

Environmental and rural sanitation in India: The role of Gram panchayats in sanitation and development.

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Abstract

This article aim at finding the socio-economic factors determining sanitation coverage in a developing country like India. If we analyze the National Sample Survey data of India, the analysis finds that income has a low impact on sanitation, while non-economic factors have an higher impact on access to sanitation. Use of latrines depends on gender, age, and education of the household head. Both access and use also depend on the main occupation, religion, and caste of households. Access to water supply also impacts access to and use of latrines. Households headed by younger people or those living in hired houses are more likely to access public or common latrines. Access to sanitation also depends on the region and hence the norms and customs of the region. Quality, cleanliness of latrines and other personal preferences matter in the use of latrines. Public and community toilets for youths, more than one latrine for larger households, and social campaigning are suggested for public policy. The methods of the study is based on both primary and secondary data. In present study, the data is collected based on simple random sampling method and data is analyzed in full length paper. The sample size for the study is 100 respondent from two gram panchayats Mangalavada from Pavagada Taluk and Mayasandra from Turuvekere Taluk of Karnataka state. A questionnaire is designed to determine the status of usage of toilets both household latrines and community latrines, to examine the habits of sanitation, to analyze whether the diseases caused due to lack of sanitation is prevented or not. Variables identified are gender, education, occupation, construction of latrines and their uses.

Key words:- Rural sanitation and Environmental development, Sanitation and Hygiene practices, sanitation and rural development.

INTRODUCTION

If we analyze the World Bank Review Report, in 2015, the share of population with improved sanitation was 40% in India, while it was 61% in Bangladesh, 64% in Pakistan, 78% in Vietnam, and 95% in Sri Lanka. However, the GDP per capita of India is higher than its neighboring countries Bangladesh and Pakistan. This indicates that inadequate coverage of sanitation in India may not be solely attributable to low income but also to other embedded factors including culture, social customs, behavior, and institutions. Lack of sanitation contributes about 10% of the global disease burden including diarrheal diseases and stunting (Mara *et al.* 2010; Schmidt 2014). According to UNICEF Report, India shared a 38% global burden of stunted children in 2011. Almost half (48%) of the children younger than five years of age are stunted in India. Chambers & Von Medeazza (2013) argue that undernutrition in India is attributable to lack of sanitation. Nevertheless, it is difficult to achieve improved sanitation coverage, especially in developing countries including India. The political will of the government and non-governmental organizations (NGOs), person-to-person contact, and political ecological factors including assured access to water, compatible soil type, and changing land use impact sanitation behavior (O'Reilly & Louis 2014). This paper investigates the economic and non-economic factors that determine sanitation coverage in India. Among the non-economic factors it focuses on education, region, religion, caste, and household size. The lower castes are only responsible for disposing of human excreta from public and private latrines (Srinivas 2002; Ramaswamy 2005). Tiwari & Nayak (2017) revealed that income, caste, and education are significant determinants of access to improved toilets in Indian cities. Studies also found that caste-based notions of purity and pollution make the simple latrines unattractive to rural Indians (Hathi *et al.* 2016). Apart from caste, this article looks into the impact of household size on sanitation behavior, and is the first of its kind. Conditions of housing and community infrastructure, such as availability of water, have also been considered in the analysis. Instead of analyzing unobservable social cost and benefits, this article focuses on observable factors which might impact social costs and benefits; the latter, in turn, have implications for household decisions regarding sanitation.

Socio-economic factors, such as norms and practices, have a profound impact on sanitation through the collective behavior of the society. As private behaviors in sanitation have a very high public impact, collective behavior change is required to get rid of any negative

impact of open defecation in rural areas. (McGranahan 2015). The cultural norms regarding human waste may create barriers for the development of appropriate and cost-effective excreta management systems (Jewitt 2011). In Africa, the historical and socio-economic factors embedded in cultural and religious beliefs and values are major hindrances for universal water and sanitation coverage (Akpabio & Brown 2012; Akpabio & Takara 2014). Traditional notions of purity and pollution make it difficult to construct pit latrines that require emptying in the future. It is a time-consuming process to transform separate polluting (toilet) areas (as distinct from pure spaces at home) to a modern attached bathroom (see Srinivas 2002). Social networks are important for abandoning the practice of open defecation, as found in studies of peri-urban and informal settlements in Africa (Tukahirwa *et al.* 2011; Kennedy-Walker *et al.* 2015). A combination of income, education, and exposure to better information influences household decisions for in-house sanitation (Akpabio & Brown 2012; Tiwari & Nayak 2017). The cultural norms for sanitation are likely to vary with the region and ethnic identity of the household (Jewitt 2011), which the article takes into account.

Background:

Before Independence, In 1857, a Royal Commission was appointed to examine the regulations affecting the sanitary conditions of the army along with other medical aspects. The large number of deaths of British soldiers due to cholera, diarrhea etc., was mainly due to poor sanitary conditions and there was a realization that the main enemy of the British soldier in India was not the Indians but the diseases. **The British government introduced the first Sanitation Bill in India in 1878**, which made the construction of toilets compulsory and also proposed the construction of public toilets

RURAL SANITATION PROGRAMMES IN INDIA AFTER INDEPENDENCE

The Environmental Hygiene Committee (1948-49) appointed by the government of India carried out an overall assessment and planning of environmental sanitation and recommended a 40 years plan to cover 90 per cent of the population. However, the National Water Supply and Sanitation Committee appointed by the Union Ministry of Health as late as 1960, has noted in its report that no concerted efforts were taken to implement the recommendations of the

Environmental Hygiene Committee. It was in 1954 that the rural sanitation programme was introduced in the First Five Year Plan (1951-56) as part of the health sector. However, the efforts did not succeed until 1980s due to confusion and inconsistency on the sanitation component. Since the beginning of the Sixth Five Year Plan (1980-85) and the launch of the International Drinking Water Supply and Sanitation Decade in 1980, India has been strengthening its effort to rural water supply and sanitation. Tasks like planning, implementing, supervising and coordinating for the **Central Rural Sanitation Programme (CRSP)** were entrusted to the Ministry of Rural Development in 1986. The government of India introduced the **Accelerated Rural Water Supply Programme (ARWSP) in 1972-73**. During 1974-75 the Minimum Needs Programme (MNP) was introduced.

The National Drinking Water Mission was launched as one of the five societal missions in the year 1986. The mission has been named as **Rajiv Gandhi National Drinking Water Mission (RGNDWM) in 1991**. Some of the programs has been implemented by the government of India. They are as follows:-

CENTRAL RURAL SANITATION PROGRAMME- 1986, Integrated rural water supply and sanitation programme, Karnataka integrated rural water supply and sanitation programme, Swajaladhara, Jala Nirmal Yojana, Total Sanitation Campaign-1999, Nirmal Bharat Abhiyan, Nirmal Gram Puraskar (NGP) an incentive program that sought to recognize the achievements and efforts of Panchayati Raj Institution (PRIs) in encouraging full sanitation coverage in their Gram Panchayats.

The Swachh Bharat Mission (SBM) emanates from the vision of the Government of India as a tribute to Mahatma Gandhi on his 150th birth anniversary to be celebrated in the year 2019 to ensure hygiene, waste management and sanitation across the nation. The Prime Minister of India has launched SBM on 2nd Oct. 2014.

COMPONENTS OF SBM

The Swachh Bharat Mission has the following components:

1. Household toilets, including conversion of insanitary latrines into pour-flush latrines
2. Community toilets
3. Public toilets
4. Solid waste management

5. IEC & Public Awareness

6. Capacity building and Administrative & Office Expenses (A & OE)

By Public Toilets, it is implied that these are to be provided for the floating population / general public in places such as markets, train stations, tourist places, near office complexes, or other public areas where there are considerable number of people passing by.

By Community toilets, it is implied that a shared facility provided by and for a group of residents or an entire settlement. Community toilet blocks are used primarily in low-income and/or informal settlements / slums, where space and/or land are constraints in providing a household toilet. These are for a more or less fixed user group.

According to analysis Report, The increase in toilet facility during last ten years from 2001 to 2011 was at the rate of just one per cent every year. At this rate India could achieve universal sanitation only by 2081.

Review of literature

1. One of the studies Fewtrell examined was Azurin et al. (1974), which used data from a fieldstudy on four communities in a Philippine city to examine the impact of better sanitation on cholera rates. Azurin said improved sanitation could reduce cholera incidence by up to 68%. The second study, Daniels et al. (1990), examined the impact of latrine installation and hygiene education on households in Lesotho using a case-control design, and estimated that children under five in households with latrines could have 24% fewer diarrhea episodes than those in households without latrines mainly due to improper implementation of policies in the Gram panchayats.
2. The salutary effects of improved sanitation are widely acknowledged. In an online poll conducted in 2007 by the British Medical Journal on 'the greatest medical advance since 1840', over 11,000 people voted 'the sanitary revolution' to victory (Ferri man 2007). The United Nations has declared as a Millennium Development Goal the halving, by 2015, of the proportion of people without sustainable access to safe drinking water and basic sanitation. Much research has been conducted into the health benefits of interventions that combine sanitation with improved water supply and hygiene (Fewtrell et al. 2009).
3. Barnard, Routray, Majorin, Peltez, Boisson, Sinha and Clasen (2013) points out in their study that if the level of coverage of latrine and its use increases, it directly affects the health

of populace in positive manner. They also say that 'Indian Total Sanitation Campaign' on toilet coverage and use is partially successful in their research area; half of the villages have 80% coverage of toilets but these toilets are in question because of it building quality and long term strength of these toilets. There are some positive proofs of a relationship between toilet building and secondary education of the female head of families.

According to the research 39% of toilets are not being used by family members and 8% respondents are not using these toilet regularly. They also say that TSC is not succeeded in significant reduction of open defecation in their research area but Swachh Bharath Abhiyan has changed the people's mindset and has improved the status of sanitation. It is difficult to find weather these campaigns are putting any effect on health or not because if few individuals are practicing open defecation, there is always risk for people getting ill.

OBJECTIVES OF THE STUDY:-

The objectives of the study are

1. To assess the current status of sanitation and hygiene practices of the individuals in rural areas;
2. To examine the level of awareness of the individuals about sanitation, hygiene and Swachh Bharat Abhiyan and;
3. To analyze the extent of use of sanitary toilets and community toilets by the individual at household level.
4. The present status of sanitation and hygiene maintained mainly in rural areas.

METHODOLOGY

The present study is descriptive in nature and is based on both primary and secondary data. The primary data is collected from the two gram panchayats Mangalavada from Pavagada Taluk and Mayasandra from Turuvekere Taluk of Karnataka state with the following objectives (i) To assess the current status of sanitation and hygiene practices of the individuals in rural areas; (ii) To examine the level of awareness of the individuals about sanitation, hygiene and Swachh Bharat Abhiyan and; (iii) To analyze the extent of use of sanitary toilets and community toilets by the individual at household level. A simple random sampling technique is adopted in the paper to select the sample respondents. The source of data is the primary research done by

conducting survey of the targeted individuals. The respondents filled up the data using interview and questionnaire method . The file was analyzed using in-depth analysis and insights were drawn which are shared in this paper. The targeted sample size was 100 respondents, 50 respondents from 2 gram panchayats Mangalavada from Pavagada Taluk and Mayasandra from Turuvekere Taluk of Karnataka state

The survey provides information on types of access to toilets by households: exclusive use of households; common use of households in the building; public/community latrines without payment; public/community latrines with payment; others; and no latrine. It also provides types of toilet used: flush/pour-flush, pit latrine, etc. In addition, it captures information on usage of toilets by all members of households and the reasons for not using them in spite of having access. The survey also provides information on demographic, economic, social, and housing characteristics of the households.

Findings:-

The questionnaire was categorized in sections covering the background information of the respondents, as detailed in Table 1 , awareness of personal hygiene and environmental hygiene, illness episodes and practices.

Community participation, that depends on the awareness level of the community, play a vital role in the effective implementation of any ongoing programme. As examined in this study, 62% of the total respondents were not aware about the national program “Swachh Bharat Abhiyan” and 51% were not aware about the importance of good sanitary conditions .

Table 1: Percentage distribution of sample by background characteristics.

		Mangalavada		Mayasandra	
		Male	Female	Male	Female
Literacy rate	Illiterates	32%	43%	28%	33%
	Literates	68%	57%	72%	67%
	Total	100	100	100	100
Occupation	Agri.	55%	42%	62%	55%

	cultivators				
	Labourers	38%	49%	12%	27%
	Service	2%	1%	15%	12%
	Others	5%	8%	11%	6%
	Total	100	100	100	100

Personal hygiene practices: When the hand washing practices by soap were assessed, it was found that 18% of the Mangalavada and 36% of Mayasandra people wash their hands after defecation and only 21% of the Mangalavada and 34% of mayasandra respondents wash their hands before cooking. 25% and 39% of Mangalavada and mayasandra people wash their hands before having their meals. This study also revealed about the unhygienic practices of the respondents as 48% of Mangalavada and 57% of Mayasandra people wash their hands after disposing the excreta. as detailed in Table 3.

According to the Swachh Bharat Abhiyan , Both the panchayats had not maintained the proper hand washing. Both the gram panchayats have not reached their targets due to lack of awareness, lack of community participation, lack of information, education and communication by the gram panchayats, lack of follow up visits and observation by the panchayat and improper construction of the toilets.

Table 2: Percentage distribution of samples by handwashing practices by soap; hand washing (HWS).

	HWS after defecation(%)	HWS before cooking(%)	HWS before having meal(%)	HWS after handling wastage(%)
Mangalavada	18%	21%	25%	48%
Mayasandra	36%	34%	39%	57%

Usage of Toilets:- The study analyzes that in Mangalavada Grampanchayat even though there is 77% of toilets are constructed, only 46% of it is used by people. In Mayasandra Grampanchayat, 51% of toilets are used out of 79%(Constructed). In Both the grampanchayats, usage of toilets

are not upto the mark to SBM . Though the household toilets have been constructed, usage of that toilets is less, detailed in the Table 3 as shown below.

Both the gram panchayat have not improved as per target due to lack of awareness of people on sanitation and hygiene through the information, education and communication(IEC). IEC activities includes wall writing, wall painting, interpersonal communication including electronic medias. These IEC activities are not conducted properly by both the gram panchayats.

Table 3- Percentage status of usage of household toilets

	Number of respondents	Number of household toilets constructed(%)	Usage of household toilets (%)
Mangalavada	50	77%	46%
Mayasandra	50	79%	51%

School sanitation:- School sanitation is very important component of Swachh Bharath Abhiyan, First if the teacher awares the students about the maintenance of sanitation and hygiene practices, the students network this to their parents, parents network to the community.

The study analyzes that 68% of the school toilets have been used out of 100% of constructed in the Mangalavada Grampanchayat and 71% of the school toilets of Mayasandra Grampanchayat have been used out of 100% of constructed. According to the Swachh Bharat Abhiyan Guidelines, Both the Grampanchayats have reached their target in construction of school toilets, Usage of that toilets and hygiene practices is not just a problem but a challenge to face. It is big challenge because of lack of maintenance by the school management. The school management are less awared of the sanitation. The extra information is explained in Table 4 .

Table 4 – School sanitation

	Number of toilets constructed(%)	Usage of toilets and hygiene practices(%)
Mangalavada	100%	68%
Mayasandra	100%	71%

Community Toilets:- Swachh Bharat Abhiyan Guidelines instruct that the community toilets should be maintained by agencies who are appointed by Gram panchayat. Swachh Bharath Abhiyan introduces this Community toilet to the people who do not have place for the construction of toilet. Based on the demand driven approach by the people, the panchayat builds the community toilets nearby their homes. Panchayats and community sign the MOU (Memorandum of understanding) agreement for the maintenance of community toilets.

The Table below shows that only 23% of the people are using the toilets of 100% of constructed in the Mangalavada Grampanchayat. In Mayasandra Grampanchayat, 100% of the community toilets have been constructed and 28% of the toilets have been used by the people. The Table 5 explains the extra information

Table 5 Community Toilets

	Number of toilets constructed (%)	Usage of toilets and hygiene practices (%)
Mangalavada	100%	23%
Mayasandra	100%	28%

Environmental hygiene and sanitation facilities: When the home cleaning practices on a daily basis were assessed, it was found that 49.5% of the total people do not clean their taps and 12.7% of the respondents do not clean their floors. Kitchen cleaning was done by only 25% of the respondents.

The study results shows that sanitation problems were not just due to the lack of facilities or funding, but also due to the behavior pattern of the individual towards the hygienic practices. A combination of factors that trap them into these practices which include cultural beliefs, lack of awareness, misconceptions among the respondents about the costs involved and the indifferent attitude of the local authorities/ government towards implementation of the program hands visibly dirty (observation). It was observed that among all respondents, 37% were defecating in toilets and 63% were defecating in open. Though the toilet facilities were available in 76% of the

households, but due to lack of sewer connectivity and poor drainage outlet the toilets were of little use. Hence, they had a regular tendency towards open defecation. Those respondents who were using toilets, 67% of them were using the pit latrine system without slab while 27% were using pit latrines with slab and only 6% were using proper flush system latrines. The overall study revealed that 83% of the respondents were disposing their garbage in open fields, 13% were disposing garbage on the street a band only, 4% were properly disposed garbage by throwing it into the dustbins. There is no facility of garbage collector. 71% of the respondents were disposing their used or waste water in open drainage which is located just outside their premises, This drainage system was found to be lacking in proper connectivity with sewerage system, resulting in stagnation of waste water and thus it finally causes diseases to the people.

CONCLUSION

All the respondents of the study areas stated the lack of awareness as one of the leading causes for not practicing the key hygienic behavior. For effective implementation of Swachh Bharat Abhiyan, it is important to bring out the immediate need of awareness in the community and actively community participation in this campaign. One of the results of this paper highlighted the need to provide basic sanitation or toilets with proper sewage connectivity so as to reduce the tendency of respondents for open defecation. This would also ensure hygienic separation of excreta from human contact which means faeces must be confined until they are composted and safe.

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