

India's national sanitation and hygiene programme: From experience to policy West Bengal and Maharashtra models provide keys to success

Sumita C Ganguly

Abstract

The national rural sanitation programme of the Indian government began in 1986. It has evolved into the Total Sanitation Campaign (TSC), which now operates in 578 districts of 30 states/union territories and is resourced with over US\$1 billion, to reach India's rural population of 71%. TSC successfully encourages households to finance their own toilets while giving financial incentives to poorer people. The 1% average annual progress of 1981-2001 grew to 3% in 2002-2007 and presently suggests an annual growth of 5-7%. A nationwide network of Rural Sanitary Marts and Production Centres has been established with government funds, although they are run primarily by NGOs and CBOs. This has boosted the supply chain, promotes sanitation and hygiene and caters to 138

million rural households of which around 55% are still without toilets. Lessons from three decades of a government-driven programme suggest that forward looking policies, combined resources, a strong institutional setting and decentralised delivery are key to reaching at least half of these by 2012, the end of India's 11th five-year plan. Although progress is uneven, models in West Bengal, Maharashtra and elsewhere show how informed strategies, high people participation, strong monitoring and political determination yield results that can be scaled up rapidly. TSC provides a platform for innovation and creative solutions. Tamil Nadu - one of the leaders in school sanitation, hygiene education and gender concerns - is now joined by states including Gujarat and Uttar Pradesh to infuse the much-needed qualitative aspects. As competition is

fired by the national award, Nirmal Gram Puraskar, for measurably ending open defecation, the deeper issues of environmental safety, management of diminishing water resources, water less/low water technology options, standards for personal and household hygiene practices and gender-sensitive approaches, require culture-appropriate programmatic responses. TSC will now have to embrace far more than the basics to make water and sanitation goals achievable, sustainable and equitable.

Objectives

The aim of this paper is to set out progress towards the Millennium Development Goals (MDG) on sanitation in India against the backdrop of the history of attempts to increase coverage in the country. The analysis centres upon progress of the national Total Sanitation Campaign (TSC) being implemented in rural India. The focus in particular is on the states of West Bengal and Maharashtra which are in the forefront of the march towards sustainable sanitation, with the exception of Kerala which leads in almost all social development indicators. This paper attempts to show that despite policy and access to funds, the national progress on sanitation has been slow and uneven for almost two decades. The introduction of reforms and some strategic shifts combined with the commitment towards the MDG has helped to trigger acceleration of progress in some states, which now offer learning ground for others. The paper also highlights the role of the Panchayati Raj Institution

(PRI), a system of local governance by elected representatives which came into force in 1993 under the 73rd amendment of the Indian constitution. The core of this was devolution of powers to local bodies known as Gram Panchayats to manage development administration. Water and sanitation implementation became the responsibility of the Gram Panchayat with technical support from the relevant line departments.

Background: The national sanitation programme

Until industrialisation was initiated by the first Prime Minister of independent India in its first five-year plan for development from 1951-1956, India was a predominately rural country. This meant the abundance of empty spaces, vacant lots and forest clumps were ideal and unquestioned choices for use as public toilets; open defecation was a standard part of normal daily living in rural India for centuries.

Sanitation and hygiene was not questioned as disposal happened at a distance from the homestead, odours dissipated in the open, and there were no nuisances to contend with. Decomposition and disintegration into the surrounding soil were convenient in outdoor temperatures that often exceeded 40°C under bright sunshine most of the time barring the two monsoon months in the plains. As it had been happening for centuries people accepted this tradition as the most 'user-friendly' practice, it was perfectly logical and, in their perception, 'sanitary'. As a result, sanitation has been commonly perceived as sweeping and heaping of household refuse, keeping streets clean and maintaining channels for drainage and excess water flow. The period of colonisation by the British inevitably brought with it technologies such as treated piped

water, below ground sewer lines, and the first toilets with cisterns and flushing arrangements in select elite city homes in the 19th century.

However, this was not the picture in urban living where even in the Vedic times (1500-500 BC) ancient India had established town planning practices with water reservoirs and drainage systems. Not much is known about the collection of refuse and disposal of human excreta. Presumably the poorest segments of society were pushed into such occupation as collecting human waste and disposing of the dead (both human and animal), thus giving rise to the abhorrent and still not fully eliminated practice of “scavenging”; despite public policy to the contrary certain groups get roped in to this occupational trap by circumstances of birth into the caste system. Although both the government and NGOs such as Sulabh Shauchalaya, supported by government funds, have been working to wean people out of this occupation by promoting conversion from ‘bucket latrines’ to sanitary toilets, it continues to be a huge challenge. Attempts to provide alternative jobs with skills training and financial incentives have been partially successful. However, demand generated by small towns to continue this occupation is overpowering, especially for poor women who have virtually no education and little other skills. Policies do not have sufficient power to stop the demand-supply cycle. There is also documented evidence of elaborate rules about sanitation and hygiene behaviour laid down in ancient Indian scriptures that had to be observed by society at large. However these rules or codes of conduct have faded away through the centuries, replaced with open defecation becoming an acceptable practice (Kochar, 1978; Londhe, 2008; Personal communication Kumar Alok, Project Officer WES, UNICEF, India). Water supply and sanitation

became development issues during the formulation of the country’s first five-year plan. However, it was only in the 1980s – the International Water and Sanitation Decade – that India’s first nationwide programme for rural sanitation, the Central Rural Sanitation Programme (CRSP), was launched in 1986 by the Ministry of Rural Development. The main objective was to improve quality of life for people in rural areas and to provide privacy and dignity to women. The programme provided a sizeable subsidy, Rs. 2,000 (US\$ 50), for construction of household sanitary latrines for Below Poverty Line (BPL) households. It was a supply-driven, highly subsidised programme, which gave emphasis on a single construction model: twin-pit-pour flush latrines.

External support agencies such as UNDP, WHO and UNICEF, formed a technical advisory group to support the government of India on issues of technical and capacity development to implement the newly started CRSP. After six years, when the programme was reviewed in 1992, it became apparent that a new strategy was needed because the heavily-subsidised constructed toilets for the poor were not being used. This was due to various reasons, for example, people perceived the need for sanitation of toilets as low, in comparison to drinking water and drainage. The revised CRSP brought with it greater emphasis on information, education and communication (IEC) on the main aspects of sanitation, hygiene and health. It changed track to emphasise an integrated approach to rural sanitation composed of seven sanitation components including personal and household hygiene, and not just toilets (UNICEF, ca. 1995).

Since the inception of the CRSP and up to the end of the 9th Plan (2003), 9.45 million individual subsidised latrines were constructed primarily for

poor rural households. The total investment made by the government was around US\$370 million (Gol, 2006). The programme led to a marginal increase in the overall rural sanitation coverage, with average annual increase of only 1% per year between 1981 and 2001 with the census of 2001 reporting rural household latrine coverage as 21.90%, with combined rural and urban coverage as 36.4 %. There were many factors contributing to the low coverage: it is now widely recognised that community participation was insufficient in this conventional, supply-driven, subsidy-oriented, government directed programme. The result was that toilets were constructed but remained unused or were used for storage purposes such as for firewood and fodder. There were many reasons for this, for example a lack of awareness about the leach pit technology, especially the siphon system, lead people to believe that since water remained in the hole excreta would not get flushed out properly; poor quality of construction, and fear of the pit overflowing. Emphasis on robust designs also hiked up the cost, giving people the impression that sanitary toilets were costly and beyond their means. Participation of community members was virtually non-existent, there was a lack of post-construction communication on use and maintenance, and a near absence of hygiene education, much of which was due to the misplaced notion that technology was the driving force and the top-down approach of government directives was insufficiently persuasive.

It was also assumed that somehow the subsidy-driven toilets (specifically for the disadvantaged) would stimulate demand among the better-off families who would self-finance their units. This, however, did not happen as expected. The national programme which hinged on substantial subsidy as a means for “creating demand” for household

toilets was strategically weak. Of the sanitary pour flush toilets constructed in the 1980s and 1990s, less than half were used by someone in the family for the above reasons. Studies further showed that subsidy was never sufficient motivation for a family to develop behaviour change – primarily regular use of the toilet. Between 1980 and 1992, and with heavy subsidies, CRSP raised rural latrine coverage from 0.5 to 2.7% only, while 8% of rural households had installed a latrine through the private sector (Ministry of Rural Development, 1992). Factors other than subsidy had far greater appeal in generating demand and a desire for ownership. In 1996/7, a national survey on Knowledge, Attitudes and Practices by the Indian Institute of Mass Communication showed that only 2% of the respondents with a latrine gave the subsidy as the major motivating factor while 54% mentioned privacy and convenience (Gol, 2001). This was later borne out in UNICEF assisted integrated water and sanitation projects in the 1990s. Despite subsidy playing a central role in supporting the poor households as a matter of policy, substantive investments were made in building management and communication skills among all levels of staff, sensitising them on issues of privacy, dignity, safety and security of girls and women, the sick and the elderly, on gender concerns, on quality and affordability, and choices and options (see also Sijbesma, Chapter 25 in this book).

Apart from the programme-related strategic weaknesses in the government’s agenda, construction of roads, drinking water supply, and rural electrification were obvious priorities for rural development. Not only were there visible results for these, but the outcome brought rapid benefits to the rural people and were therefore politically far more attractive than sanitation.

The CRSP had also neglected school sanitation, and failed to build links with various local village level institutions such as the child development programme Integrated Child Development Services (ICDS), women's programmes such as Mahila Samakhya, Community Based Organisations and Non Governmental Organisations, self-help groups (SHGs), youth forums, academic institutions with their unique strengths and outreach; and in particular, the local government institution known as the PRI.

A wake-up call

In 1981, the estimated coverage as measured by individual sanitary household latrines constructed, was 1% for rural India and 27% for urban India. Two decades later, data from the 2001 census indicate that 22% of rural households in India had toilets. This reflected of an astonishingly slow progress of roughly 1% growth per year nationally (Gol, 2003). By this time, the reforms in the sector were in full swing having started in 1999. TSC was being revitalised under the Rajiv Gandhi National Drinking Water Mission (RGNDWM) in the Ministry of Rural Development. UNICEF and other external support agencies (ESAs) stepped up their support in areas of human resource development, capacity building, reviews and monitoring, communications and management. The period 2001-07 saw a resurgence in the sanitation sector that was unmatched not only in terms of increases in allocation of the government's own resources, but also a kind of inclusiveness that embraced strategic inputs from ESAs, international resource institutions such as International Water and Sanitation Centre (IRC), national Non Government Organisations (NGOs), Community Based Organisations (CBOs), individual experts and the private sector. The policy

was to marshal all resources to raise the profile of the sector, secure funding and to accelerate with quality towards sustainable sanitation. The most recent estimate in coverage (2007) is around 44%, reflecting a robust growth which if sustained will see the country reaching the MDG for sanitation by the end of 2012 (Gol, 2007).

Numbers were not enough

The coverage figure, however, masked predictable uncertainties about the use and maintenance of individual household toilets. Use of toilets for purposes other than excreta disposal was common (MARG, 1998); an estimated 20 percent of toilets are used for different purposes other than defecation (Planning Commission, Govt. of India, 2007). Moreover if used as intended, generally only women used them regularly. Men and children are frequently regressed to open defecation. Preventative health and environmental pollution were never perceived as concerns or as social issues. Promotion of the health hazards of open defecation continued to be the main topic of communication and IEC. In order to innovate and step up implementation, other aspects such as safety and dignity of women; safety and security of children; prestige of family; reducing pollution in the community; and national pride; gained in importance and slowly found entry into the communication content. The results were very promising wherever these were implemented in a systematic manner. A case in point is West Bengal where privacy and dignity of women became the strategic tool for prioritising ownership of individual sanitary toilets. One after another, states developed and aired promotional messages on mass media in local languages, focussed on the issues of dignity, privacy, safety of women and girls overshadowing

to some extent the health issues. The national government added other key components to its communication, such as the relationship between good sanitation, safe water and health, latrine access through TSC, the technology, the affordability and the financial incentive for the poor.

Efforts to provide information to community leaders and families offering design and price options, ready access to subsidy to support those below the poverty line, access to institutional finances, loans through self-help groups and availability of trained masons however remained weak, affecting overall efficiency of delivery.

The 1990s

In the 1990s, a pilot project for rural sanitation was implemented in seven districts of India under the umbrella of integrated approach. The Control of Diarrhoeal Diseases-Water Sanitation project (CDD-Wat-San) aimed to reduce diarrhoea by promoting safe drinking water, individual sanitary toilets, personal and household hygiene, access to Oral Rehydration Salts (ORS) and adoption of Oral Rehydration Treatment (ORT) for all villages in these districts (UNICEF, 1990). This gave further impetus to the long-standing collaboration between the government – primarily the Rajiv Gandhi National Drinking Water Mission in the Ministry of Rural Development – and UNICEF India to encourage and promote strategies nationwide that would impact on reduction of diarrhoea and consequently lead to improved child survival and development.

The Intensive Sanitation Project (ISP) was started in 1990 in Medinipur (one of the selected districts with a population of more than 8 million) in West Bengal. At the same time, other states began

implementing this integrated approach that would, during the course of its life, give shape to many innovative ideas and strategies. Notably, many external agencies partnered with the government during this period to support implementation and explore strategic ideas and innovations amenable to scaling-up. When the reforms were launched in 1999, many of the lessons gleaned from the ISP were embedded into the policy framework, notably the shift from supply driven to demand driven; the de-emphasis of the subsidy element; emphasis on marketing the concept of household toilet use through design and price options; funds earmarked for communication drives focusing on sanitation and hygiene as a package; and a concerted thrust on school sanitation and hygiene education (SSHE), by collaborating with the education sector to encourage early learning of hygiene behaviour among young children, aiming at a generational change.

TSC implementation

Institutional arrangements

Rural sanitation is a state responsibility and is therefore implemented by the respective state governments, 30 states and six union territories. The Ministry of Rural Development, part of the government of India, is head of this and formulates policy and supports the states with funding, guidelines, and technical inputs, and is responsible for monitoring progress and outcome. States have to provide matching funds – generally a third of the national amount in order to participate in the programme. There have been instances where a deficit of resources and competing priorities have impeded a state from accessing the readily available national funds, slowing down implementation significantly. Following a decade of implementation and lessons learned from the

innovative projects and successful demonstrations including Medinipur in West Bengal, Ganjam in Orissa, Erode in Tamilnadu, Mysore in Karnataka, the reforms in rural sanitation entailed a restructuring of the earlier Central Rural Sanitation Programme of 1986. It was renamed Total Sanitation Campaign (TSC) and was launched in 1999 under the label of “sector reforms”. TSC is presently operational in 578 of the 610 districts of India. The total project outlay is US\$3.35 billion, of which US\$2.1 billion is paid by the central government, US\$ 43.7 million by the state governments, with US\$500.7 million the community contribution¹ (UNICEF, 2008).

The TSC envisaged not just people’s participation but more substantial local management using the active institutional structures, primarily the Gram Panchayat (village level government), which became the prime movers both in terms of handling resources and accountability of results. The objective of TSC was to improve the quality of life of rural peoples, reduce burden of diseases and achieve elimination of open defecation. The aim was to enable rural households to own and use sanitary toilets, to ensure that public institutions like schools, anganwadis (pre-school centres) and other public places have toilet and urinal facilities; and to promote personal and home hygiene. Unlike drinking water, which is perceived as a visible outcome of development and is seen as a public benefit, sanitation, especially the household sanitary toilet programme, is in the private domain, and the benefits are seen of being to individual families. Therefore, to effectively promote sanitation, the Gram Panchayats also assumed the not so familiar role of ‘motivator’, learning about motivating, monitoring, reviewing and periodic reporting. The village water and sanitation

committee (VWSC) became the specialised unit to assess, analyse and act on behalf of the Gram Panchayat. West Bengal was a notable exception for not forming VWSCs, as they saw no need for an additional tier. The shared resources of the national and state governments were made available to the Gram Panchayats through the District Water and Sanitation Committees. This provided for incentives for household toilets for the poor, for school and pre-school toilets and for women’s sanitary complex blocks that included washing and bathing facilities at community level.

The resources also provided for operating rural sanitary marts (one-stop shops for sanitary hardware) and production centres for fabricating sanitary hardware components at sub-district level to feed the growing demand for construction. There were also important components related to start-up activities like baseline house-to-house surveys, mobilisation, demand generation and microplanning to facilitate participation of the marginalised and socially distanced. The official estimate, which tends to be optimistic, is that the sanitation MDG will be achieved by 2010 and universal access to toilets by 2012 (rural only). While this is unlikely to happen throughout the country, a few states are moving at a promising pace, for example West Bengal with a coverage of over 70% in 2007 (MoRD, 2008).

Programme delivery structure

The institutional arrangements for TSC focus on the user household and the community. The programme delivery setting follows closely the governance structure of the Panchayat system of local government. A well-designed delivery system from the state through to the Gram Panchayat with well defined roles and responsibilities has been

¹ 1 US\$ = INR 40

the hallmark of the two leading states in terms of sanitation, West Bengal and Maharashtra. Both states share a legacy of strong and functional local governments with elected representatives serving five-year terms. The statutory requirement of women in a third of the seats is exceeded in both states with higher proportions of women elected representatives participating in governance. Both states have demonstrated a high level of determination and persistence backed by strong political will, informed and innovative management, close supervision and strong capacity development involving NGOs, for example in West Bengal the highest official, Secretary Panchayat of the rural development body undertakes field visits every Saturday to assess progress against reported figures.

The generic delivery mechanism for TSC is illustrated in the diagram below. However, flexibilities for state variations are permissible and is exercised by states to suit their own unique circumstances.

The generic delivery mechanism is illustrated in Figure 1:

Communication (also known as IEC)

for behaviour change

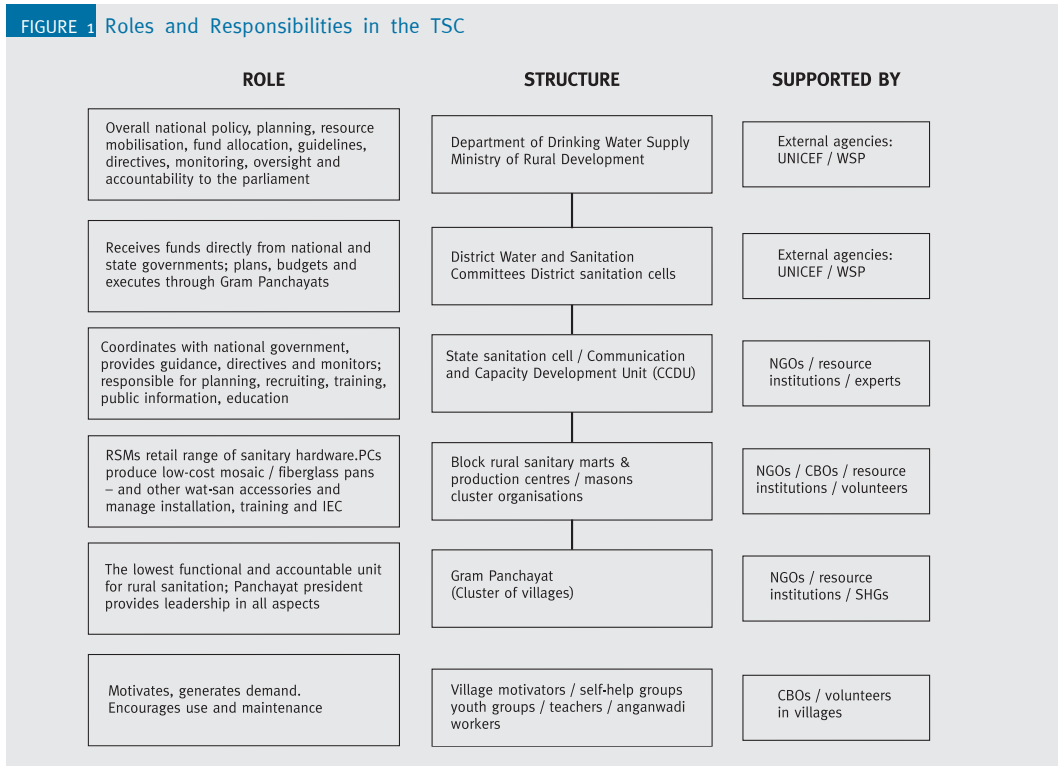
Another aspect of both management and structural reforms has been the reorganisation of support structures at the state level to build capacity at all levels by having a core team of specialists to plan and mobilize human resources for bringing quality into implementation and communications. The Communication and Capacity Development Units (CCDU) have been set up in state nodal departments with full funding from the national government for implementing the TSC. The main

tasks are to develop human resources, network with key resource centres, identify innovations and knowledge opportunities, and to undertake communication planning and monitoring. Actions often have to be negotiated with families and individuals agreeing to comply with those they deem as reasonable. This requires the presence of skilled motivators, mobilizers, or hygiene educators who reside in those communities and are willing to participate in the programme either as volunteers or against payment of small honorariums, rather than general community messages. Respected individuals with credibility setting examples have proven to be good motivators; young women and men with the ability to establish good rapport have been successful communicators. A vast network of such communicators, with skills for interpersonal and group communication and creative individuals such as folk singers, painters and performing artists, are employed by block, district and state units. Their contributions are budgeted into the programme according to standard rates of payment that are usually set locally. Both West Bengal and Maharashtra have relied heavily on an effective communication network to generate interest and demand for sanitation.

Strategy shifts

In early 2004 a mid-term evaluation was commissioned by the national government to assess the impact of TSC implementation in the country and whether its policies were generating the desired results. A public sector company, M/s Agriculture Finance Corporation (AFC), which works with social and economic research agencies, was engaged in the year 2004 to conduct a mid-term evaluation of the TSC programme. The study was

FIGURE 1 Roles and Responsibilities in the TSC



conducted in a sample of 20 TSC districts in the states of Andhra Pradesh, Bihar, West Bengal, Tamil Nadu, Maharashtra, Kerala, Uttar Pradesh, Madhya Pradesh, Rajasthan, Haryana, Tripura, Orissa, Assam and Jharkhand. The main finding was that 61.5% households in the TSC projects had toilet facilities. Financial constraint was the most frequently stated reason for non-adoption of a toilet facility. An overwhelming majority of those who did not have toilets felt there was a need for it. Awareness of TSC and of the relationship between poor sanitation and water borne diseases was high in almost all the study districts. Other salient findings were:

- Households wanted the per unit standard cost for a low-cost toilet to be increased to above Rs. 2,500. Necessity for superstructure was felt strongly everywhere.
- Sanitation issues were discussed by school going children at home in a large number of households and children appeared to be a major influencing factor for toilet installation.
- Awareness and practice of personal hygiene was found to exist to a large extent in almost all the study districts.
- 55% of sampled school toilets were supported through TSC, 15% through state government funds and the rest through the

education sector District Primary Education Project (DPEP) or Sarva Shiksha Abhiyan (SSA).

- Health and hygiene education had become universal practice in schools in those districts where TSC was being implemented.
- The impact of SSHE was seen in lowered drop out rates (in 64% of the sample schools), improving enrolment rates (48%) and decreasing absenteeism (3%).
- Community sanitary complexes were very popular among the poor, especially women who cannot afford toilets.
- The practice of training women as masons, especially in some districts of Tamil Nadu and West Bengal, had strategic values. Besides creating employment the women masons proved to be efficient in construction and also in motivating other villagers to adopt toilets and best practices in health and hygiene.
- Of the total Rural Sanitary Marts (RSMs) studied 40% were operated by NGOs and a quarter by Self-Help-Groups (SHGs). They managed ventures more successfully than others as they combined IEC and motivation work with business (AFC, 2004).

The Maharashtra model

The AFC study recommended that in order to achieve the objective of full coverage of 138 million rural households (2001 census) through appropriate sanitation systems, providing financial incentives to BPL households will have to continue as a strategy. The amount of subsidy as well as unit costs however needed to be revised in accordance with the prevailing conditions. Notably, the Maharashtra model of Community Led Total

Sanitation (CLTS) demonstrated a departure from this policy to show that an Open Defecation Free (ODF) campaign that exhorted communities to end this practice and attain ODF status instead of an emphasis on individual toilet construction and counting toilets as a measure of progress, gave notable results such as achieving a spurt in coverage (see Table 1 below). However, the more qualitative aspects that emerged was a discernible collective movement albeit spurred by a sense of competition among the Gram Panchayats; village lanes and vacant plots were mostly free of dumped rubbish, open excreta was not easily visible, poor households from marginalised communities boasted of a clean toilet within their premises; resistance to the fact that toilets had to be far away from the living quarters had been replaced by early adopters or champions who would show visitors that they had one pit of an off-set toilet embedded under their kitchen floor. Women would say how vacant plots now growing flowering shrubs or medicinal plants and herbs used to be the defecation plots that families used before the toilets came about. The sanitary complexes were popular and were being used (perhaps they served an intrinsic need of people to briefly congregate at a convenient place for exchanging day-to-day notes, greetings and some gossip).

In Suravadi Panchayat in the Phaltan Block of Satara district, Maharashtra – the first in the state to win the Nirmal Gram Puraskar award – all 412 household, 112 of which are below the poverty line, are using sanitary toilets today. This was achieved through a strategic mix of constructing a 28-seater community toilet for access to the very poor, and financial incentives of Rs. 500 to each family to construct its own toilet. The Gram Panchayat and youth groups monitored the use;

TABLE 1 Percentage of rural households in Maharashtra with access to sanitary toilets

January 2001	18.2
March 2003	18.7
February 2008	53.4
March 2012 (projected)	82.2

Source: Report card: progress on sanitation Maharashtra: www.ddws.nic.in

and recognition of ODF status was shown by painting homes pink. Persons still practicing open defecation were penalised with no distribution of wheat and kerosene from fair price shops. (Planning Commission: 54th National Development Council Meeting Excerpts – Dec. 2007). These first successes, including methods that did not bode well for sustainability, were followed up with more awareness and strengthening of environmental concerns, waste management and hygiene behaviour and healthy competition among the GPs.

Policy update

Based on the recommendations of the study conducted by the Agricultural Finance Corporation (AFC) and feedback received from various stakeholders, the TSC programme guidelines were revised. The unit cost for household toilets was increased from Rs. 625 (US\$15) to Rs. 1,500 (US\$38) and from Rs. 1,000 (US\$25) to Rs. 2,000 (US\$50) respectively for two categories of models. The cost includes an amount of Rs650 (US\$15) for construction of the above ground structure. This therefore represented an increase in the subsidy given to families living BPL from Rs. 500 (US\$ 12.5) to Rs. 1,200 (US\$30), the rest of the cost being borne by the householder. Raising the subsidy happened on account of multiple factors: on one

hand there were appeals from various outlets that prices of raw materials had increased and the rates on which the subsidy was established in 1999 (the start of the reforms) were no longer tenable. India's diverse geography including hilly and remote areas required a substantial hike in charges for cartage of raw materials, which was not factored in when the programme had started. Secondly, project managers and implementers were increasingly faced with the task of responding to families who wanted more support to build stronger above ground housing – something that the existing subsidy would not permit. The purpose of raising the subsidy was “to enable poor people to construct reasonably good toilets that are complete with overhead structure” (Secretary, Department of Drinking Water Supply, 2008).

Other relevant points of the AFC report were:

- a component on solid and liquid waste management limited to 10% of the total project cost was included to improve overall cleanliness in the villages.
- in order to accelerate construction of toilet blocks in Schools and Anganwadis, the community contribution was removed in construction of institutional toilets. The national government fund share was increased from 60% to 70% of the unit cost, the balance being the share of the state government.
- in order to promote ease of access to soft credit facilities, links were established with women's self help groups and milk cooperative societies, which share a common concern of home sanitation, hygiene and handwashing, and management of human and animal waste in order to achieve clean villages. A provision of revolving funds of up to Rs. 50 Lakh (US\$ 0.11 million) per district, was made to enable

women in particular to take advantage of 0% interest loans for sanitation.

Network of Key Resource Centres

Reputable institutions that are working in the field of water and sanitation were identified and financially supported for undertaking capacity development activities of a variety of stakeholders. The following five institutions are designated as national resource institutions to conduct orientation and training for programme managers across the country:

- Ram Krishna Mission Loka Shiksha Parishad, Narendrapur, West Bengal
- Gandhi Gram Rural Institute, Dindigul, Tamil Nadu
- Safai Vidyalaya, Sabarmati Ashram, Ahmedabad, Gujarat
- State Institute of Panchayati Raj and Rural Development, Kalyani, West Bengal
- Uttaranchal Academy of Administration, Nainital, Uttarakhand

Notably two of the above institutions are located in West Bengal. In Maharashtra another very reputable institution YASHADA – Yashwant Rao Academy of Development Administration – in Pune, has facilities for Human Resource Development (HRD) and routinely trains various personnel including senior civil servants, and has served as the anchor for many TSC capacity development

BOX 1 Key demographic features

Population (2001): 80.2 million
Population Density: 904 per km²
Districts: 18
Development Blocks: 341
Gram Panchayats: 3,362
Villages: 40,794

activities. All states have been encouraged to designate such key resource institutions as centres of learning for sanitation, hygiene and environmental issues and enable them to develop a knowledge based on the subjects, and to support application and dissemination, monitoring and documentation.

Rural sanitation: West Bengal leads

From 1999, states across the country started implementing reforms in CRSP with different degrees of enthusiasm. West Bengal was a step ahead as lessons had already been learned from the Intensive Sanitation Programme (ISP) of Medinipur where a key strategy was the partnership of the government of West Bengal with the Ramakrishna Mission Lokashiksha Parishad an esteemed NGO led by the Ramakrishna order of monks, extending social services in health, education, livelihoods, and emergencies. The partnership was strengthened further with the participation of UNICEF to support capacity development, technology standards and monitoring systems.

Making technology affordable

In the early years of the CRSP, the twin-pit-pour flush sanitary latrine was the standard model that was promoted across the country. The concept was based on the theory that the poor could not afford toilets and therefore a heavily subsidised and technically sound model was the answer. Targets for construction were agreed between the central nodal ministry and its counterpart in the state government and constructions done by the public works department or contractors. Very soon the programme managers discovered that this model was not affordable for those who were poor yet did not fall into the category of BPL, which

would entitle them to a subsidy. Nor was there any room for the option or flexibility for those who were better off. With the help of the Ramakrishna Mission volunteers, different combinations were explored in Medinipur. The objective was to minimise the basics and reduce the cost drastically without compromising the essentials of the leach-pit technology so that the poorest household would find it affordable. Therefore they came up with the direct single unlined pit with sanitary pan model, costed at Rs. 400 (US\$ 10), which has been increased to Rs. 450 (US\$ 11.3). The share of household contribution is Rs. 225 (US\$ 5.75). This package includes the 'squatting plate', the pan and trap, the cartage and installation cost and a motivator's incentive of Rs. 25 (US\$ 0.7). The pit (1m x 1m) is dug usually with the help of the household members. The toilet housing is more often made of light indigenous material such as bamboo matting, jute cloth, and plastic sheets hung on bamboo frames. Over time, the families upgraded the housing to brick structures. However, as expected there was more demand for the upgrade when the below ground structure was an off-set pit.

In the case of direct pits, families generally continued with a temporary structure, often strengthened with extra back-up because of the ease of dismantling and moving to an alternate spot when the single direct pit got filled. Although in West Bengal the guidelines talk of choices that range from a low of Rs. 450 to a model that costs 10 times as much at Rs. 4,500, a quick assessment will show that around 80% of families own the single pit lowest cost model. The distinct advantage that West Bengal has is not available in many other parts of the country and that is the presence of clayey soil that can support the squatting plate without the reinforcing rings to line the pit. A pit takes around 4-5 years to fill up for

an average sized family after which they dig a second pit at a convenient spot in the vicinity and shift the squatting plate with pan and trap and the temporary superstructure. The mosaic pans are made locally in production centres run by a number of NGOs and youth clubs. It is noteworthy that West Bengal has systematically enabled the establishment of rural sanitary marts cum Production Centres in each of its 341 community development blocks. This network is the backbone of the scaling up effort ensuring that demand creation and promotion is matched by an active supply chain, an efficient delivery system comprising trained masons attached to each Production Centre.

The obvious question is what happens when there are heavy rains and floods which are cyclical and predictable events in these low-lying flood plains. There is very little available documentation on this. Interaction with families during field visits does suggest damage to the toilets by pit flooding during heavy rains. Another problem is burrowing rodents that lead to some pits caving in as they do not have lining rings. The extent of the problem of damage and destruction due to water surges, and damage to the fragile superstructure on account of storms and cyclones, remains anecdotal. In other parts of the country the technology options used are a) single direct or off-set lined leach pits, b) double lined pits with a junction box leaving the second pit option open, c) dry latrines known as Ventilated Improved Pit (VIP) latrines, d) ecological latrines with urine separation e) solar heated ecological latrine with urine separation.

Making social mobilisation work

The single most significant policy to support demand, creation and scaling up has been the earmarking of 15% of the TSC project budget for IEC. Initially IEC

was primarily concerned with generating awareness about the connection between poor sanitation and diarrhoea; later this was expanded to the link between the “sanitation package” composed of seven good sanitation behaviours and reduction of diarrhoea and other sanitation related diseases.

The success of West Bengal, Maharashtra and Tamil Nadu has been due to well laid out systems and creative interventions for social mobilisation. For example, in West Bengal in each of the 18 districts a comprehensive “toilet census” has helped create an overview of the gaps, the priorities, and the local and unique characteristics of each area. This helped to plan and budget for social mobilisation, the pitch, content and intensity.

The establishment of a state sanitation cell was strategic for overall planning, coordinating and monitoring the mobilisation efforts in cooperation with NGOs. While the core function of the cell is to play a guiding role in communication and capacity development, they leave sufficient space for a bottom-up approach where innovations are tried out and local talent is tapped at the sub-district level for their mobilisation efforts.

Most of the motivators for sanitation were drawn from the pool of ‘literacy workers’ – volunteers freed up when the literacy programme was wound up in the country. Having worked closely with the communities they became a valuable resource to the TSC movement in the state. In West Bengal as the toilet density increases the motivators have less and less scope of earning their commission fee of Rs. 20 to 40. Yet that does not seem to deter them at least in Purba Medinipur which is staking a claim to become the first district in the country to have 100% individual sanitary toilets. Maloti, a sanitation motivator smiles as she walks along the village path.

“We feel a great sense of pride to be associated in this achievement,” she says. “See, even my husband and son-in-law sometimes join me at meetings and help me by providing information on families that are facing difficulties or where a child is not using the toilet and doing open defecation... I immediately visit the family and counsel them... this gives most of us a lot of satisfaction... yes, there is not much money in this, but we know that people respect us for our work.” (International Learning Exchange (ILE) delegates’ field visit to Medinipur, 2006, Gol and UNICEF, reported by Ganguly.)

In Maharashtra, the Sant Gadgebaba Gram Swachhata Abhiyan, which launched in 2000, was able to achieve to a large extent its objective of ‘open defecation free’ villages. Reaching out to over 40,000 villages, the campaign banked on the name of a venerated saint and social reformer as well as attractive prize money to spur rural families into action. The use of 11 sanitation and hygiene criteria for judging performance became embedded in the rural life style.

Districts have abundant resources for communications (15% of the TSC budget) but often do not have the understanding and skills to undertake communication planning and investments bearing in mind specific behaviour change objectives. Successful examples are invariably attributable to a talented and inspired chief executive officer (CEO) of a district determined to bring changes in his / her domain. Involvement of the NGO community, CBOs, faith groups, and youth and self-help groups have had positive results.

Sanitation and hygiene communication

Every state has developed its own strategy for behaviour development using the IEC funds

available directly to the districts. The main platform for hygiene communication in the communities are through interactive processes such as group meetings, for example women's self-help groups, youth groups and periodic house visits. The behaviours that are considered key for maximum impact for sustainable sanitation are: toilet ownership, use and maintenance; handwashing with soap; and proper disposal of baby's faeces. Apart from behaviour development, dissemination of innovations as a means of learning and advancing knowledge sharing on sanitation has been adopted as a strategy in TSC for achieving "total sanitation".

Since 2003, Tamil Nadu has been implementing a Clean Village Campaign, which includes management of solid and liquid waste, human and animal excreta, managing plastic waste, water conservation and rainwater harvesting. Innovative add-ons include local production of sanitary napkins by women's self-help groups and simple incinerators for sanitary napkin disposal in schools. Tamil Nadu has also been at the forefront of developing and applying ecological sanitation as an alternative to conventional sanitation. Areas with acute water scarcity, or prone to floods require different technologies and approaches in order for sanitation to be sustainable. In Maharashtra and other states examples of water recycling at community level has shown good results.

Hygiene education is an integral component of the school sanitation programme under TSC. Given that there are one million schools, the potential to reach out to millions of children is enormous. In the education sector the Sarva Shiksha Abhiyan (SSA), the national programme for universal elementary education has 20 days of training for teachers every year and this offers great scope to integrate hygiene and sanitation, for example induction and refresher

courses for teachers being conducted on a periodic basis.

Approach to equity

The policy of subsidies to the poor to enable them to own their individual toilets is at the core of the equity issues. There is enormous political pressure on the national government to increase the quantity of subsidy on the grounds of equity. The decentralised governance structure gives states the flexibility to put in their own resources and increase subsidy, although that goes against the national policy, as learned from the Medinipur experience. On one hand, some states believe that a toilet for the poor should have standard brick structures that are high cost and the major part of the cost should be borne by the government; on the other hand there is the West Bengal example which has stuck to its policy of reducing cost to make a basic sanitary unit affordable to the poorest, with only a small subsidy support from the government.

In Maharashtra the Community Led Total Sanitation approach (CLTS) has a very different approach that emphasises the attainment of "open defecation free" (ODF) villages. The subsidy angle is minimised to a back-dated incentive provided to those families that have installed toilets but have faced financial difficulties. The Gram Panchayat is generally aware of the condition of each household and based on the genuineness of the case they provide support. In other instances, the Gram Panchayat uses the subsidy funds available to the programme to procure sanitary hardware in bulk and makes it available to the poor families. In Maharashtra the ODF approach to community led sanitation is recognised to have its merits; this has primarily been achieved through the construction of a large number of community

sanitary complexes in villages, making it possible for families to access sanitation who are otherwise not in a position to 'buy' their toilets. The same approach has been adopted in cases where space is a major constraint in erecting individual toilets. In such cases, a cluster of families either agree to use public toilets or to share a toilet among a few families. This, along with a strong communication campaign, has no doubt eliminated open defecation, as every family has access to fairly well-maintained facilities. However, it has also deprived them of a chance to own their individual toilet. While this is indeed a short term solution to eliminating open defecation, in the long term maintenance issues may drive the users to revert to open defecation unless there is peer pressure and persuasion to build their own toilets.

In the West Bengal model, the employment of women as masons to fabricate toilet pans and traps has generated significant employment. This has not only added visibility to sanitation but has also empowered very poor women with skills and livelihood opportunities and raised their position in the community. The aspect that is often overlooked is that the majority of the sanitary mart managers are men. Changing this situation will be an uphill task. On the other hand, for each block with around 25,000 families, often more than 50% of the 250 motivators who provide honorary services are women. For every motivational effort leading to a family installing a toilet the motivator gets a financial incentive, which has recently risen from Rs. 20 (US\$ 0.50) to Rs. 50 (US\$ 1.25).

Outcome of TSC

A recent (yet to be published) study on usage of toilets indicates that over 90% of toilets installed are being used in West Bengal and Maharashtra with the latter scoring slightly better. The table

below illustrates the level of variation in achieving progress in sanitation in a large and diverse country. On the positive side there are adequate resources and systems in place for development programmes – but there is still the need to respond to a range of political and social conditions in different ways. The Table 2 features data from project performance reports of the Department of Drinking Water Supply and reflects achievements against planned targets. It does not denote sanitation coverage. It also helps to highlight underlying systemic challenges and questions whether there is a link between sanitation and Rural Infant Mortality Rates (IMR).

TABLE 2 Progress of sanitation (individual household toilet construction) - selected states

State (million)	Population* IMR**	Rural	Sanitation		
			BPL category	APL category	School toilets
Andhra Pradesh	76.2	62	57.0	43.6	53.0
Assam	26.6	70	8.3	19.9	8.4
Bihar	83.0	62	6.4	1.6	24.1
Gujarat	50.6	62	34.9	42.8	86.7
Karnataka	52.8	53	24.2	18.7	64.8
Kerala	31.8	16	70.9	83.0	60.0
Madhya Pradesh	60.3	79	26.3	17.7	48.4
Maharashtra	96.8	42	37.3	38.0	71.3
Orissa	36.8	76	31.0	8.1	38.5
Tamilnadu	62.4	39	60.0	56.7	81.0
Uttar Pradesh	166.2	75	46.0	23.5	34.0
West Bengal	80.2	40	76.0	49.5	25.0

* Census 2001

** SRS bulletin October 2007

Source: DDWS, Ministry of Rural Development, Government of India, 11.12.2007

Four highlighted states out of the 12 listed in Table 2 have a rural IMR of below 42, which is below the Indian rural average of 62. Kerala has always been the exception and an atypical trend setter with a rural IMR of 16, hence it has been kept aside for this particular analysis. Notably the remaining three states have demonstrated better performance with regard to all categories of sanitation installations – BPL, Above Poverty Line (APL) and school toilets. The explanation for West Bengal school toilet performance being on the lower side is on account of their revised ambitious target to bring all alternative schools in addition to formal schools under the remit of school sanitation. It is unlikely that there is any direct relationship with IMR in this instance, as these are not coverage figures, but what is remarkable is that these same three states have been recognised for their good governance, which is reflected with consistency between rural IMR and rural sanitation performance. In the case of Gujarat which has done exceptionally well in school sanitation, and Andhra Pradesh which is better than Maharashtra in both BPL and APL categories, the rural IMR is comparatively higher, indicating the presence of other factors at play despite these states having the reputation of good governance.

The disparity between BPL and APL coverage reveals some strategic gaps. A low APL achievement is a reflection of weak communication and lack of any specific approaches to address the APL community's needs which centres around strong social marketing to make toilets attractive and open defecation undignified. Repeated visits to houses, use of mass media, interpersonal communication, and peer-group discussions should be compelling enough to persuade these families

to buy their toilets. Wherever this has not happened, or the supply chain does not have the capability to offer design and cost options or provide low quality products, APL progress has been below expectations.

In the case of Assam and, in particular, Bihar, slow progress poses a threat to the overall achievement of the MDG. The above analysis shows that scaling-up does not happen evenly. Each piece has its own dynamics and has to be addressed by an adept programme manager. For this, it is critical to have a reliable and transparent monitoring system with high compliance levels that enables the key stakeholders to share progress. The TSC has an online system of entering data that facilitates this process. However, the strength of TSC is its decentralized implementation in which the district sanitation coordinator plays a key role in moving the different components of the programme.

Key factors for success

National pride and priority: The growing attention to sanitation and hygiene is reflected now not only in a higher resource allocation, as compared to earlier five year plans, but also its inclusion as a flagship programme among eight priority programmes for development by the Ministry of Rural Development. The national government is acutely aware of the fact that India's growing strength in the economic and technology arena is at risk on account of its far lesser success in tackling child malnutrition, public health, sanitation and poverty. The national leadership has been instrumental in enthusing and motivating states to speed up implementation. Notably young parliamentarians are coming forth by visiting projects and raising issues; this process helps in improving accountability.

Political will: The models that have succeeded have had long standing political determination to have public sanitation as a development agenda. Often this has been a matter of chance that enlightened individuals, be they politicians or administrators at the helm, have prioritised issues of sanitation and hygiene and have demanded results from the programme. Both West Bengal and Maharashtra fall into this category. Other states, namely Tamil Nadu followed by Andhra Pradesh, Uttar Pradesh, and Gujarat, have shown significant progress.

Leadership that reviews and monitors: Decisive leadership at political and management levels has been critical in steering and accelerating the programme towards its stated goals. States that hold regular reviews, analyse reports from district sanitation programme managers and conduct regular field visits have needed clarity to address road-blocks and realign resources and make strategic shifts rapidly.

Panchayats and elected representatives in management roles: In both states the Panchayat has played a pivotal role at all levels of managing the programme. This decentralised approach is a major factor for sustainability. Concerted efforts have been made to develop a comprehensive understanding of public sanitation and hygiene in the minds of the elected representatives of the local government through technical workshops, ministerial reviews and handholding for sanitation management. In West Bengal this has taken over a decade to come to fruition. Capacity building on technology, financial procedures, social mobilisation, equity and gender issues are essential as they contribute not only to human resource development but also to overall sustainability of systems.

Robust institutions: Both West Bengal and Maharashtra have well laid out management structures headed by highly competent senior officials who take pride in working in a sector that has traditionally been shunned by senior bureaucrats. Clear roles and responsibilities and the presence of an active nodal unit for communication and capacity development are important in maintaining standards and bringing lessons from field innovations into the training content.

Partnership with NGOs, CBOs and resource institutions: This has been a key feature in contributing to the rapid progress in both states. In West Bengal, the Ramakrishna Mission Loka Shiksha Parishad has been the key institution and the backbone of the sanitation movement. However there are other very competent and dedicated NGOs and CBOs playing important roles in providing field training, monitoring, mobilisation and problem solving. The 341 RSMs in each of West Bengal's 341 community development blocks are run by NGOs and their consortiums. In Maharashtra committed individuals, who have worked for decades on sanitation and environment issues, provide not just facilities for training through their NGOs but also crucial policy inputs from their vast experiences. The NGO-government partnership must be on equal terms in order to be sustainable and productive.

Private entrepreneurship in supply and service management: There is immense scope for small-scale entrepreneurs to engage in the TSC as the unmet need is still so high. The main products will be sanitary hardware and other components of water and sanitation, for example in West Bengal the RSMs in arsenic-affected areas are promoting

and selling domestic filters for treating drinking water. Others are selling prefabricated structures and doors for latrine housing. With India's economic growth and emphasis on rural infrastructure there is bound to be demand for toilet upgrading, bathing cubicles, washing platforms, and simple drainage of domestic grey water. Appropriate eco-friendly technology will be in great demand. The present burgeoning private entrepreneurship efforts have very good growth opportunities.

Mobilisation through communication drives:

Powerful, well-planned and well-executed efforts have created a groundswell in both states. With more and more areas saturated with toilets and declared open defecation free the communities have to be alert about lapses. The communication drive must be sustained. In West Bengal, for example, the blocks that have achieved 100% sanitation have put up public notices that any one caught defecating in the open is responsible for causing pollution and spreading disease and must pay a fine of Rs.50 (US\$ 1.25).

Efficient and transparent delivery system: Collective and participatory decision making with open communication and information sharing – both formal and informal – are important for a tight-knit community process for sanitation and hygiene. Trust and transparency are also of supreme importance and those who are dealing with families should have the skills to inspire confidence. In states that have done well, the delivery mechanism for toilet construction is rapid – a toilet being delivered within 15 days of collection of the family contribution matched with government subsidy. In the case of Maharashtra this does not apply.

Women's self-help groups: SHGs have demonstrated that they can operate micro-credit

very successfully, as demonstrated in Tamil Nadu, Maharashtra, and Tripura among others. In Bihar the Mahila Samakhya, a programme for education and empowerment of women introduced under the Bihar Education Project in 1992, started with a membership of 1,000 women. It now has a membership of 70,000 and is growing by the day (N.S.Moorthy). The programme facilitates the formation of village-level self help groups and provides women and adolescent girls with literacy training and opportunities to develop and act collectively. UNICEF and Mahila Samakhya engaged in a strategic partnership to enhance sanitation and hygiene in 10 districts of Bihar under the TSC. The initiative involved all 2,191 SHGs for women of the Mahila Samakhya. Led by the SHGs in 2006, Barki Chilmi and Goitha Panchayats – both situated in difficult and drought prone areas of Bihar – achieved 100% sanitation and were awarded the prestigious national award Nirmal Gram Puraskar (NGP) from the former president of India Dr A.P.J. Abdul Kalam.

Communities as managers: Participation of the very poor and marginalised still remains a challenge, yet with the rise in literacy, more girls in school and more women in SHGs their opportunities are improving. Female panchayat presidents are conducting the business of development, and in active youth groups including local sports clubs, people are able to ask questions, express choices and dissent. The Right to Information Act, although sparingly exercised, has become an empowering tool in the hands of the informed. Communities are growing in confidence in their role as partners in a process where they can hold the Panchayat and district administration accountable for delays in execution or lack of quality. Issues of corruption are raised more openly and the guilty are exposed even if punishment may take time.

Challenges ahead

The TSC has recently introduced solid and liquid waste management. In order for TSC objectives to be met in spirit a lot more needs to be done especially in the areas of animal excreta management, management of waste in an environmentally friendly manner and in enforcing hygiene practices in handling waste, which is virtually absent now. In rural areas hospital waste and other hazardous waste management is not covered under any guidelines. Even if laws exist the sheer enormity of enforcing them, supported with proper equipment, is a huge financial and administrative challenge. The external support agencies can contribute meaningfully to demonstrate viable models that are affordable.

The reduction in per capita water availability in India is a serious threat to sanitation and hygiene in the future. Minimal water use technologies and dry toilets with urine separation and its possible use as fertiliser needs to be explored in more depth. This again is an area where collaboration with ESAs will bring global benefit.

Despite the documented progress, various international publications continue to show India's improved sanitation coverage as 22% (2004), stating that there has been "no progress" towards the MDGs. With West Bengal claiming sanitary toilet coverage of over 70% and Maharashtra close behind with 52% the assessment system needs to be more dynamic.

The tipping points and next steps

Throughout the course of CRSP and TSC, select programmatic interventions and initiatives have proved to be successful enough to be scaled up, to accelerate improved rural sanitation.

The concept of sanitation as a package of products and behaviours requiring a convergent approach under the CDD Wat-San programme of the 1990s (UNICEF and GOI collaboration) laid the basis for cross-sector cooperation to generate an impact on health and quality of life.

The rural sanitary marts and production centre network has helped sanitation technology to penetrate the remotest areas of India. The 4,881 RSMS and 2,519 production centres (www.ddws.nic.in) were all established with government funding and are run by NGOs, state and district development agencies and SHGs and on a revolving basis will be expected to supply hardware, technology and skilled masons to construct 80.8 million toilets to meet government projections to achieve universal rural sanitation going beyond the MDG targets.

The focus on school sanitation and hygiene education from 2000 onwards has proven to be a flagship project of the TSC. A climate of cooperation between the Rural Development Ministry and the Education Department nationally has been mirrored in most states. More than one million schools have been benefited from the TSC and funds allocated. The potential for a generational change in attitudes towards sanitation and hygiene through daily contacts with 100 million children is overwhelming.

The Institution of the Nirmal Gram Puraskar is a national award introduced in 2005 comprising cash prizes ranging from Rs. 50,000 (US\$ 1,250) to Rs. 50 lakhs (US\$ 125,000), and certification presented by the President of India. The stiff competition to qualify for the Nirmal Gram or 'clean village' against five criteria has unexpectedly motivated states that

had previously been laid-back. The number of villages awarded Gram Panchayats has grown from 40 in 2005 to 769 in 2006 and 4,959 in 2007. As well as the recognition, award winners are encouraged to invest prize funds into further development and to mentor others.

The TSC has been running for eight years. However, with the exception of 10 of the 30 states, the rest are still struggling to catch up with their self-imposed targets. It appears that that intra-country and intra-state variations are posing challenges. Within a state there are districts that are showing exemplary progress whereas others are lagging behind. To help maintain the momentum, the following steps are recommended:

1. Strengthening monitoring and reviews by independent teams of water and sanitation professionals alongside systems reporting. These bring to the table fresh insights and suggestions for improvement. Analytical management based on both quantitative and qualitative indicators must replace routine monitoring which often mask weak spots that require investment of additional resources.
2. Introducing / strengthening participatory practices where communities themselves work on self-set goals, monitor results and come up with practical solutions.
3. Capacities of NGOs and CBOs must be built on an on-going basis in order for them to work as equal partners; NGOs and CBOs in their thousands are supporting the TSC; many of them have very limited capacity to deliver results – this leads to setting unrealistic goals, ending up in unreliable data; this vicious cycle damages programme sustainability.
4. Networking with resource institutions and energising the networking by involving them in various aspects of the programme will bring vigour into the programme and improve institutional capacity. This is happening but needs to be increased by providing small / medium grants to institutions that have proved their credibility or have demonstrated the potential to develop and apply the key principles of TSC to produce results.
5. Both hardware and software often do not conform to standards. Rigour and quality are two elements of the programme that continue to lack in strength and could do with the input of best global practices.
6. TSC must diversify and embrace urban areas too. Neglect of urban India is impacting on public health, for example. India's IMR is 57 as of 2007. Technically this is not feasible under the present system as rural sanitation is under the administrative control of the Rural Development Ministry; sanitation and hygiene must now become the priority of one body with different ministries managing the relevant components.
7. Gender and equity must be central to the monitoring progress. The question to be asked is what and how much have the lives of the 10 poorest families in each village been improved? Are there any women-headed households that do not have safe water and sanitation facilities, for example?
8. Introducing mechanisms to measure the impact on the environment. There is insufficient experience of the impact of post-sanitation activities such as pit emptying, the use of the composted excreta as fertiliser, the feasibility of commercial marketing from public toilets, the conversion to bio-gas and use of clean fuel to gain carbon credits, and many more.

9. Promoting private entrepreneurship including preparing for disaster. Droughts occur cyclically; floods appear every year – these predictable events have helped lead to the development of sanitation hardware that is lightweight (made from HDP) and can be quickly assembled when large tracts of land

are submerged under water. However this operates on the premise that government or external aid agencies will provide the funds to provide them as part of an emergency package. This is not sufficient – more aggressive marketing is required to inform communities about preparedness measures.

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