	Sanitation Coverage (%)
1	2000-2001	21.92
2	2001-2002	22.38
3	2002-2003	22.86
4	2003-2004	27.34
5	2004-2005	30.56
6	2005-2006	32.02
7	2006-2007	39.03
8	2007-2008	48.02
9	2008-2009	56.03
10	2009-2010	63.78
11	2010-2011	71.65
12	2011-2012	73.67

(Source: Ministry Of Drinking Water and Sanitation's Monitoring system)

7 DATA ANALYSIS AND COMPARISON

Sanitation Coverage in Rural Areas of All States

Rural sanitation coverage as per recent survey declared Sikkim (100%), Tripura (100%), Himachal Pradesh (100%) and Kerala (100%) as open defecation free states implying that each household in the state was covered with at least one toilet (water closet) on the other hand, Bihar (39.68%) ranked lowest in its sanitation coverage chiefly due to lack of awareness among its citizens about hygiene and sanitation clubbed with poor standards of living. Upon close analysis, it can be clearly deduced that southern states (Kerala 100%, Karnataka 73.02%, Tamil Nadu 82.49%, Andhra Pradesh 78.74%) are inching closer

to a hundred percent sanitation coverage figure at a faster pace whereas towards the south east coast Orissa (55.19%) and Pondicherry (52.99%) need a better administration and awareness in implementing and spreading the various governmental schemes pertaining to better sanitation coverage. A common factor with states having high sanitation coverage is their proximity from rivers, oceans and other water bodies, the major states which lack proper sanitation are usually which do not have any perennial river flowing through it or aren't bound by a large water body like an ocean or a sea, states which face this problem are Chhattisgarh (57.26%) and Rajasthan (59.38%). The sanitation coverage of all states and union territories are given below in the Table 4.

4: SANITATION COVERAGE IN RURAL AREAS OF ALL STATE

Sl. No.	State	Sanitation Coverage %
1	Andhra Pradesh	78.74
2	Arunachal Pradesh	71.98
3	Assam	68.62
4	Bihar	39.68
5	Chhattisgarh	57.26
6	Goa	90.48
7	Gujarat	86.07
8	Haryana	95.49
9	Himachal Pradesh	100.00
10	Jammu & Kashmir	49.94
11	Jharkhand	46.03
12	Karnataka	73.02
13	Kerala	100.00
14	Madhya Pradesh	78.77
15	Maharashtra	74.50
16	Manipur	64.14
17	Meghalaya	72.73
18	Mizoram	81.22
19	Nagaland	75.32
20	Orissa	55.19
21	Punjab	93.98
22	Rajasthan	59.38
23	Sikkim	100.00
24	Tamil Nadu	82.49
25	Tripura	100.00
26	Uttar Pradesh	82.93
27	Uttara khand	80.84
28	West Bengal	78.83
29	A & N Islands	42.33
30	Chandigarh	68.53
31	D & N Haveli	70.06
32	Daman & Diu	32.02
33	Delhi	62.89
34	Lakshadweep	93.14
35	Puducherry	52.99
Total		73.67

(Source: Ministry of Drinking Water Supply and Sanitation's Monitoring System)

Water Supply Distribution through Different Sources

In the past decade, the whole country observed a paradigm shift in water distribution by giving more preference to newer and non conventional sources of water distribution and minimizing the use of conventional sources.

1. Percentage of urban households using tap water increased by from 68.7% to 70.6% needless to mention the massive urbanization over the decade meaning that

households in urban areas also increased which makes this percentage rise greater.

2. Percentage of urban households using hand-pumps/tube-wells and well water sources observed a substantial drop from 21.4 in 2001 to 20.8 in 2011 emphasizing the acceptance of more effective conduit water distribution system. As the trends suggest, the rural household water distribution is still through the continual use of hand-pumps and tube-wells unlike the innovative measures taken in the urban sector.

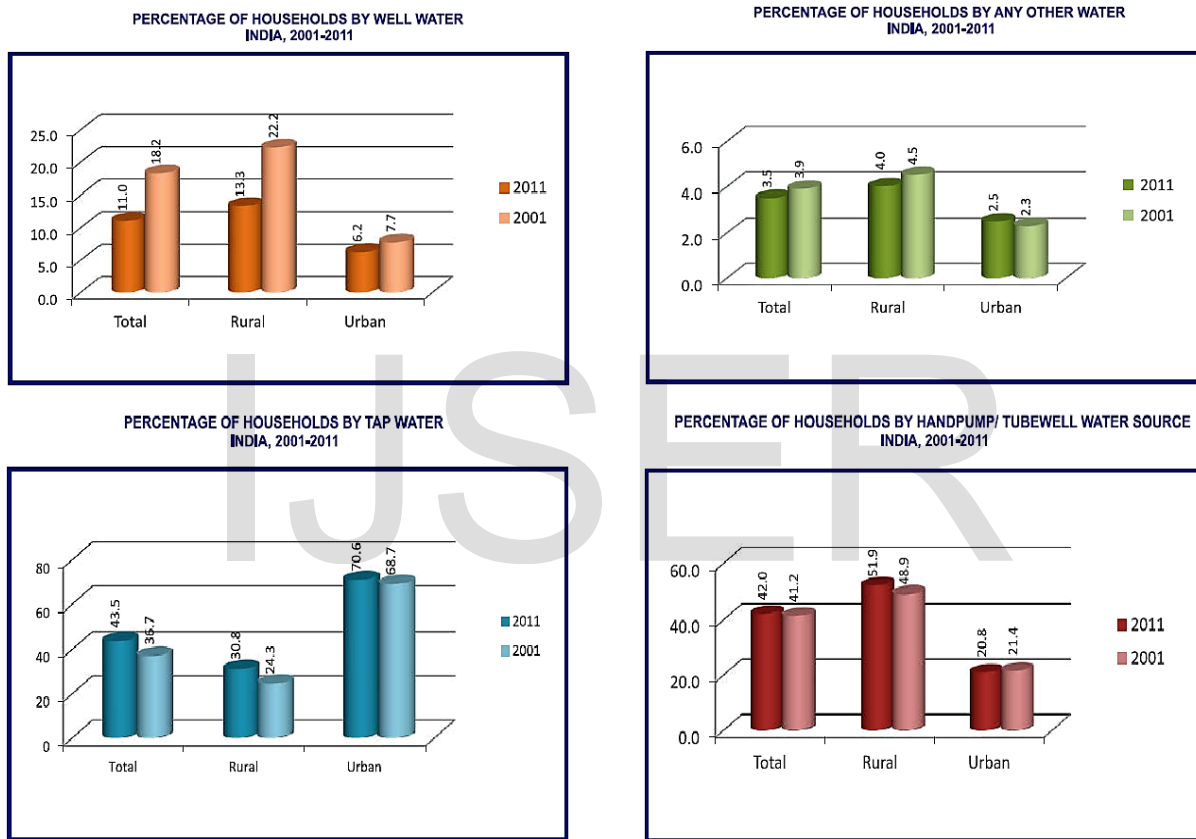


Fig.2: Water Supply Distribution Through Different Sources

(Source: Census of India 2011, Houses Households Amenities and assets)

Availability and type of Latrine Facility

After the meticulous surveys conducted across the whole country by Census of India the condition of total sanitation or average sanitation status of the country can be shown by the following table. Analysing the magnitude of improvement in country's sanitation over the past decade determines the quality of administration that catered the state at both national and state

level. Percentage of households having water closet, pit latrines, other latrines and no latrines are compared for the years 2001 and 2011. As discussed earlier the percentage of households having no latrines contribute to the lack of sanitation coverage household statistics.

5: State Wise Water Closet/Privies Facility Distribution In Indian Households; 2001-11

AVAILABILITY AND TYPE OF LATRINE FACILITY : 2001-2011											
State code	State/Union Territory	TOTAL									
		Total Households		Percentage of households having							
		2011	2001	Water Closet		Pit Latrine		Other Latrine		No Latrine	
2011	2001			2011	2001	2011	2001	2011	2001		
1	2	3	4	5	6	7	8	9	10	11	12
00	INDIA	246,692,557	191,963,935	36.4	18.0	9.4	11.5	1.1	6.9	53.1	62.6
01	Jammu & Kashmir	2,015,088	1,551,763	33.0	3.8	5.5	17.4	12.7	26.9	48.8	46.9
02	Himachal Pradesh	1,476,581	1,240,633	60.7	11.4	8.1	14.6	0.3	7.4	30.9	56.5
03	Punjab	5,409,699	4,265,156	59.3	20.4	19.2	24.3	0.8	12.1	20.7	43.2
04	Chandigarh	235,061	201,373	57.1	63.3	0.5	1.6	0.1	8.9	12.4	12.1
05	Uttarakhand	1,997,068	1,586,321	53.2	15.4	11.9	18.7	0.7	11.0	34.2	54.3
06	Haryana	4,717,954	3,529,642	50.4	10.9	17.4	22.3	0.8	11.3	31.4	55.5
07	NCT of Delhi	3,300,538	2,554,149	85.7	45.5	1.3	16.4	2.1	16.1	10.5	22.0
08	Rajasthan	12,581,303	9,342,294	27.6	11.9	6.5	10.5	0.8	6.6	65.0	71.0
09	Uttar Pradesh	32,924,355	15,780,601	29.8	3.0	4.2	10.3	1.7	13.2	54.4	68.5
10	Bihar	13,500,629	13,987,590	20.1	7.9	2.5	6.5	5.0	4.8	76.9	80.3
11	Sikkim	128,131	104,758	75.0	32.1	12.0	26.3	0.2	5.0	12.8	36.5
12	Arunachal Pradesh	261,614	212,615	38.4	11.0	18.8	25.8	4.8	19.4	38.0	43.7
13	Nagaland	399,955	332,050	47.7	3.7	27.7	45.9	1.1	15.9	23.5	29.4
14	Manipur	507,152	397,656	46.0	3.7	34.6	66.9	8.0	6.5	10.7	18.0
15	Mizoram	221,077	150,955	60.8	19.5	30.5	62.2	0.6	7.3	8.1	11.0
16	Tripura	842,781	662,023	24.8	11.7	60.2	62.1	1.0	7.7	14.0	18.6
17	Meghalaya	338,299	420,245	38.2	12.3	23.3	30.5	1.5	8.3	37.1	48.3
18	Assam	5,367,295	4,585,353	28.5	15.9	34.7	43.9	1.8	4.8	35.1	35.4
19	West Bengal	20,067,299	15,715,915	31.9	20.9	25.5	17.5	1.4	5.2	41.2	56.3
20	Jharkhand	5,181,607	4,887,590	20.4	10.7	1.4	3.3	0.3	5.7	71.0	80.3
21	Odisha	9,561,085	7,870,127	17.7	8.8	3.5	4.0	0.8	2.1	71.0	85.1
22	Chhattisgarh	5,672,850	4,348,518	21.0	8.9	3.5	2.4	0.2	2.9	75.4	85.3
23	Madhya Pradesh	14,967,597	10,919,651	26.1	12.5	2.3	5.9	0.4	5.6	71.2	76.0
24	Gujarat	12,181,718	9,643,939	52.6	31.1	4.5	8.7	0.3	4.8	42.7	55.4
25	Daman & Diu	60,381	34,342	77.1	54.6	1.0	7.2	0.1	2.1	21.8	56.1
26	D & N Haveli	73,083	43,973	51.7	30.8	0.7	1.1	0.3	0.7	45.3	67.4
27	Maharashtra	23,830,580	19,063,149	41.5	21.9	8.8	8.9	0.9	4.3	45.9	64.9
28	Andhra Pradesh	21,004,534	16,349,357	43.1	18.1	5.4	8.5	1.1	6.3	50.4	67.0
29	Karnataka	13,179,911	10,212,153	36.9	18.6	13.6	13.4	0.7	5.5	48.8	62.5
30	Goa	322,813	279,216	74.1	29.8	4.4	18.8	1.2	10.0	20.3	41.4
31	Lakshadweep	10,703	9,200	91.4	82.4	0.4	0.5	0.0	6.3	2.2	10.3
32	Kerala	7,716,370	6,565,206	66.7	65.2	28.3	12.4	0.2	6.5	4.8	16.0
33	Tamil Nadu	13,493,003	14,375,676	41.2	23.2	6.0	7.3	1.1	4.6	51.7	64.3
34	Puducherry	301,276	208,655	61.4	25.7	0.8	1.8	0.3	2.5	31.6	50.1
35	A & N Islands	93,376	73,062	61.0	31.3	2.9	10.6	0.2	11.4	29.9	46.7

(Source: Census of India 2011, Houses Households Amenities and assets)

Urban Household Water Closets/ Privies Facility Distribution

Statistics of type of latrine facility in urban households and change in trends over the past decade is mentioned in the table given below.

Table 6: Water Closets/Privies Facility Distribution In Urban Areas

State code	State/Union Territory	URBAN									
		Total Households		Percentage of households having							
				Water Closet		Pit Latrine		Other Latrine		No Latrine	
1	2	2011	2001	2011	2001	2011	2001	2011	2001	2011	2001
00	INDIA	78,865,937	53,692,376	72.6	46.1	7.1	14.6	1.7	13.0	18.6	26.3
01	Jammu & Kashmir	517,168	390,411	68.5	26.5	4.3	20.2	14.7	40.2	12.5	13.1
02	Himachal Pradesh	166,043	143,113	87.0	49.7	0.8	12.0	1.3	15.5	10.9	22.8
03	Punjab	2,094,067	1,489,694	85.6	46.5	6.8	20.5	1.0	19.5	6.6	13.5
04	Chandigarh	228,276	180,576	87.0	70.8	0.5	1.0	0.1	8.3	12.4	19.9
05	Uttarakhand	592,223	390,164	85.9	40.8	6.5	26.7	1.1	19.3	6.4	13.1
06	Haryana	1,751,901	1,075,179	80.5	31.0	7.7	26.5	1.7	23.2	10.1	19.3
07	NCT of Delhi	3,261,423	2,384,621	86.0	47.4	1.7	15.2	2.1	16.5	10.2	21.0
08	Rajasthan	3,090,940	2,185,591	73.7	40.6	5.4	18.2	2.9	17.3	18.0	23.9
09	Uttar Pradesh	7,449,195	5,170,527	77.2	32.0	2.9	18.1	3.0	30.0	16.9	20.0
10	Bihar	2,013,671	1,322,583	63.4	43.4	4.6	11.4	1.0	14.9	31.0	30.3
11	Sikkim	35,761	13,015	91.8	87.0	3.3	1.9	0.1	3.9	4.8	8.2
12	Arunachal Pradesh	65,891	48,114	74.9	28.1	13.9	32.1	0.7	26.8	10.5	13.0
13	Nagaland	115,054	66,716	79.1	19.9	15.0	40.5	0.5	33.8	5.4	5.9
14	Manipur	171,400	101,302	63.7	20.5	23.3	67.0	8.8	7.8	4.2	4.7
15	Mizoram	116,203	81,604	80.9	34.5	17.2	54.5	0.5	9.0	1.5	2.0
16	Tripura	235,002	122,343	50.0	43.1	47.0	44.8	0.9	9.0	2.1	3.0
17	Meghalaya	116,102	90,568	82.9	43.5	12.3	33.1	0.6	14.9	4.3	8.4
18	Assam	992,742	715,185	71.0	58.9	21.0	26.4	1.7	9.3	6.3	5.4
19	West Bengal	6,350,113	4,554,045	61.6	55.2	22.5	22.9	0.9	6.8	15.0	15.2
20	Jharkhand	1,495,642	1,060,178	64.7	41.2	1.8	7.4	0.6	18.0	32.8	33.3
21	Odisha	1,517,073	1,087,248	58.8	43.1	4.2	9.5	1.8	7.2	35.2	40.3
22	Chhattisgarh	1,238,738	789,440	58.7	38.8	1.1	5.2	0.4	8.6	39.8	47.4
23	Madhya Pradesh	3,845,232	2,794,858	71.5	41.1	1.7	11.9	1.0	14.7	25.8	32.3
24	Gujarat	5,416,315	3,758,028	85.2	62.1	2.1	9.8	0.4	8.7	12.3	19.5
25	Daman & Diu	47,631	12,251	84.2	60.6	1.1	3.4	0.1	1.5	14.6	34.6
26	D & N Haveli	37,655	11,190	80.3	71.6	0.7	3.5	0.3	2.2	18.7	22.8
27	Maharashtra	10,813,928	8,069,526	67.3	44.4	2.4	7.1	1.6	6.6	28.7	41.9
28	Andhra Pradesh	6,778,225	4,173,639	79.4	47.0	4.1	15.1	2.6	16.0	13.9	21.9
29	Karnataka	5,315,715	3,556,960	71.6	44.9	12.0	20.7	1.4	9.7	15.1	24.8
30	Goa	198,139	138,461	80.6	38.9	3.5	18.7	1.1	11.6	14.7	30.8
31	Lakshadweep	8,180	3,889	97.2	70.2	0.5	0.8	0.0	12.8	2.3	16.8
32	Kerala	3,620,696	1,652,656	75.3	74.8	21.9	11.1	0.3	6.2	2.6	8.0
33	Tamil Nadu	8,929,104	5,898,836	66.5	45.5	6.8	11.2	1.8	7.7	24.9	35.7
34	Puducherry	206,143	136,456	81.1	59.4	0.6	2.2	0.3	3.4	18.0	35.0
35	A & N Islands	34,346	23,409	86.8	58.7	0.2	6.7	0.1	11.1	12.9	23.5

(Source: Census of India 2011, Houses Households Amenities and assets)

Rural Household Water Closets/ Privies Facility Distribution

schemes focussing development in rural sanitation and this is lucid from the fact that percentage households having no latrine dropped from 78.1% in 2001 to 69.3 in 2011 with nearly 30 lakh more households constructed in the rural areas.

Statistics of type of latrine facility in rural households and change in trends over the past decade is mentioned in the table given below. India observed a major development through various

7: Water Closets/Privies Facility Distribution In Rural Areas

State code	State/Union Territory	RURAL									
		Total Households		Percentage of households having							
				Water Closet		Pit Latrine		Other Latrine		No Latrine	
		2011	2001	2011	2001	2011	2001	2011	2001	2011	2001
1	2	3	4	5	6	7	8	9	10	11	12
00	INDIA	167,826,730	138,271,559	19.4	7.1	10.5	10.3	0.8	4.5	69.3	78.1
01	Jammu & Kashmir	1,497,920	1,161,357	20.7	2.9	5.9	16.4	12.0	22.5	61.4	58.2
02	Himachal Pradesh	1,310,538	1,097,520	57.4	6.4	9.0	15.0	0.1	6.4	33.4	72.3
03	Punjab	3,315,632	2,775,462	42.7	6.4	27.1	26.4	0.6	8.2	29.6	59.1
04	Chandigarh	6,785	21,302	87.9	47.6	0.1	6.4	0.0	14.5	12.0	31.5
05	Uttarakhand	1,404,845	1,196,157	39.4	7.2	14.1	16.1	0.5	8.3	45.9	68.4
06	Haryana	2,966,053	2,454,463	32.6	2.1	23.1	20.5	0.3	6.1	43.9	71.3
07	NCT of Delhi	79,115	169,528	70.0	19.0	5.2	32.9	1.1	11.0	23.7	37.1
08	Rajasthan	9,490,363	7,156,703	12.6	3.2	6.8	8.1	0.2	3.3	80.4	85.4
09	Uttar Pradesh	25,475,071	20,590,074	15.9	1.9	4.5	8.3	1.3	8.9	78.2	80.8
10	Bihar	16,926,958	12,660,007	14.9	4.2	2.3	6.0	0.4	3.8	82.4	86.1
11	Sikkim	92,370	91,723	68.5	24.3	15.4	29.8	0.2	5.3	15.9	40.6
12	Arunachal Pradesh	195,723	164,501	26.1	6.0	20.4	24.0	6.1	17.3	47.3	52.7
13	Nagaland	284,911	625,334	35.0	5.9	32.8	27.3	1.4	11.5	30.8	35.4
14	Manipur	335,752	296,394	37.9	4.6	40.4	66.8	7.6	6.0	14.0	22.7
15	Mizoram	104,874	79,362	38.5	4.1	45.4	70.2	0.7	5.5	15.4	20.3
16	Tripura	607,779	539,680	15.1	4.6	65.3	66.0	1.0	7.3	18.5	22.1
17	Meghalaya	422,197	329,678	25.9	3.7	26.3	29.8	1.7	6.5	46.1	59.9
18	Assam	5,374,553	4,220,173	20.6	8.6	37.2	46.9	1.8	4.0	40.4	40.4
19	West Bengal	13,717,186	11,161,870	18.2	7.0	27.0	15.3	1.6	4.6	53.3	73.1
20	Jharkhand	4,685,965	3,802,412	6.2	2.2	1.3	2.1	0.2	2.2	92.4	93.4
21	Odisha	8,144,012	6,782,879	10.0	3.3	3.4	3.1	0.7	1.3	85.9	92.3
22	Chhattisgarh	4,384,112	3,359,078	10.3	1.8	4.1	1.8	0.1	1.6	85.5	94.8
23	Madhya Pradesh	11,122,365	8,124,795	10.4	2.6	2.5	3.9	0.2	2.4	86.9	91.1
24	Gujarat	6,765,403	5,885,961	36.5	11.3	6.3	8.1	0.2	2.3	69.0	78.3
25	Daman & Diu	12,750	22,091	50.8	20.2	0.4	9.4	0.2	2.4	48.6	68.0
26	D & N Haveli	35,408	32,783	25.3	16.9	0.8	0.2	0.4	0.2	73.5	82.7
27	Maharashtra	13,016,652	10,993,623	23.7	5.3	14.1	10.2	0.3	2.7	62.0	81.8
28	Andhra Pradesh	14,246,309	12,676,218	25.8	8.6	6.0	6.4	0.4	3.1	67.8	81.9
29	Karnataka	7,864,196	6,675,173	13.4	4.7	14.7	9.5	0.3	3.3	71.6	82.6
30	Goa	124,674	140,755	63.8	20.8	5.8	18.9	1.3	8.5	29.1	51.8
31	Lakshadweep	2,523	5,351	98.1	91.2	0.0	0.4	0.0	1.6	1.9	6.9
32	Kerala	4,095,674	4,942,550	59.1	62.0	34.0	12.8	0.2	6.6	6.8	18.7
33	Tamil Nadu	9,563,899	8,274,790	17.7	7.4	5.2	4.6	0.4	2.4	76.8	85.6
34	Puducherry	95,133	72,199	37.8	19.8	1.1	1.0	0.2	0.6	61.0	78.6
35	A & N Islands	59,030	49,653	54.4	18.4	4.4	12.4	0.3	11.6	39.8	57.7

(Source: Census of India 2011, Houses Households Amenities and assets)

Indian Household Water Closets/ Privies Facility Distribution

Over the past decade, our country went some major socio-economic growth and developments pertinent to sanitation awareness due to various government schemes like Nirmal Bharat Abhiyaan or Total Sanitation Campaign. The above factors led to

a greater percentage rise in households having water closets in rural than urban sector as depicted in Figure 3. Contrary to this trend, a decline in percentage of households having other latrine type was observed after a span of ten years in both rural and urban households. Also the sanitation coverage in the whole country has seen a significant percentage increase as discussed before in Table 7.

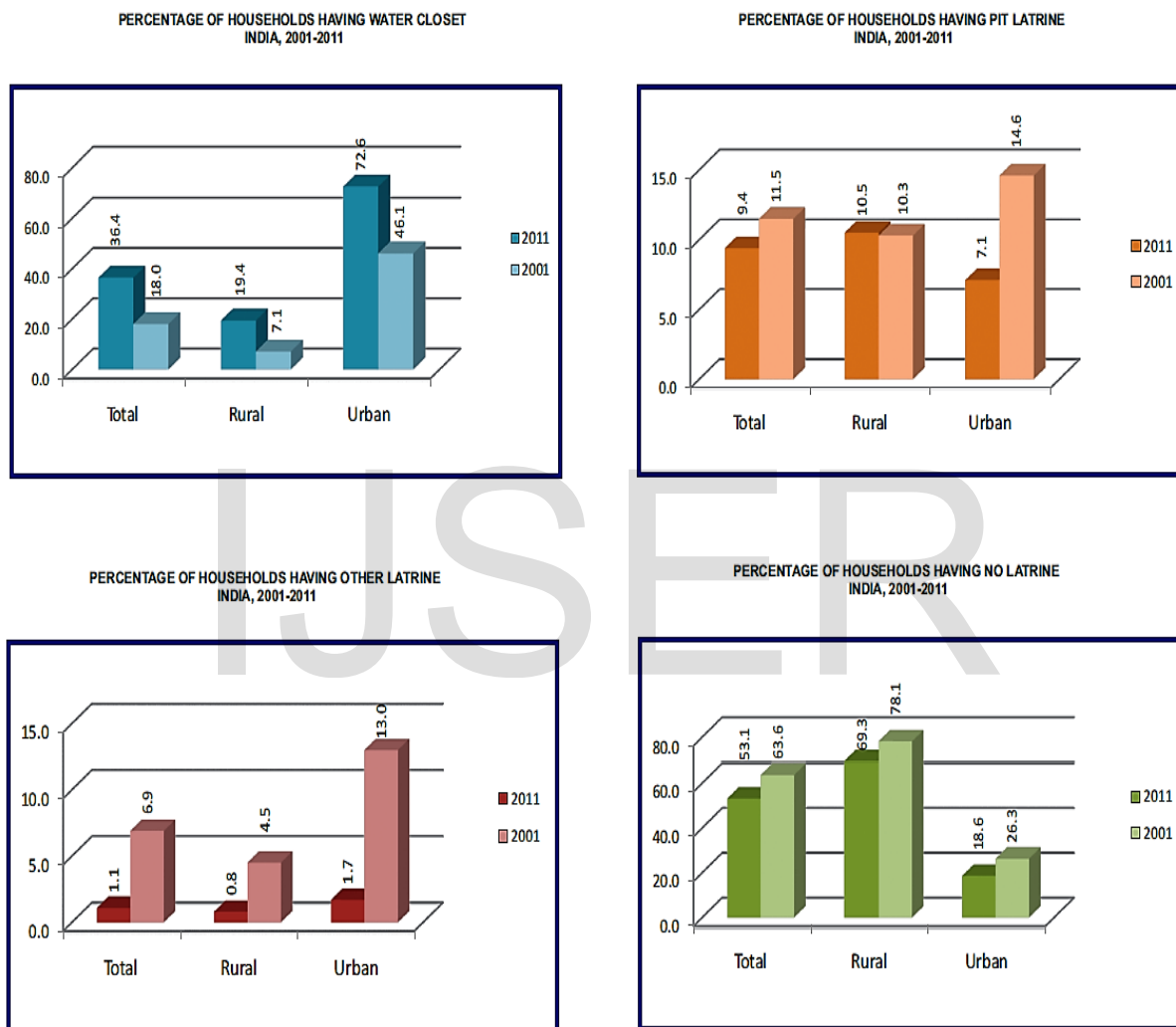


Fig.3: Water Closets/Privies Facility Distribution Across The Country; 2001-11

(Source: Census of India 2011, Houses Households Amenities and assets)

8 GOVERNMENT SCHEMES

Government of India has launched two major sanitation programmes Nirmal Bharat Abhiyaan (1999-2012) which later on was re-launched as Swachh Bharat Abhiyaan (2014-present).

Nirmal Bharat Abhiyaan (1999-2012)

Total Sanitation Campaign also popularly known as Nirmal

Bharat Abhiyaan was launched by the GoI in 1999. This policy not only extended in building sanitation infrastructure but also in eradicating open defecation which had been crippling growth of health and hygiene economy across India. To provide a significant boost for the campaign more than two thousand water closets were laid by gram panchayat and those villages achieving the objective were entitled with the 'Open Defecation Free' status. Also, to encourage villages

accomplishing in this noble initiative Nirmal Gram Puraskar was awarded which served as an incentive for the villages achieving the aforementioned status. Main objectives of the Nirmal Bharat Abhiyaan are as under:

1. Accelerate sanitation coverage in rural areas to achieve the vision of Nirmal Bharat by 2022 with all gram Panchayats in the country attaining Nirmal status.
2. Motivate communities and Panchayati Raj Institutions promoting sustainable sanitation facilities through awareness creation and health education.
3. To cover the remaining schools not covered under Sarva Shiksha Abhiyan (SSA) and Anganwadi Centres in the rural areas with proper sanitation facilities and undertake proactive promotion of hygiene education and sanitary habits among students.
4. Encourage cost effective and appropriate technologies for ecologically safe and sustainable sanitation.
5. Develop community managed environmental sanitation systems focusing on solid & liquid waste management for overall cleanliness in the rural areas.

This renowned scheme after a decade of its launch was not able to fulfil the primal objective which inherently was to make India open defecation free. Ultimately, the new government committee in 2014 collapsed the existing scheme and was re-launched as Swachh Bharat Abhiyaan.

Swachh Bharat Abhiyan (2014-present)

Swachh Bharat Abhiyan is a national level campaign which was launched by the Government of India. This campaign was officially launched on 2 October 2014 at Rajghat, New Delhi, where Prime Minister Narendra Modi himself wielded broom and cleaned a road. The scheme with major objectives same as its predecessor's received a stellar launch across India, it was the largest ever cleanliness drive that the country had ever seen encompassing 3 million government employees and all educational institutes across the country. This noble mission received substantial support from prominent personalities across the globe, the Prime Minister of India, Shri Narendra Modi, nominated nine famous personalities for this campaign, and they took up the challenge and nominated nine more people thus starting a chain of trend. The campaign had some successful strides in eradicating open defecation and under this scheme Kerala and Sikkim became the first ever states to achieve open defecation free status. More states and cities across the country are becoming open defecation free thus improving the rural health and sanitation economy. The scheme also consisted of menial taxation which was implemented in the Union Budget that provided funds to enhance functioning of the campaign. Some of the key points and statistics under this campaign are:

Swachh Bharat Mission: Gramin Areas

The Nirmal Bharat Abhiyan has been restructured into the Swachh Bharat Mission (Gramin). The mission aims to make India an open defecation free country in Five Years. Under the mission, One lakh thirty four thousand crore rupees will be spent for construction of about 11 crore 11 lakh toilets in the country. Technology will be used on a large scale to convert waste into wealth in rural India in the forms of bio-fertilizer and different forms of energy. The mission is to be executed on war footing with the involvement of every gram panchayat, panchayat samiti and Zila Parishad in the country, besides roping in large sections of rural population and school teachers and students in this endeavour. Objectives of the Swachh Bharat Mission (gramin) are :

8 : Status of Toilets in India

Component	2012-13	2013-14	2014-15 (Upto 31.10.2014)
Household toilets	45,59,162	49,76,294	13,70,347
School toilets	76,396	37,696	8,748
Anganwadi toilets	36,677	22,318	3,325

1. Enhancement of the general life style of people living in the rural areas.
2. To extend sanitation coverage deeper in rural areas thus enabling the revolutionary vision of Swachh Bharat by 2019 thereby attaining Nirmal Status.
3. To motivate communities and Panchayati Raj Institutions in promoting sustainable sanitation facilities by creation of awareness of health education.
4. Encouraging cost effective and appropriate technologies for ecologically safe and sustainable sanitation.
5. Development of community managed environmental sanitation systems and focusing on solid & liquid waste management for overall cleanliness in the rural areas.

About 22% of the rural families had access to toilets in 2001. With the efforts put into the Total Sanitation Campaign/Nirmal Bharat Abhiyan (NBA) this has gone up to 32.70% as per Census 2011. Further as per NSSO 2012, 40.60% rural households have toilets. All rural households are planned to be covered with sanitary facilities by 2019. Physical achievements made during last 2 years and current year SBM (Gramin) is demand driven scheme hence no annual targets are fixed.

9.0 CONCLUSION

As a developing nation, although India has a long way to go in order to achieve International standards of health and sanitation and with the advent of new government schemes and initiatives for improving sanitation in public places, rural household etc. it gives a new hope to the citizens for a cleaner and better tomorrow as long as they are doing their bit. According to the previous census of 2011, percentage households having water closets, pit latrines and other latrines had a significant increase in both urban and rural areas of all the states in the country. Government implemented schemes such as Swachh Bharat Abhiyaan have proved to be revolutionary schemes as 31 lakh household toilets and 11 lakh public toilets have been built in a span of 3 years. The primal objective of Nirmal Bharat Abhiyaan which was to make the country open defecation by 2017 have been given a steadfast uplift by making 531 cities open defecation free. Thus quality health and sanitation depends on our attitude and values towards way of living which we inculcate and pass on to the next generations that ultimately reflects the nations development.

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