

## ICT Enabled Monitoring for Enhancing Effectiveness of Nirmal Bharat Abhiyan in India

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**Abstract** The Total Sanitation Campaign of the Government of India revealed a new paradigm towards progress of sanitation in rural areas. Now rechristened as the Nirmal Bharat Abhiyan (NBA), it is aimed at achieving sustainable behavior change with provision of sanitary facilities in entire community in a phased, saturation mode with *Nirmal Grams*<sup>1</sup> as outcomes. The new strategy is to transform rural India into 'Nirmal Bharat' by adopting community saturation approach. The goal here is to achieve 100% access to sanitation for all rural households by 2022. So far, 607 projects have been sanctioned.

The online monitoring system under NBA is a comprehensive web-based information system. User can enter data, download data and can view reports from their own location. The website, [www.tsc.gov.in](http://www.tsc.gov.in) of the Ministry of Drinking Water and Sanitation, Government of India is accessible to all users, providing ready information on various aspects of the sanitation program. This online monitoring system has speeded up information flows and improved efficiency, performance and speed in decision-making. It has also eased historical data maintenance and eliminated human error in processing. This paper discusses the salient features of the system, its uses and benefits.

**Key Words:** Rural Sanitation, Information and Communication Technology, Online monitoring

### INTRODUCTION

There is a direct relationship between water, sanitation and health. Consumption of unsafe drinking water, open disposal of human excreta, lack of personal and food hygiene have a direct bearing on the high infant mortality rate. On the other hand, these are also the cause of a host of medical problems like schistosomiasis, dysentery, Japanese Encephalitis, malaria, dengue fever and trachoma. Indirect loss of working days due to repeated episodes of these diseases results in huge economic loss. Several

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<sup>1</sup> Open-defecation free villages

studies conducted in rural India have shown that there is high prevalence of indiscriminate defecation practices. Fecal borne diseases rank high among communicable diseases in India and almost eighty of the diseases occur due to lack of proper water and sanitation. High infant mortality and malnutrition are also attributed to the open-air defecation which is high in rural areas. The high incidence of fecal borne diseases is aggravated with the people or communities living in poor condition. As per the Joint Monitoring Program Report of UNICEF and WHO (2012), nearly 60% of the world populations who defecate in the open live in India only. As per the Census of India (2011), only 32.7% rural households have access to toilets. If India is to find a place amongst the developed nations of the world, sanitation coverage has to improve.

Rural sanitation came into focus of the Government of India in the World Water Decade of 1980s. First sanitation program, the Central Rural Sanitation Program (CRSP) was started in 1986 to provide sanitation facilities in rural areas. It was a supply driven, highly subsidized and infrastructure oriented program. The CRSP had little impact on the gargantuan problem. A comprehensive baseline survey on Knowledge, Attitudes and Practices in rural water supply and sanitation was conducted during 1996-97 by the Indian Institute of Mass Communication, New Delhi, showed that 55% of those with private latrines were self-motivated. Only 2% of the respondents claimed the existence of subsidy as the major motivating factor, while 54% claimed to have gone in for sanitary latrines due to convenience and privacy. Results of evaluation of CRSP, led to the formulation of the Total Sanitation Campaign (TSC) approach in 1999 that focussed on behavioral change as the prime driver for sanitation and provision of a small incentive amount to be given to Below Poverty Line (BPL) households only.

In the year 2012, the TSC was redesigned and renamed as Nirmal Bharat Abhiyan (NBA), heralding a paradigm shift in rural sanitation. Objective of the NBA is to achieve sustainable behavior change with provision of sanitary facilities in the entire community in a phased, saturation mode with "Nirmal Grams" as outcomes. The new strategy is to transform rural India into 'Nirmal Bharat' by adopting community saturation approach. The goal of NBA is to achieve 100% access to sanitation for all rural households by 2022. So far, 607 projects have been sanctioned. The program gives emphasis on Information, Education and Communication (IEC) for generating demand of sanitation facilities. It also gives emphasis on school sanitation and hygiene education for changing the behavior of the people from a young age. The components of NBA include start-up activities, IEC, individual household latrines, community sanitary complex, school sanitation and hygiene education, aganwadi toilets, solid and liquid waste management, capacity

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building, and alternate delivery mechanism, in the form of rural sanitary marts and production centers and administrative changes. The campaign is housed in the Ministry of Drinking Water and Sanitation of the Government of India.

## MONITORING UNDER NBA

The monitoring system under NBA (Figure 1) has been developed for providing continuous, transparent, and accountable inputs towards following objectives:-

- Providing continuous and consistent monitoring support in NBA districts
- Monitoring and reporting of the progress and process of the NBA program covering different components i.e. physical, process of implementation and financial progress both in terms of inputs and outputs
- Identifying gaps in implementation of NBA all levels i.e. village, sub-district, district, state and the national
- Recommending for necessary follow-up actions at all levels
- Eliciting stakeholders' views on project management and approaches to sustainable Operation & Maintenance (O&M) of the facilities and services created and reporting

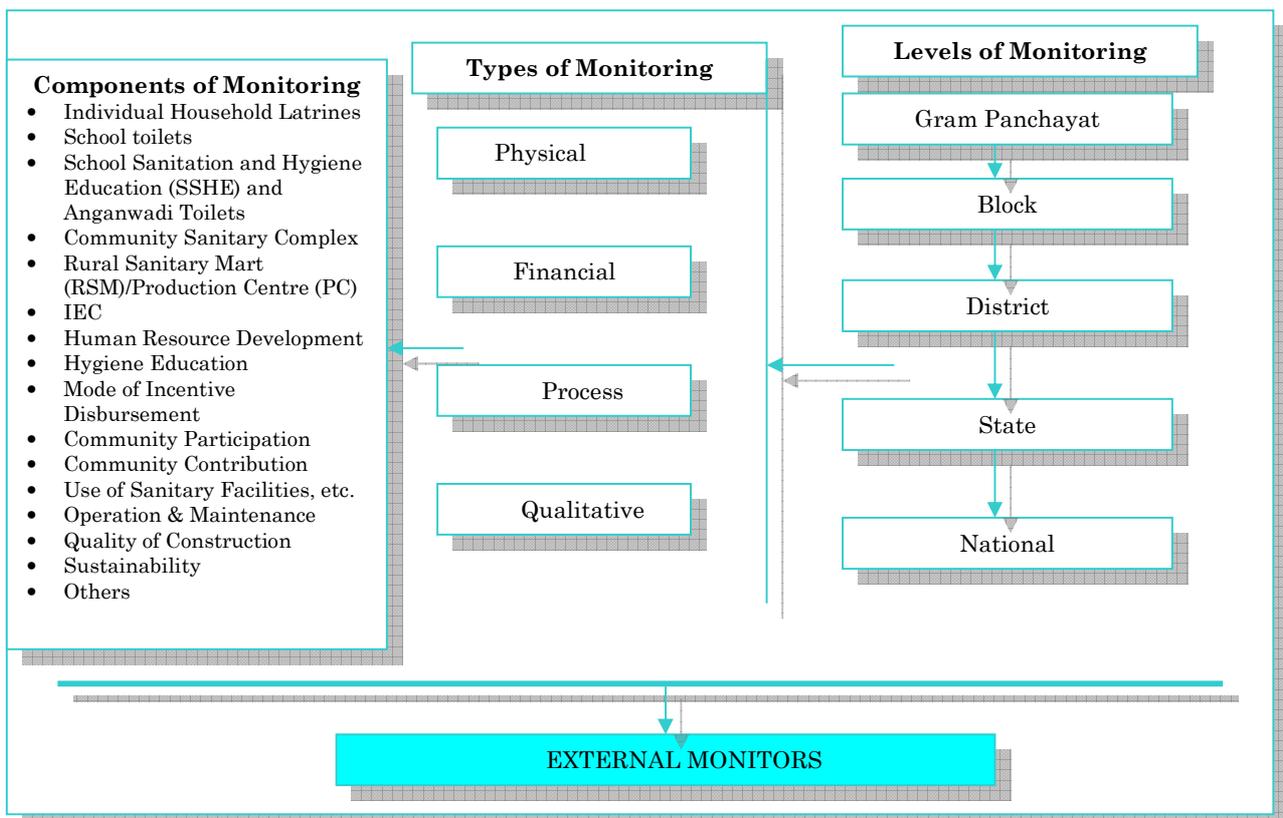


Figure 1: Components of the Monitoring System

The broad structure of NBA monitoring involves the following key components:

- The community based monitoring system at village-level implemented by gram panchayat and schools on a monthly basis
- District and block-level monitoring system reporting physical and financial progress on a monthly basis through the Online Monitoring System
- External Monitoring by third party

## **THE ONLINE MONITORING SYSTEM**

The Ministry of Drinking Water and Sanitation, Government of India has embarked on a number of initiatives to dovetail the advances of information technology with effective implementation of its programs. The Ministry's website, [www.tsc.gov.in](http://www.tsc.gov.in) is accessible to all users providing ready information on various aspects of Rural Sanitation Program. For proper monitoring of the implementation of NBA, the Ministry of Drinking Water and Sanitation developed an online monitoring system. In this online monitoring system data is entered at the district level. Reports on various aspects can be generated at the panchayat, district and state level.

For successful implementation of any program, robust monitoring system is required. Earlier, the ministry monitored the progress of implementation in the various districts through a manual offline system. This method was time consuming and heavily reliant on the person dealing with data. These bottlenecks have been ironed out by the use of a computer based information system. Web based technologies enable easy data access and retrieval from any location on the globe, over the internet. The online monitoring system has been developed with these goals. Data related to many years can be stored in one computer which otherwise would occupy considerable space in filing cabinets. With data being managed on a computer, access to and retrieval of information is expedited. The time taken for data access is thus considerably reduced. The online monitoring system has increased the transparency in the implementation of NBA. One can get panchayat-wise, district-wise and state-wise reports directly from the website. This system also increased the efficiency of the program.

The online monitoring system acts as a one-stop clearing house of information on:

- Project sanctioned details for district projects
- Funds released by Ministry of Drinking Water and Sanitation to Districts under NBA
- Monthly Financial statements (Funds released by the states/Beneficiaries & Utilized by districts) received from districts

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- Monthly Physical Achievement (household latrines, school toilets, balwadi toilets, women sanitation complex, RSM, PC, etc.) received from districts
- Status of Project Implementation Plan (PIP)
- Baseline survey results
- List of contact persons

The system has been developed in ASP 3.5 using c#(sharp) Script and Java Script on client side with MS-SQL Server 2008 as Backend database, on a n-tier architecture (Client-Server Web technology) and is presently accessible at <http://tsc.gov.in>. Screenshot of the homepage of the system is given in figure 2. The data inputs/updates made through this software get automatically reflected in the reports generated by the system and these can be easily retrieved by anyone, having access to the internet.

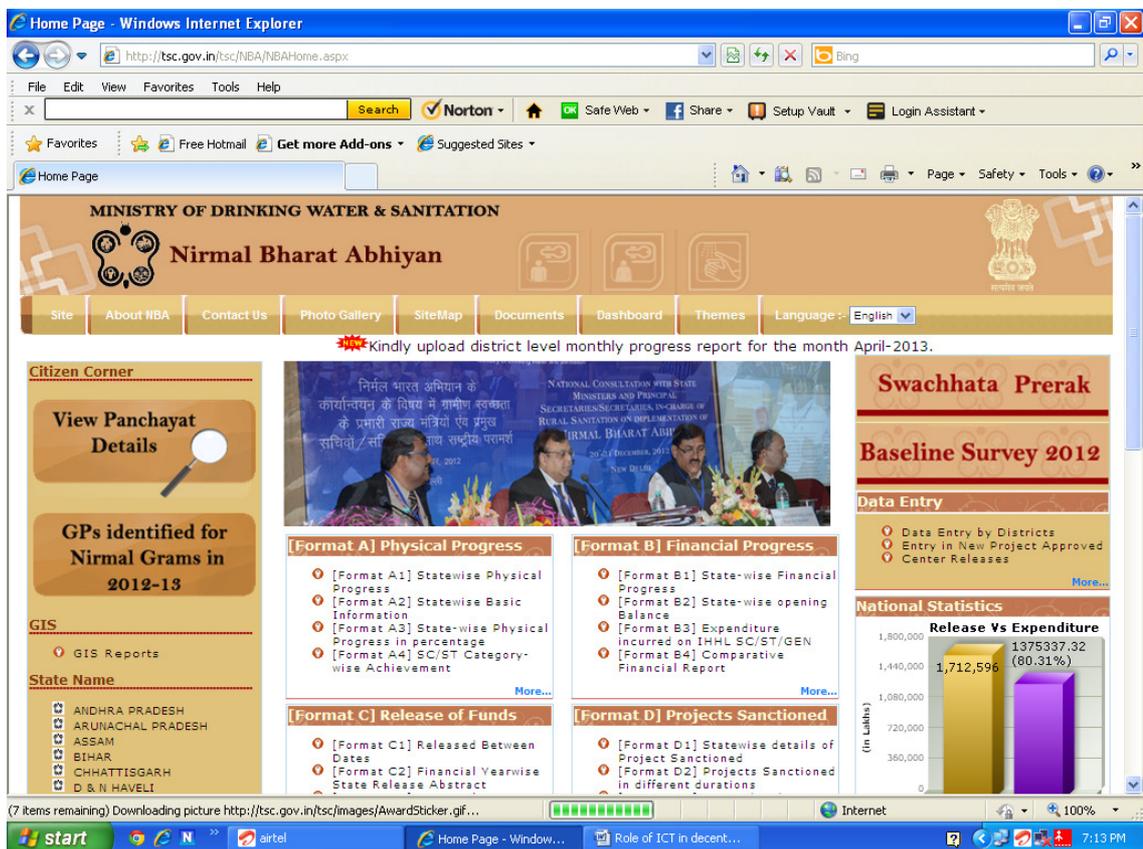


Figure 2: Screenshot of Homepage

## SALIENT FEATURES OF ONLINE MONITORING SYSTEM

The web is the new paradigm for delivering applications because of its global accessibility. It allows for centralized administration, immediate single point

upgrades and delivers an application to multiple clients on several operating systems using the same code base. The following listed features are available in the developed system.

#### **A. Data Entry**

Presently NBA projects have been implemented in 607 districts. Wherever the project exists, a password has been assigned to the district, for using this software. For using this application, firstly one is required to open the internet explorer and type in the address bar: <http://tsc.gov.in>. This page contains links to DATA ENTRY screens for monthly physical and financial progress; project approval and release for the projects. On clicking this option, the user login page appears. User will have to select a state and then the district and then enter their password. Different and unique passwords have been assigned to different districts by the ministry. This password can be changed by the user as and when required.

#### **B. Reports**

At present, the software generates the following reports:

- Projects Sanctioned
- Amount Released
- Physical Progress Reports
- Financial Progress Reports
- Panchayat-wise Status
- Baseline survey results
- List of Contact Persons.
- Annual Implementation Plan
- GIS based report

The reports are generated both district-wise as well as state-wise. These reports are used to monitor program implementation and take corrective action as and when required. The system also generates the following queries:

- Funds Release and Expenditure
- Physical Component Achievement
- Regarding Financial Component Achievement
- Installment-wise Release
- Age of the Projects

List of districts with less than 10% achievement in construction of individual latrines is an extensively used query for program review purposes.

## **BENEFITS FROM ONLINE MONITORING SYSTEM**

The system is a centralized database for monitoring all the projects under the ministry. The software enables copying of data entered into the system to MS-Excel. So all stakeholders have control over the data and can use the data for their purposes. The system has expedited information flow from the districts. It has improved efficiency, performance and speed in decision-making process. For example, list of districts having 60% centre and state expenditure is generated online and used for releasing fund to the districts. For reviewing programs in various states, different reports are generated on real-time basis.

Users can enter the data, download the data and can view the reports from their own location. The data entry is done in protected mode with only authorized users having access to the data centric operations but reports can be viewed by all. The system also makes historical data maintenance a very easy process while eliminating human error in all the processes. As the operational procedure server is in the same format, it is easy to generate the national level report by consolidating the district and state level reports and compare between them. The applications are relatively low cost and reside on the server making updates impulsive. Customized web applications also require minimal user training, since these applications are easy to use.

The online monitoring is being implemented in 607 districts of the country. Data on physical and financial progress are entered at district and panchayat level on monthly basis. Data on release of fund by centre are entered at national-level. Reports on different indicators are generated on monthly and yearly basis.

## **DISCUSSION AND CONCLUSION**

Earlier, the ministry monitored the progress of implementation in the various districts, employing a manual system. This method was time consuming and heavily reliant on the person dealing with data. While there was widespread mismanagement of funds, the earlier monitoring systems was not able to assess the overall impact of NBA on the sanitation coverage. Hence, the need for an Online Monitoring System for NBA was felt. The online monitoring system under NBA is a comprehensive web-based information system. It enables the centre, state, district, block and panchayat to monitor the progress of the coverage of toilets for individual household, schools and anganwadi. It also helps in monitoring financial aspects (viz. funds released by Ministry of Drinking Water and Sanitation; states and beneficiaries; monitoring of utilization of released fund). Multiple users from states and districts can update their particular data.

The Ministry's website, [www.tsc.gov.in](http://www.tsc.gov.in) is accessible to all users providing ready information on various aspects of Sanitation Program. This online monitoring system has sped up information flow from the districts, block and panchayats. Beneficiary details of two crore households are available on the website. It has improved efficiency, performance and speed in decision-making process. It eases historical data maintenance and eliminates human error in processing. Anyone can look at the beneficiary details, panchayat-wise, district-wise and state-wise report on the website. This system has also increased the efficiency of the program at the same time enhancing transparency in implementation of the NBA.

## REFERENCES

- Baseline Survey on Knowledge, Attitudes and Practices in rural water supply and sanitation in India (1996-97), Indian Institute of Mass Communication, New Delhi
- Normal Bharat Abhiyan (NBA) Guidelines (2012). Ministry of Drinking Water and Sanitation, Government of India, New Delhi
- Progress on Drinking Water and Sanitation (2012). Joint Monitoring Program by UNICEF and WHO <http://www.unicef.org/media/files/JMPReport2012.pdf>  
Retrieved on 20/4/2013

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