Changing paradigms in the supply of sanitation to marginalised groups - 30 years of challenges in Mumbai

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Abstract: Water-borne and poor sanitation related diseases still account for much of the morbidity and mortality in India. Out of the 300 million urban dwellers in India, 22.6% reside in slums. This paper aims to examine the sanitation conditions of slums in the city of Mumbai. About 6.9 million slum dwellers are residing in almost 2000 slum pockets in Mumbai, which constitutes 54% of the population of the city. Most of the slum households depend on inadequate public toilet facilities of very poor quality. Efforts and investments in sanitation have failed to alleviate the situation, as the local population has not been involved. Only recently a demand-driven approach has been applied largely inspired by experiences in rural sanitation programmes. Still supply-driven initiatives by short-term political interests are, to some extent, eroding the resources available for sanitation. However, experiences from the last decade locally and globally, reveal that the demand-driven model is a way forward.

Key words: Marginalised groups, urban sanitation, participation, sustainability, Mumbai

1. Introduction

India has made noticeable progress towards fulfilling the national and international goal of providing its citizens with access to improved domestic water supply and sanitation. However, the country is still experiencing challenges in terms of reaching the last of its rural population and urban poor. annual report on rural development 2005-06 This is further compounded by the fact that the country now faces an even greater challenge in terms of sustaining the level of provisions that have already been provided, so that those served now can continue to use the improved facilities in the future. The growing pressure on water resources and the decentralisation of domestic water supply and sanitation to local state governments, brings challenges that India is striving to meet in order to provide its population with two of the most basic human requirements: a reliable and sufficient supply of safe water and decent sanitation.

The concept of sanitation includes many dimensions such as liquid and solid waste disposal, food hygiene and personal as well as environmental hygiene (Avvannavar and Mani 2008). There are many definitions of environmental sanitation. The Water Supply and Sanitation Collaborative Council of India (WSSCC) defines it as (a) the promotion of hygiene and (b) the prevention of disease and other consequences of ill-health related to environmental factors (www.wsscc.org). Environmental sanitation has two dimensions, environmental factors and sanitation practices. Environmental factors include disposal of human excreta, household sewage and other waste likely to contain infectious agents, drainage water, domestic water supply, and housing. All of these have an impact on the transmission of infectious agents and incidences of diseases. Sanitation practices refer to the various hygienic practices of the communities, as well as their knowledge and skills governing their behaviour.

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2. Impact of environmental sanitation on marginalised groups

Water and sanitation related diseases such as diarrhoea, parasitic infections, and eye infections, account for much of the morbidity and mortality in developing countries (Stothard et al. 2008). India is no exception to that (Cooper 1997), as around 3.3 million people die yearly due to diseases resulting from poor sanitation. A large investigation from Mumbai covering 1070 households show that poor sanitary conditions were responsible for at least 30% of the morbidity (Karn et al. 2002). The worst affected were the pavement dwellers.

It is an established fact that open defecation is a serious threat to environmental sanitation (WHO/UNICEF 2008; WHO 2007). About 30 million persons in rural areas suffer from sanitation related diseases and five of the top ten killer diseases of children 1-5 years of age are related to water and sanitation. Approximately 0.6 to 0.7 million children die of diarrhea annually in India. Typhoid, dysentery, gastroenteritis, hepatitis and malaria claim the lives of over a fifth of the children aged 1-5 in rural areas. Nearly three million workdays are lost annually due to water and sanitation related diseases. This is equivalent to an economic loss of Rs 12000 million (~ 260 million USD) (Central Bureau of Health Intelligence and Ministry of Health And Family Welfare, 1998-99). Estimates also suggest that nearly 65% of the Indian population still defecate in open areas. This results in a faecal load of 200000 metric tons per day which finds its way into soil and water bodies contaminating them with pathogens. The practice of open defecation is reinforced by traditional behaviour, the lack of latrines and lack of awareness concerning the health threat posed by it (Banda et al. 2007). Internationally there are many examples of the difficulties of providing water and sanitation services and maintaining them (Gathuru 1994; Schouren and Mathenge 2010).

Poor sanitation and water quality play a significant role in spreading infectious diseases. United Nations Children's Educational Funds (UNICEF 2012) estimates that about 4 billion cases of diarrhoea per year cause 2.2 million deaths globally, with a majority of the victims being below five years of age indicating a significant relationship between drinking water quality and child mortality rate. The World Bank (2006) also estimates that in the Indian context, 21% of all communicable diseases are water related and every year 1.5 million children under 5 years die due to water related diseases (Srinivasulu and Haripriya 2006).

3. Sanitation in urban areas

Access to safe drinking water and basic sanitation can have a strong positive effect on human health (Raza et al. 1998; Fotso et al. 2007, Marobhe 2008). A recent cost-benefit analysis by WHO (2007) showed that achieving the global Millenium Development Goal 7 for water and sanitation would bring substantial economic gains from both health and other benefits. Each US $ invested would yield an economic return of 3 to 34 US $ depending upon conditions. This benefit would include an average global reduction of diarrhoeal episodes of around 10% (Bartram et al. 2005). Even local real life situations have shown the provision of sanitation to pay off (Meddings et al. 2004; Butala et al. 2010).

As of 2011, the percentage of urban population in India is only about 31%. However, the flow of rural migrants to urban areas in search of livelihood and the attraction of cities and towns have created additional pressure on existing local amenities and urban infrastructure resulting in acute shortage of affordable housing to the majority of the new city dwellers, giving rise to slums and shanties and unhygienic areas in the urban areas. The total slum population in the country is 40.3 million comprising 23% of the total urban population. According to the census 2001, around 54% of the population in Mumbai lives in slums. Nearly 65% of Mumbai's population of 13 million (2011) , i.e., about 8 million people live in slums, of which 50% live in authorised

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slums with some toilet facility. The other 50%, i.e., about four million slum residents have no choice but to ease themselves in the open spaces, along roads, highways, railway tracks, parks, playgrounds, open plots and beaches. During monsoons, this excreta flows through open drains and nallas into the storm water drains and gets discharged right near the coast ().

The Government of India through the Ministry of Urban Development has taken up a number of sanitation related programmes in the past (Government of India 2008a). The first Sulabh Shauchalaya, (a type of latrine) introduced by Dr. Bindeshwar Pathak, Stockholm Water Price winner 2009, was constructed at Asiad Bus Stand in 1988 with financial support from the HDFC (Housing and Development Finance Company). Until 1989, labour for maintenance was also provided by the SWMD (Solid Waste Management Department), later the project was modified, so that the BMC (Brihanmumbai Municipal Corporation) paid for construction and maintenance Public Sanitary Convenience (PSC) Blocks. With this model, 309 public sanitary blocks were constructed, of which 243 were funded by BMC while various donors funded the rest. Of these, approximately 200 blocks are in slum areas while 100 are in commercial areas (State of Governance 2006).

After the success of this project, other NGOs came forward such as Jan Seva Labour Society, *Paryay Samajik Santha* and *Lok Seva Sangam*. They were willing to construct and maintain PSC blocks at their own cost. The project was therefore further modified. The organization now has to approach the concerned ward office to obtain a no objection certificate for 30 years operation and maintenance from SWMD. However, the BMC cannot actually deny permission for the constructions of a PSC block since the application almost always comes through some political backing. At present there are 450 NGOs taking up Sulabh-line work. They recover their cost by charging Rs. 1 per use in the market areas, and Rs 100 per month in the slums. After March 2002 the NGOs now also have to pay the water and electricity costs. Therefore, the price has now increased to Rs 2 per use. At Rs 1.2 million per PSC block, the entire cost amounts to Rs 4 800 million. The renovation of existing toilets would cost another Rs. 2000-3000 million (State of Governance 2006).

In view of the poor condition of slums and its impact on health, financial resources under various heads are also available for Local Area Development under corporate funding for Members of Parliaments and Members of Legislative Assemblies. In urban areas, it has been observed that lot of financial resources of this kind have been utilized for sanitation activities to strengthen the electoral politics with short-term perspectives. Central agencies like Housing and Urban Development Cooperation (HUDCO) also provide financial support for sanitation related activities to a number of state governments. It can be concluded that there is no dearth of financial resources for sanitation in connection to electoral politics.

Table 1: Per cent of urban population with water supply and sanitation access in India

Item	***1991***	***2001***
Access to safe water	82.4	97.9
Access to piped water	64.8	75.2
Individual connection	*42.9*	*51.0*
Public standpipe	*21.9*	*24.1*
Access to improved sanitation	72.4	82.1
Access to sewer	25.2	35.9

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Access to septic tank	21.0	27.2
Access to latrines	26.2	19.0

Source: World Bank, 2006

Table 1 shows accessibility of safe water and sanitation to the inhabitants of urban India in 1991 and 2001. Although a significant improvement has been made in terms of access to drinking water, it is remarkable that access to latrines has decreased during the same period. However, the time frame in the table covers a period when activities have been supply driven, installed without involving the local population, and there was hardly any effort to engage the community in planning, design and construction of the sanitation. Gradually, in the 1980s and 1990s evidence came forward that community engagement and participation provides more sustainable water supply and sanitation (e.g. Stanton et al. 1987; Manderson and Mark 1997; Hadi 2000).

Overall, it has been observed that the supply model created a nexus between contractors, politicians and bureaucrats in the provision of services. This nexus, in turn, has led to lack of participation by the people and poor quality, ultimately resulting in an pathetic response from the community. Therefore, the toilet blocks constructed under such a regime remain unattended by local municipal bodies as well by the users themselves. This lack of maintenance and day to day cleaning of the public toilets ultimately leads to deterioration of structures and create unhygienic situation in and around the sites. In the majority of cases, we have found these toilet blocks without water and electricity services, leading to the situation whereby not even a minimum of cleanliness is maintained. It is expected that these toilet blocks should be repaired and kept in clean condition by local urban bodies. However, due to financial constraints and lack of sufficient human resources, these local bodies are unable to maintain the toilets. It is also admitted by government sources that "large capital investments are rarely matched with detailed arrangements – both practical and financial – for future operation and maintenance" (Government of India 2008b).

4. The government´s initial response to environmental sanitation

The 6th Five Year Plan (1980-85) stressed the importance of safe drinking water supply and the importance of improving the quality of the environment (Sunshine 2002). As a part of the 7th Five Year Plan the Government of India launched the Central Rural Sanitation Programme (CRSP) to complement the efforts of the state governments. Chakravarty (1990) gives an overview of the programmes involving application of science and technology to drinking water supply during this plan. The 8th and 9th Five Year Plans continue to maintain a strong emphasis on rural water supply and sanitation (Fig. 1) (http://planningcommission.nic.in/report/publications/index). The water and sanitation sector entails the aspect of Universal Service Obligation (USO), an international expression which stresses the obligation to supply basic services equitably at an affordable price. USO is an obligation that is placed on service providers to enable access of services by all segments of society, which is important for economic growth and general well-being. In independent India, the principles of USO have been embodied in the constitution under Articles 38, 39(1), 39(2) and 47.

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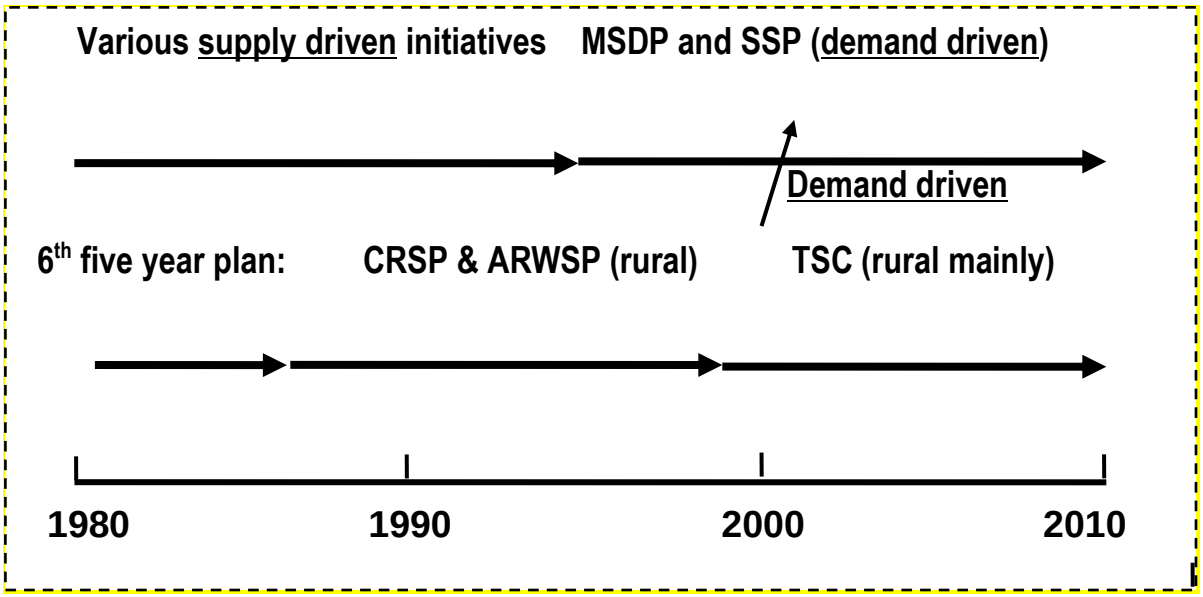

As per the Constitution of India, water supply and sanitation are the responsibility of state governments. Following the 73rd and 74th constitutional amendments the state may give the responsibility and powers to the Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs) both representing local communities. However, the central government also plays a very important role in planning and monitoring the programmes. As per the Census of India 2001, only 36.4 % of the total households of the country had latrines within their households. The figure is even lower in rural areas, 21.9 %, and out of this, only 7.1% households have latrines with flush toilet and only 34.2% households had drainage facilities for waste disposal. As per the annual report on rural development 2005-06, 20% of rural inhabitants have access to sewerage and sanitation facilities.

An initial thrust in improving the quality of life for rural people came when Central Rural Sanitation Programme (CRSP) was introduced through the Government of India in 1986. An important aspect of this programme was to provide privacy and dignity to women. However, this programme was still supply driven, highly subsidized and placed emphasis on a single construction model. The programme thus provided 100% subsidy for construction of sanitary latrines.

The central government supplements the efforts of the individual state governments in the field of rural sanitation under the Central Rural Sanitation Program (CRSP) launched in 1986. This program was restructured in 1999 when the Total Sanitation Campaign (TSC) was introduced (Figure 1). The TSC envisages a synergetic interaction between government, people and active NGO participation, as well as the provision of alternative delivery systems and more flexible demand oriented norms.

The revised 10th Five Year Plan strategies envisaged a shift from an allocation based programme to a demand based project mode. The strong emphasis on rural water supply and sanitation in the previous Five Year Plans had obviously yielded positive results and this is mirrored in the revised version of the 10th Plan. The sanitation awareness campaign introduced 2003 in TSC, called Nirmal Gram Puraskar, is given special attention in the 11th Plan as it has been a great success to the extent that a special award is given to villages which have succeeded well. Thus it is quite evident that the "software" part of TSC acts as a guide for the introduction

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of new sanitation in urban slum areas. The technology is of course inherited from previous urban experience (Government of India 2008b).

Beside this paradigm shift, the revised version envisaged a greater household involvement and emphasis on school sanitation. Rural water supply systems were taken up under the programmes of community development, local development works and welfare of backward classes. These were supplemented by the national water supply and sanitation programme of the Ministry of Health. The latter was confined to the groups of villages where the tapping of water resources required a measure of technical skill. In executing this programme, emphasis was laid on providing water to areas suffering from water scarcity and salinity and where water borne diseases were endemic. At an estimated cost of Rs 270 million, 1764 schemes were completed during the third plan.

During the fourth annual plan that followed 478 schemes at an estimated cost of Rs 210 million were undertaken and are at various stages of execution. The work done in 1961-69 added 6000 village to those having piped water supply (Jetli and Sethi 2007). The programme under community development, local development works and welfare of backward classes included the constructions and renovation of wells and the installation of hand pumps. The number of such wells at the end of 1968-69 was estimated as being 12 million. Realizing the weakness in CRSP Government of India revised its strategies and CRSP was restructured in 1999 and TSC was launched. TSC is being implemented in 350 districts of the country with funding from Government of India and respective state governments with some share from beneficiaries. In some cases the contribution from users was a major portion like in the Midnapore model in West Bengal (Banerjee and Mandal 2011).

Up until 2001, 4.4 million rural households constructed toilets under TSC. At the same time over 1 750 women´s complex, 41 854 school toilets, 5 238 anganwadi toilets (child-mother care centres) and 618 production centres of rural sanitary marts have been set up. Under this programme there is tremendous scope for public-private partnership. The mobilization especially of women has been found to be of primary importance (Manderson and Mark 1997; Rao et al. 1997). On the whole community participation has yielded useful results in the rural areas as per a summing up by Ghosh (2006). Community participation in rural areas can be extended to what Murray and Ray (2010) call back-end users, those who could potentially benefit from using the products from sanitation in agriculture as bio fertilizers and for biogas and bio fuel. However, greater community partnership and behavioural change among the rural population need to be addressed while implementing the programme.

5. The main features of the Total Sanitation Campaign (TSC)

Rural sanitation is promoted as a total package consisting of safe drinking water, disposal of waste water, safe disposal of human excreta including child excreta, solid waste disposal, domestic sanitation, food hygiene, personal hygiene and village sanitation. The salient features of TSC are - shift from high subsidy to low subsidy, greater involvement of households and community, technical options as per the choice of the beneficiaries, stress on IEC (Information, Education and Communication), emphasis on school sanitation, tie up with other rural development programmes, and promoting of access to institutional finance.

Under the 10th Five Year Plan the outlay for rural sanitation is around US $ 1.19 billion out of which the share of Government of India is 67% and that of the state governments 33%. A special case is the so called Midnapore model in West Bengal where almost all the cost is covered by the users but with strong management support from NGOs (Banerjee and Mandal, 2011).

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With consideration of the experiences from the TSC a number of innovative programmes are being initiated through external aid. It is realized that the age old supply driven approach in providing sanitation is no longer effective neither for the stakeholder nor in terms of sustainability (Kjellstrom and Mercado 2008). The demand driven community led approach in providing sanitation services has, however, been yielding positive results in rural India. The necessity to involve the stakeholders from the beginning to achieve results is experienced also in connection with other issues intended to develop the society besides water and sanitation (Neudoerffer et al. 2001; Véron 2001). Moreover, many recent reports from other countries confirm the necessity to mobilize the community (Ali and Stevens 2009; Sah and Negussie 2009; Schouren and Mathenge 2010; Rheinländer et al. 2010). Such experiences have been expressed and recommended in an official statement (Jain 2003).

On this basis, it can be said that the slum dweller´s participation in maintaining and operating the urban infrastructure is going to be a cornerstone in future service delivery mechanisms. However, a focus on modern education on sanitation may be needed (Rheinländer et al. 2010), in order to match the government and community priorities. A complicating factor in Mumbai is the mix of slum dwellers with different ethnic origins and religions and their different views on sanitation (Nawab et al. 2006; Banda et al. 2007). Interestingly, Banda et al. (2007) found in a village environment in southern India that only children below the age of 15 had the custom of washing hands after defecating. This clearly indicates that school sanitation and education helps in establishing better hygiene. Obviously education would be needed for adult as well and notably for women who primarily handle the food.

6. Slum Sanitation Programme (SSP) of Municipal Corporation of Greater Mumbai (MCGM)

Mumbai, the commercial capital of India is the second largest urban agglomeration in the world (World Urbanisation Prospects 1994). It is a city with over 12 million inhabitants where more than half (54%) reside in slums and shanties locally known as *zhopaddpatis*. The slums are generally segregated in a religious and cast pattern. The largest slum area Dharavi hosts about one million people and the majority of them originate from Tamil Nadu belonging to the Paraiyar caste. This segregation has periodically resulted in communalism. While most slum inhabitants have access to electricity, piped water is available only to half of them. Regarding sanitation the situation is even worse and closely related to income ((Takeuchi et al. 2008). There is tremendous lack of sanitation and the structures that do exist are in such bad condition that women consider defecating in open air in spite of their need for privacy (Burra 2005). Moreover, they do not want their children to use the toilets because of the risk of falling down.

The spectrum of living conditions in the slum is tremendous from those having an income and housing, albeit poor, to pavement dwellers (Karn and Harada 2002). The quality of life here is deplorable due to poverty and poor environmental conditions. The major reason for the deteriorating environmental conditions is the ever increasing population pressure on the already fragile infrastructure of the city. To give an example, Mumbai generates 8000 metric tons of garbage daily. Mumbai Municipal Corporation is struggling to keep the city clean but a minimum standard of cleanliness has yet to be achieved. Similarly a large number of Mumbai´s slum dwellers are dependent on toilet facilities provided by Municipal Corporation of Mumbai or through Maharashtra Housing and Area Development Authority (MHADA). However, these facilities are not adequate. Therefore, visible open defecation and unhygienic conditions are prevailing all over the city. Due to this, the coastal creeks are heavily polluted.

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In the earlier programmes community participation as a component was not inbuilt and users were considered as passive recipients of services. This approach did not recognize the role of various stakeholders and the principles of sustainability. Toilets were constructed without consultation and without the participation of potential users and the ownership of the toilets were not with the community. The day to day cleanliness, operation and maintenance of these toilet blocks was not envisaged. This lack of maintenance and availability of water and electricity resulted in the deplorable conditions of the toilets. One reason behind the short life-span of the sanitation was that there were often short-term interests of political nature behind the introduction.

Knowing the seriousness of the problem Mumbai Sewage Disposal Project (MSDP) was launched with financial aid from World Bank, with the inclusion of the construction of two marine outfalls at Worli and Bandra. A component of slum sanitation was also included and 9% of the total budget of MSDP was earmarked for this project. This slum sanitation programme is a clear deviation from the earlier supply-driven approach. The new programme has considered the greater role of community in planning, design, construction, operation and maintenance of the toilet blocks (Nitti and Sarkar 2003). This community participation is ensured through systematically identified qualified community based organizations and by asking users to generate financial resources to maintain the toilet blocks by through the use of monthly passes issued to the user families for a nominal fee.

In 1995, the World Bank approved a seven-year loan for the Bombay Sewage Disposal Project (BSDP) with the main objective of strengthening the capacity of the Municipal Corporation to provide sewerage services. The project was mainly targeted to the undertaking of large and specialized sewerage works. One of its primary objectives specifically aimed at is "improving the health and environmental condition in Greater Mumbai, including slum dwellers". In order to achieve the latter the Slum Sanitation Program (SSP) was added to the project.The salient features of toilet blocks constructed under the Social Sanitation Programme are - planning of the construction and maintenance with the users; construction with a minimum 30 year life span; planning for the construction and maintenance with the users; provision of water and electricity; suction and overhead water tanks with pumps; the use of durable, good quality construction material, provision of a caretaker room to ensure safety of the toilet block, provision of other facilities such as children´s squatting platforms, bathrooms, urinals etc.; provision of suitable disposal arrangements such prioritizing the connection of toilet blocks to existing sewer network, provision of safety tanks and aqua privy toilet.

While the technical issues are well developed after many previous urban sanitation programmes and summarized in a recent publication from the Government of India (Government of India 2008b), the main concern is the first point regarding the mobilisation of the users not considering them as passive receivers but active contributors who are worthy cofactors (Chaplain 2011; Nitti and Sarkar 2003).

7. Partherships with NGOs/CBOs (Community Based organisation) along with other stakeholders

It is considered by some that the introduction of sustainable sanitation is more of a socio-institutional matter than technical (Brown and Farrelly 2009; Padawangi 2010). However, in practice, it is about integration of technology, education and community participation (Byars et al. 2009). Another important issue is that the time frame taken into account in the mobilisation of

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the users should cover the whole span from mobilization via decision making to construction and maintenance (Nance and Ortolano 2007). Recently, still another activity, regular monitoring of the function of water supply and sanitation has been introduced by some actors (Fogelberg 2010).

Thus, to implement this innovative approach the tender´s procedures were suitably designed to ensure a community led approach. In this process contractors/NGOs were expected to form joint venture to implement construction activities along with community mobilization with the help of NGOs. Experience from Bangladesh shows the importance of NGOs in introducing sanitation (Hadi 2000; Ali and Stevens 2009). In this process NGOs such as SPARC, YASHASWINI FOUNDATION, NEWS, APNALAYA, YUVA, SLUM REHABILITATION SOCIETY and SIDDI were involved for implementing the software educational activities related to the community. SULABH INTERNATIONAL has successfully implemented the programme when introducing toilet facilities to different parts of India. For the construction, NGOs such as Society for the Promotion of Area Resource Centres (SPARC) and another two contractors were involved through the tendering procedure. However, although the programme was initiated in 1997, it only gained momentum from the year 2001.

8. Achievements and constraints

Under this programme a total of 341 work orders were issued up until October 2005. Out of this the construction of toilet blocks was started at 327 sites and a total of 295 toilet blocks were handed over to the community. Under the programme, 309 CBOs were identified and 288 CBOs were registered at charity commissioner´s office. Totally 288 CBOs have opened joint accounts in the banks and formal process of signing Memorandum of Understanding with the concerned CBOs is under process. The community was expected to collect 27.9 million Rupees for the operation and maintenance of these toilet blocks. Out of that total, 14.7 million was collected by the CBOs. The concerned CBOs have successfully taken over the responsibility for the operation and maintenance of these toilet blocks. The day to day cleanliness, maintenance and management has been looked after by the CBOs on behalf of the slum dwellers. It has been observed that open defecation has been reduced to a large extent and the women and children have clearly benefited. There has been clear improvement in the environmental sanitation and health conditions.

9. Future challenges

Mumbai is rated as a major international centre in the era of globalisation. Knowing the commercial potential of Mumbai, urban planners are in a hurry to visualize Mumbai as equaling Shanghai, a competing megacity (Panagariya 2008). However, these efforts remain futile unless the sanitation needs of the growing city are not seriously met. Most of the slum dwellers have access to electricity but access to water is available for only half of them. A survey conducted in 2001 showed that for 6.9 million slum dwellers of Mumbai residing in almost 2 000 slum pockets a total of about 125 000 toilet seats are required (at the rate of 1 seat for 50 users).

At present there are 77 500 toilet seats and 9 665 toilet blocks all over Mumbai. 80% of those are in dilapidated condition and without water and electricity connections. A further 9 554 toilet blocks requires urgent repairs. Even if repairs are made there still remains a deficit of 65 000 seats all over Mumbai. However, the first phase of SSP has demonstrated a small success story against all odds. The main achievement of the SSP is the participation of the urban poor in the design, construction and maintenance of new community toilets (Chaplain 2011). The

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evaluations so far are positive but suggest several changes in the participatory approach (McFarlane 2008; Burra 2005; Sharma and Bhide 2005). This needs to be replicated in future with proper review of earlier programmes. Municipal Corporation is already heading towards the second phase of SSP with a total outlay of approximately 4 000 million Rupees resulting in another 35 000 seats. This second phase of SSP is still in preparation. However, there is still a lack of recognition of the importance of the poor sections of the society in terms of work force, demonstrated by the massive slum eviction in 2004, destroying some 50-70 000 shanties (Hasan et al. 2005; Burra 2005).

However, the BMC is determined to build on the positive experience of the SSP and scale up at city level, aiming at universal coverage of sanitation for slums. In scaling up, the municipality is contemplating the adoption of an integrated approach, combining the sanitation scheme with a water program, and using sanitation as an entry point for the provision of a bundle of other key environmental services, like solid waste disposal and drainage improvement. On the institutional side, the next step is to fully integrate the SSP in the BMC structure and enhance the coordination between complementary sector departments (both within and outside BMC) and land owning agencies. The future of SSP also entails a wider involvement of finance institutions and private enterprises/corporate sector, while ensuring that community groups maintain the role of equal partners. It will also increase the sanitation choices available to slum dwellers by formalizing and regulating some of the innovations currently under implementation (Nitti and Sarkar 2003).

A software education component (a model to know the basics for water and sanitation) in terms of education and information would further strengthen the health as well as the economic gains. It is worth noting that even this software component needs to be developed with community participation (Whaley and Webster 2011). This was practised already long ago by Stanton et al. (1987). A message on the advantages of proper sanitation has to be in a form so that illiterate potential users can appreciate it (Ndiaye et al. 2010). Another important lesson is that improvements like introduction of urine-separating latrines need to be developed in close cooperation with the users, demonstrated especially by CREPA, a regional water and sanitation organisation in French-speaking West African countries (Öman et al. 2009). The fraction of public support relative to the contribution from the community is an issue that needs to be considered in each environment (Harvey 2011).

Transparency throughout the process of introducing sanitation is positive for the community participation (Schweitzer and Mihelcic 2012). Typically the difficulties met with in community participation are larger in urban slum areas like in suburban Nairobi (Schouren and Mathenge 2010) than in rural areas (Sah and Negussie 2008). NGOs are facing a considerable challenge to show flexibility in any new environment (Hasan et al. 2005; Baruah 2007). Thus, there are many challenges to meet in the introduction of functioning sanitation for marginalized groups in environments like those met with in Mumbai. However, the demand-driven approach, both in rural areas in India and internationally has been proven to offer a way forward for a more sustainable sanitation to be materialized in Mumbai slum areas. Even in Government documents (Government of India 2011) “demand responsiveness” is mentioned as a key factor for success in sanitation coverage notably in urban areas while this has been successful to a considerable extent in rural areas.

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