

Article

Sulabh sanitation and social reform movement

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Accepted 25 May, 2010

The sanitation situation in India has been dismal both in urban and rural areas and only few towns have provision of sewage system. A small number of people use septic tanks and only two systems are prevalent on large scale, that is, defecation in the open and manual cleaning of human excreta by the class of people called 'human scavengers'. The technology of two-pit, pour-flush toilet (popularly known as Sulabh toilet) that is scientifically appropriate, economically affordable, and culturally acceptable is developed by the researcher for the safe disposal of human waste from households. For the safe reuse of human waste from public toilets, housing colonies, high rise buildings, hostels, hospitals etc, the researcher also developed the technology for complete recycling and reuse of excreta through biogas generation and on-site treatment of effluent through a simple and convenient technology for its safe reuse without health or environmental risk. Earlier, there was a social stigma and psychological taboo for handling of human excreta. It could also be due to the fact that only people of the lowest economic strata, 'scavengers', who were treated as untouchables, were associated with this dehumanizing job. Due to the technologies and efforts of Sulabh, over a million scavengers have been brought into the mainstream of society. Also, due to financial viability, people from higher social status are now competing to do the job without any psychological taboo. The initiatives taken by the Sulabh International Social Service Organisation and the technology of low-cost sanitation advanced by it have been hailed as an outstanding innovation in combating the menace of environmental pollution in developing countries.

BACKGROUND

In India, since Puranic period 4000 years ago, the in-human, unhealthy and unhygienic practice of cleaning human excreta manually by scavengers (those who are engaged in cleaning dry toilets and manually carrying human faeces) is still in existence. They were called 'untouchables' and were a blot on human civilization. Before India's independence, this practice continued in the Buddhist, Mauryan, Mughal and British periods. The scavengers were humiliated and insulted, even by those, in whose houses they went to clean toilets. They had to clean bucket toilets before sunrise, so that nobody could see or touch them. In medieval period, they were made to wear bells around the necks so that on hearing the sound, people could move themselves away from them. Nobody would touch them when giving them food or water to drink. They had to live on the fringe of the village or town. Their children could play only with pigs and animals. There was no question of their going to school or entering temples to pray.

My childhood

I lived for 18 years in the village of Rampur, in the district of Vaishali in Bihar, India. Vaishali is the place where the first democratic republic blossomed in the world. At my birth in 1943, the population of the village comprised six castes that is, the Brahmins, first in the social hierarchy, followed by Kshatriyas, the Yadavas being in the backward category and Dusadhs, Chamars and Doms in the category of scheduled castes, now known as Dalits. The scheduled castes were divided into two categories: the 'impures' and the 'untouchables' and they have been known as such, before the independence of India. While Dushadh and Chamar castes were considered as the impure ones the 'Dom' caste was treated as an untouchable one. After independence of India, because untouchability was banned in the country no caste is called impure or untouchable.

The villagers could physically touch the Dushadhs and

the Chamars because they helped in farming, tending cattle and doing sundry works in the village. Chamars carried the carcass of animals out of the village and buried them. They also repaired shoes and slippers. But nobody in the village accepted drinking water from their hands or had meals with them because they belonged to the impure community.

Yadavs of the backward community reared cattle and were suppliers of milk and milk products like curd and *ghee* (clarified butter) etc. to the villagers. The people of castes of higher categories mingled with them socially and on occasions had meals together with them.

It is rather strange that 'Doms', though treated as un-touchables, used to deliver wickerwork winnowers termed in local dialect as *chalni, soup, dagra* to people of higher castes for household jobs and yet nobody would touch them. They could not draw water from the wells and had to wait near the wells or even the ponds for the Good Samaritan to arrive at the place to draw water and fill their pitchers. Their pitchers were also used to be generally made of iron to distinguish them from those made of clay used by the upper caste people. It is ironical that the very Dom whom a person did not or rather would not touch during his lifetime provides the fire after a person's death for his pyre, to be lit by his son or his relatives, because it is only then that the dead person attain salvation and get a place in heaven. All this is beyond comprehension but then this was the tradition in the village.

The house in which I lived was a big one with a large courtyard. Many people frequented our house but when a Dom lady came to deliver bamboo household items, my grandmother would sprinkle water to cleanse the pathway walked upon by the Dom lady. As a child I was curious to know why my grandmother did so only when she came to our house and not when others did. People used to say that since she was an untouchable, the path she walked upon became polluted and therefore grandmother used to sprinkle water to cleanse it. Also as a child, being curious to know what would happen on touching a Dom lady sometimes I used to touch her quickly lest someone should see me doing so. But one day by chance when the Dom lady was returning from our house, and grandmother was sprinkling water, she coincidentally saw me touch the Dom lady and raised a hue and cry, asking how I could now be allowed to live in the family. The whole family was agitated, nobody ate food and their mood turned grim and somber. The priest was called to provide a solution to the problem. After careful consideration and long deliberation the priest advised that I should undergo a purification ritual. For this, cow dung, cow urine and Ganges water was poured into my mouth and I had to swallow the con-coction to purify myself. I cried bitterly but had no alter-native. This incident was a nightmare for me and has always made me contemplate whether there was any solution to such a problem.

When I was in the village I used to defecate in the open as

as other villagers did as no house including mine, in the village, had a toilet and because of this, the women suffered the most. My mother, grandmother and aunts had to wake up at 4 am to go to defecate in the open as they could not go to defecate in the open after or before sunset. Most of the women suffered from headaches because they had to withhold answering the call of nature during the day time. Sometimes women in the village had to face criminal assaults and snake bites in the evenings when they went to defecate in the open.

Girls did not feel encouraged going to schools as no school had a toilet. Many children used to die because of diarrhoea and dehydration. My sister's son died because of diarrhoea. I used to go to a school in a neighbouring village as my village had no upper primary and middle school. In that village, a landlord had a bucket toilet cleaned by an 'untouchable' scavenger. The toilet was built near the road through which we had to pass. Sometimes we used to see a woman cleaning the bucket toilet by carrying it on her head to throw the excreta at another place. The place used to stink so much that we had to cover our noses while passing through. The woman scavenger's family used to live on the outskirts of the village. Nobody mingled with her family and they had to live on their own.

I was born with a silver spoon in an affluent family. This status of the family continued till 1955, when my father, who was a doctor of indigenous medicine, gave up his practice and came to the village to look after the affairs of the family. There were 16 members in the extended family and 6 servants, a total of 22. The income of the family started dwindling and my father initially started mortgaging the pieces of land to raise money but later started selling them. Thus the economic condition went on deteriorating day by day.

I passed the matriculation examination in the year 1960 and left the village for higher studies in our district town of Muzaffarpur. I started teaching students, giving private tuitions which solved my problem of meeting my expenses on food and accommodation. My father also used to give me some money for the payment of my college fees and other expenses. I continued at Muzaffarpur for a year and thereafter came to Patna to seek admission into the Bihar National College, Patna. My uncle, who ran a small tea shop and sold sweet-meats, gave me accommodation and food and my father continued to support me. It was very difficult to gain admission in the above college as the date for seeking admission was over and the classes had started. Everybody discouraged me, saying that I might not get admitted but I didn't lose heart. I gathered courage and went to see the Principal of the college, Dr. D.P. Vidyarthi. He patiently heard me out and asked for my mark-sheet from the Pre-University class which I presented to him. He then asked the professor in-charge of admissions to admit me. The professor told the Principal that all the seats had already been filled up and that he had already allowed admission of nine extra students.

Besides classes had started a month back and it was doubtful if the Vice-Chancellor would agree to this admission. The Principal told him that he was ordering my admission whether the Vice-Chancellor agreed or not was his responsibility and that the Vice-Chancellor would question him, not the professor. This was how I got admitted into B.N. College. God in the disguise of the Principal, helped me, otherwise the admission would have been almost impossible.

The next year in the B.A. Part-1 examinations, I stood first among the students of my college and was awarded Rs. 14/- per month as scholarship for two years from 1962 to 1964. The scholarship was in the name of an eminent person, Sir Ganesh Dutt Singh. I took Sociology Honours. After six months when the new subject of Criminology was introduced, I took Criminology as a group paper in Sociology. In both the terminal examinations I topped the list but in the final examination of graduation I couldn't secure first class because of poor marks in Criminology papers. That was the turning point in my life. Although the Head of the Department of Post Graduate course, Dr. Narmadeshwar Prasad, asked me to continue my Post Graduate studies and that I could become a lecturer if I couldn't continue. I went back to my village. The School Headmaster from where I had passed my matriculation examination asked me to come and said there was no reason why I should not join the school as a school teacher for six months during the leave vacancy of a teacher. Later on, he would ensure that I continued as a teacher. Hence I served as a school teacher for six months on Rs. 80/- per month. However I did not continue and went to work on Muster Roll on Rs. 5/- per day at the Patrattu Thermal Power Station which is now in Jharkhand State but was earlier in Bihar. I had hoped to be appointed later as a Vigilance Officer. I remained at Patrattu for a year but feeling frustrated on not getting the post of Vigilance Officer, I left the job. At that point of time, I started dreaming, without any reason that I should not take up a job rather I should do something for which I may be known as someone who has left his mark behind in this world, although I had no idea at all what I should do to realize this dream. Meanwhile, a professor of Jawaharlal Nehru University came to see me and said that Nobel Laureate Rabindra Nath Tagore had written somewhere that, "in such a situation reflection on past lives helps to solve the problems of the present". So I left the job and started working with my father, who was a doctor of indigenous medicine, to prepare medicines. I used to sell them in the far-flung towns of Darbhanga, Madhubani, Jainagar, Muzaffarpur, Motihari, Bettiah etc. in Bihar. Sometimes, I had to walk 10 - 15 km per day carrying bottles of various solutions on my head and 10 kg of medicines hanging on both my arms. I sometimes used to put these medicines on a bullock cart, if I found one on the way. They were difficult days for me after graduation. I also started selling medicines in different branches of the Sugar Co-operative Union.

Again, a turning point came in my life when an officer-in-charge called Organizer of the Motipur Sugar Union started supporting me. Sometimes I used to go to his house and go by rickshaw with him to the building known as the Combined Building, housing offices of various government departments in Muzaffarpur, Bihar. On reaching the Combined Building he used to ask me to get down and come later to the office. When I reached the office he would ask me when I had come, This surprised me, considering that I used to accompany him on the rickshaw from his house. One day I asked him why he asked me such a question. He answered that since I supplied medicines to his office and he passed the medicines bills I supplied, it was not appropriate for him to go to office with me. If anyone came to know that he was acquainted with me, it would not be right. I felt humiliated and belittled. On that very day, I decided to leave the business of selling medicines and do something else. If a person doing normal business can't walk and be seen with someone, then there is no dignity in that work. So I told my father that I would not continue that work. My father was surprised to hear my reason and tried to persuade me to continue, but I left that job.

The next chapter in my life is related to a university in the state of Madhya Pradesh, where Criminology was taught at the post graduate level. I applied for admission there and was given admission. So I took money for admission and other expenses from my father and set out on a journey to Madhya Pradesh to take my admission in Sagar University. I had studied at Patna and because my village was 60 km across the river, I used to travel to and fro Patna sitting in the train. Because of paucity of money I had no means or chance to undertake long distance journey. I had no idea that a person could travel sleeping in the train. I did not try to enquire more about it from anyone else. I purchased a ticket for Lucknow and thought that on reaching Lucknow, I would ask somebody how to get to Sagar University in Madhya Pradesh. It may appear to be strange but this is the true story of my life.

Beginning of a journey

At Mahnar Railway Station, I bought a ticket for Lucknow and boarded the train. On the way, Hajipur, which is a railway junction station and the district headquarters of Vaishali district, which is my home district also. So I got down to have a cup of tea at the Hajipur railway platform where two persons known to me, one our family friend Mr. Dhruv Narayan Singh, and the other, my cousin Mr. Chandra Mohan Jha, who works with me now, had come to buy newspapers, met me and enquired where I was going. I told them about my journey to Sagar. Mr. Shri Dhruv Narayan Singh told me that there was a post of secretary in Gandhi Museum with a pay of Rs. 600/- per month and that the post was permanent. At that time the pay scale of a lecturer was Rs. 450/- per month. So they

asked me to discontinue the journey and return to Patna to take up this post.

I was not ready to accept their advice but they forcibly took out my luggage from the train and brought me to Patna. In Patna at the Gandhi Museum building, there was another office viz. of Bihar Gandhi Birth Centenary Celebration Committee. This Committee was formed to make preparations for the celebration of the Birth Centenary Year of Mahatma Gandhi in the year 1969. Mr. Saryu Prasad, known to Mr. Dhrub Narayan Singh, was the General Secretary of the Committee. Mr. Singh asked Mr. Prasad to give me the job of a Secretary. Mr. Prasad utterly surprised, asked him who had informed him that there was a vacant post of secretary and said there was no post and therefore no vacancy. I spent 10 days at Patna looking for a job and thereafter when I talked to the Registrar of the Sagar University about the admission, I was told that as the seat had been filled up, I was not to come. So I had no alternative but to continue trying to find a job in the Gandhi Birth Centenary Celebration Committee.

Finally, I was appointed in the Committee as a translator with translation work from Hindi to English and vice-versa, but without pay! I ended up taking up the post. The money which I was carrying for gaining admission was spent during the period. However after four months, seeing my performance, I was appointed in charge of Publicity propagating the ideals of Mahatma Gandhi through books, badges, posters, leaflets and pamphlets etc. on a salary of Rs. 200/- per month. Later on, I was transferred to the Scavengers' Liberation Cell.

From there another part of my journey of life began. Mr. Saryu Prasad, the General Secretary and Mr. Rajendra Lal Das, organizer of the Liberation of Human Scavenger's Cell asked me to work for the restoration of human rights and dignity of the human scavengers (those who clean dry toilets and carry human excreta as head-load); which was one of the dreams of Mahatma Gandhi.

I told the General Secretary, Mr. Prasad that I belonged to an orthodox Brahmin family and narrated the story of my childhood when I touched the Dom lady and how my grandmother made me swallow cow dung, cow urine and Ganges water for that. Secondly, I asked him how I would be in a position to ask people not to use bucket toilets when I myself was not an engineer, therefore it would not be possible for me to give an alternative to bucket toilets cleaned by the human scavengers. Mr. Prasad replied that he did not know whether or not I was a Brahmin or an engineer, but he saw light in me and thought that I could do the job. I was left with no excuse or alternative. Mr. Rajendra Lal Das gave me two books, one written by himself in Hindi and the other published by the World Health Organisation – "Excreta Disposal for Rural Areas and Small Communities".

In Sociology, we were taught that if you want to work for a community you must build a rapport with the people of that community so as to know them. It was this lesson that prompted me to live in a scavengers' colony with the

help of a scavenger. I went and lived in the colony of scavengers for three months and came to know and learn about their origin, culture, values, morals etc. I interacted with them, talked to them and taught them in the evenings. They used to drink heavily. I suggested to them not to consume too much liquor. I also asked them not to play cards all the time. While I was coming to live in the scavengers' colony named after Mr. Jagjivan Ram, a freedom fighter and the former Deputy Prime Minister of India, I was not quite sure, whether to continue in the profession, as my father was very upset because Brahmins and toilets did not go together. By the time I was also married and my father-in-law was extremely angry and berated me in a language which I loathe to repeat. The people of the Brahmin community also ridiculed and humiliated me occasionally. The situation was totally unfavourable and nobody appreciated my initiative to change the lives of the untouchable scavengers. While living in Bettiah in the scavengers' colony, one particular morning, it came to my notice that a newly married girl was being forced by her parents-in-law and her husband to go to Bettiah town to clean bucket toilets and that she was crying bitterly as she was most unwilling to go and clean toilets. On hearing her cries I went and intervened, trying to persuade the family members not to force her, if she was unwilling to go and clean toilets. They heard me but did not agree, they countered by asking me what she would do from the morrow if she did not do the work of scavenging and earn some money. Even if she sold vegetables who would buy them from her, she being an untouchable. Finally despite my protests, they sent her to clean bucket toilets.

After a few days, as I was going to the market with a colleague of mine of that colony in Bettiah town, we saw a bull attacking a boy of 10 - 12 years, who was wearing a red shirt. When people rushed to save him, somebody from the back shouted that he belonged to the 'untouchable' scavengers' colony, whereupon everybody left him. We took him to the hospital but the boy died. After this incident I took a vow to fulfill one of the dreams of Mahatma Gandhi viz. to get the scavengers relieved from their subhuman and health hazardous occupation of cleaning and carrying human excreta manually.

Mahatma Gandhi was the first person, whose attention was drawn towards the plight of scavengers. He wanted scavengers to be relieved from their sub-human occupation of cleaning human excreta manually and wished to restore their human rights and dignity, to bring them on a par with others in society. Mahatma Gandhi wanted a woman scavenger to become the President of India. He gave priority to a clean India over the independence of the country. During Gandhi's lifetime nothing much could be done. After Gandhi, many committees were formed to find out the solution to the problem of scavenging. Every committee suggested improvements in the living conditions of the scavengers, but, none could give a solution to the problem.

While living in the colony I studied carefully the books

written by Mr. Rajendra Lal Das and the book "Excreta Disposal for Rural Areas and Small Communities" published by the World Health Organisation in 1958. The following sentence from the WHO book left a deep mark in my memory:

"Suffice it to say here that out of the heterogeneous mass of latrine designs produced all over the world, the sanitary pit privy emerges as the most practical and universally applicable type."

This book was about disposal of human waste in rural areas but the problem of scavenging was mainly an urban one because most scavengers used to work in urban areas. Here I thought that if the soil condition in a rural and an urban area is the same, then why can't we have a similar technology recommended for rural as well as urban areas. On the basis of the following principles laid down by WHO:

1. The surface soil should not be contaminated.
2. There should be no contamination of the ground water that may enter by way of springs or wells.
3. There should be no contamination of the surface water.
4. Excreta should not be accessible to flies or animals.
5. There should be no handling of fresh excreta; or when this was indispensable, it should be restricted to the barest minimum.
6. There should be freedom from odours or unsightly conditions.
7. The method used should be simple and inexpensive in construction and operation.

As I developed a technology which could replace the bucket toilet and scavengers were no longer required to clean and carry human excreta manually.

Genesis of Sulabh movement

On the suggestion of the then Chief Minister of Bihar, Mr. Daroga Prasad Rai and the Minister of Local Self-Government, Mr. Shatrughan Sharan Singh, in 1970, I founded Sulabh Shauchalaya Sansthan, now known as Sulabh International Social Service Organisation, which is a political organization, enjoying the support of all political parties, public etc. They were of the opinion that social programmes cannot be implemented by the government or by NGOs alone. It was decided that the NGOs should work in close cooperation and collaboration with the government and the government agencies to achieve the targets and to implement social programmes. I further applied for a grant of Rs.70,000 to run the organization.

The government of Mr. Daroga Prasad Rai (Chief Minister of Bihar) collapsed and a new government came in. My application for the grant was sent from one

department to the other viz Local Self-Government to Planning to Finance but to no avail. In 1971, Mr. Rameshwar Nath, an IAS officer, joined the Department of Local Self-Government and asked me to come and meet him. I did so. He said that he had gone through my papers and felt that the Sulabh programme of sanitation and social reform was going to have a great impact in the country, but he saw a danger in my asking for a grant. He said that Finance department would most likely raise questions on and object to my request for the grant but the next year when I applied again for another grant I might receive after a considerable delay, say another Rs. 50,000/-. This way, the programme might not create any impact. So he suggested that instead of asking for grants, I should take money for implementation of the programme and from savings run the organization. The government, therefore, instead of considering giving grant, started thinking of how to award the work to Sulabh International. Since a decision in the matter was being delayed and I was in need of funds I too raised resources; I sold a piece of land in my village, ornaments belonging to my wife and also took loans from friends to run the organization. This period of my life obviously was difficult and at times I even debated committing suicide but because of my strong will I did not do so. I had to sleep on railway platforms and due to shortage of money, often missed meals. Neither any grant nor any work assigned by the government came my way. I was passing through a miserable phase of my life and was on the verge of collapse and breakdown. In 1973, I persuaded a member of Bihar Legislative Assembly (MLA) to write a letter to the then Prime Minister of India, Mrs. Indira Gandhi, about the situation and liberation of scavengers, requesting her to pay personal attention to the problem. Within a fortnight he received a reply from Mrs. Gandhi stating therein that she was writing to the Chief Minister to give his personal attention to this matter. Although the government took note of Mrs. Gandhi's letter and started to act upon it, the issue again got lost in the cobweb and red tape of bureaucracy. Thus the problem remained unsolved.

Suddenly in the month of August 1973, a ray of hope appeared. I had gone to Arrah town in Bihar to meet some officers of other departments. While returning I saw a board with the name of Mr. R.K. Mishra, Executive Officer of Arrah municipality on it. I entered his room and he asked me what I was engaged in. I detailed my efforts to get my programme sanctioned by the government and told him that the government so far had not given any direction in the matter to the local bodies (municipalities or corporations), hence I had no work and was therefore idle. On hearing he gave me 500 rupees to construct two toilets in the compound of the office of the Arrah Municipality as a demonstration. Accordingly, I put up the toilets. When the Chairman of the Municipality, Mr. Ram Vilas Singh, came to see the demonstration project he was very happy because he, himself, being a freedom

fighter, was aware of the dream of Mahatma Gandhi to relieve scavengers from their dehumanizing work. The Chairman agreed to the proposal of the Executive Officer to put up such toilets in Arrah town and to convert existing bucket toilets in the town into Sulabh flush toilets.

When I got involved in the scene of sanitation, the situation was dismal in India, both in urban and rural areas and only few towns had provision of sewage system and a small number of people were using septic tanks. Only two systems were prevalent on large scale; that is, defecation in the open and manual cleaning of human excreta by the class of people called 'scavengers'.

I was alone at that time and used to go door to door to motivate and educate the beneficiaries to get their bucket latrines converted into Sulabh toilets. Initially people were not ready to accept this technology and I felt frustrated. Finally, one municipal Councilor of the Arrah Municipality, Mr. Suresh Prasad Singh, came to my rescue asking me to convert the bucket toilets of his house into Sulabh flush toilets. After seeing the functioning of the Sulabh toilets in his house, his neighbours followed the example set by him and finally people of the town started coming in droves to get the bucket latrines in their houses converted into Sulabh toilets. This was how the conversion of bucket latrine programme started in Bihar. The Executive Officer of the neighbouring town, Buxar, came to know about the scheme and asked me to implement such projects there also, so work started in Buxar too.

In 1974, Sulabh started the work of conversion of bucket toilets into Sulabh toilets in Patna City in Bihar. The local self-government department, which was considering recognizing Sulabh as a catalytic agent to work between government, local bodies and beneficiaries, cleared my proposal in April 1974. The Government sent a circular to all the local bodies to take the help of Sulabh in conversion of bucket toilets into Sulabh ones with a view to relieving the scavengers from the sub-human occupation of cleaning human excreta manually and carrying it as head load. The programme then started throughout the state of Bihar.

Two-pit, pour-flush technology

In 1970, I invented, innovated and developed many designs of twin-pit pour-flush toilet and popularized them in the name of Sulabh Shauchalayas. The designs are as under: and can be used wherever you feel appropriate. This is a line drawing, but on demand structural design can also be given. The first design is the two-pit latrine Figure 1. The pits are circular and a minimum of 1 m distance was kept between both pits to ensure that at the time of cleaning the pit and taking out the fertilizer, no water remains at the bottom, making sure that the pit is totally dry. In the second design, where the two-pits were separated by the dividing walls, the dividing wall is 1 ft

deeper than the other walls ensuring that the water from the bottom of the pit does not go from one pit to the other so that the fertilizer taken out is dry Figure 2. This design is used in an area where there is less space. In the narrow lanes, the pits are kept in single direction and the second pit is connected with the pipe. If there is less space then the pan and water seal is placed on the dividing wall itself and the dividing wall is made of 1'3. So even in the smallest of places, Sulabh toilets can be constructed, even in the verandah of a house. People can use the covered pit as a pathway, because there is no smell, nothing is visible and no gas pipe is provided. People prefer using the slab over the pit for various purposes like cleaning food grains, cooking food and at times even for offering *Namaz* (prayer of and by a Muslim). Also, at times, a small shop is opened on the slab over the pit. This toilet connected with a pipe can even be constructed on an upper floor of a house and can also be constructed where the water-table is high.

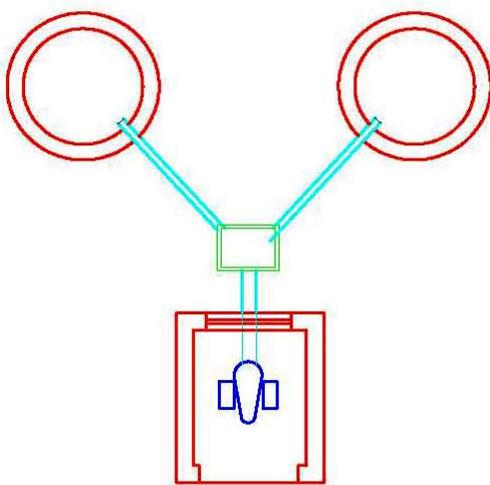
In a high water-table area, the upper portion of the pit should be 2 feet above the water-table for it to function well. The upper portion of the pit should not be constructed on a par with the water-table. Wherever the water supply is through pipelines, there is no chance at all of pollution of water. If the source of water is a tube well, 15' distance from the pits should be maintained. The toilets should be constructed 30 ft away from the open wells. In short, if toilets are constructed with some precautions there will be no case of ground-water pollution.

When I submitted the Sulabh two-pit design to the State Government of Bihar, initially there was skepticism and the Government was not ready to recognize the technology, but after discussions and persuasions the Government of Bihar sent circulars to the local bodies and municipalities to implement Sulabh Shauchalaya technology for the conversion of bucket toilets. By this time, the period of Gandhi Birth Centenary Celebration Committee was over and it had to be wound up.

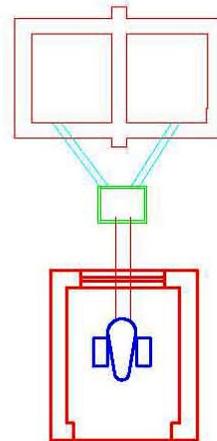
Advantages of Sulabh twin-pit, pour-flush toilets

- i. Hygienically and technically appropriate, and socio-culturally acceptable.
- ii. Affordable and easy to construct with locally available materials.
- iii. Design and specifications can be modified to suit householder's needs and affordability.
- iv. Eliminates the breeding of mosquitoes, insects and flies breeding.
- v. Can be constructed in different physical, geological and hydrogeological conditions.
- vi. Free from health hazards and does not pollute surface or ground water, if proper precautions and safeguards are taken during construction.
- vii. Can be located within the premises as it is free from

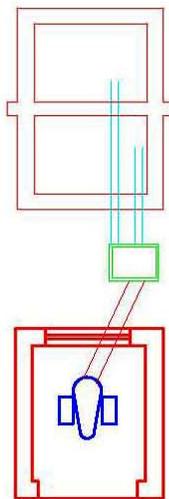
VARIOUS DESIGN OF PITS AS PER LOCAL SITUATION



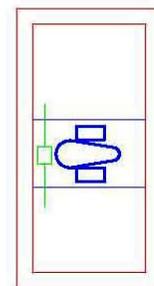
A) MOST POPULAR IN URBAN AREAS



B) USED IN URBAN AREAS WITH MODERATE SITE CONSTRAINTS



C) USED IN URBAN AREAS WITH SITE CONSTRAINTS



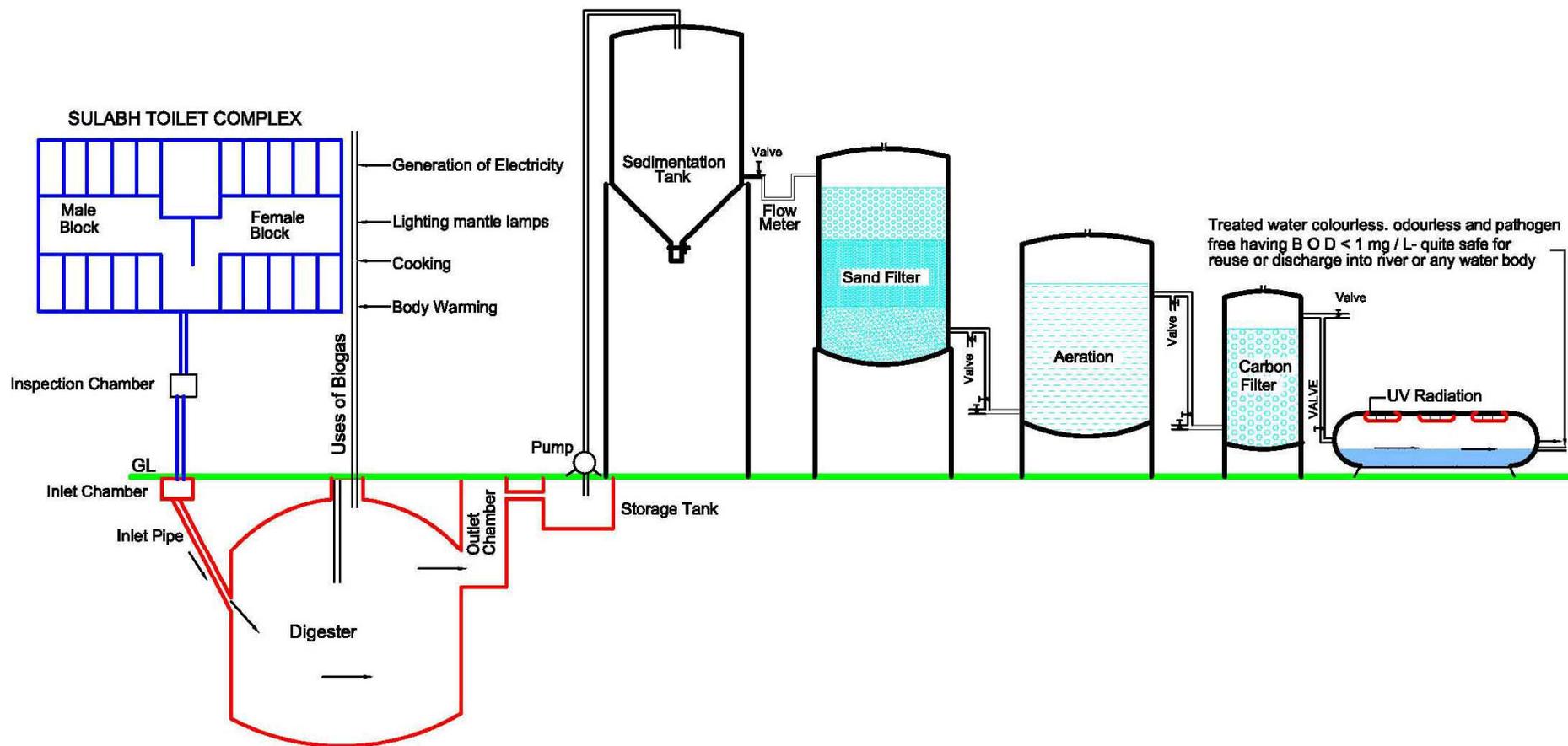
D) LEAST USE OF SPACE SUITABLE IN VERY CONGESTED URBAN AREAS

Figure 1. The design of Sulabh twin-pit pour-flush toilet.

- viii. Can be constructed on upper floors of houses.
- ix. Pits are generally designed for 3-year desludging interval, but if desired, can be designed for longer period or can be reduced even to two years.
- x. Maintenance is easy, simple and costs little.
- xi. Needs only 1 to 1.5 litre of water for flushing, while conventional flush toilet needs 12 to 14 litres of water.
- xii. Needs less space than a septic tank toilet system.
- xiii. Does not need scavengers for cleaning the pits or disposal of sludge. This can be done by the householder.

- xiv. Makes available rich fertilizer and soil conditioner.
- xv. Can be easily connected to sewers when introduced in the area.
- xvi. A low volume flushing cistern could be attached to avoid pour flushing.

Absence of toilet facilities at schools made the female students avoid attending schools and this resulted in drop-out of girls from schools. My efforts to provide toilet facilities at schools have reduced this. Women have gained the most from provision of toilet facilities.



COMPLETE RECYCLING & REUSE OF HUMAN EXCRETA FROM PUBLIC TOILET - SULABH TECHNOLOGY

Figure 2. Sulabh Toilet complex with biogas digester and effluent treatment technology.

Sulabh has converted more than 1.2 million bucket toilets. No case of jaundice has been reported for the last 40 years, where a Sulabh toilet has been in use. Thus this technology is safe and hygienic and fulfills all the conditions of a sanitary latrine.

Public toilet complexes

In 1974, Mr. Raj Narayan Singh, an IAS officer joined the Patna Municipal Corporation in Bihar as its administrator. Mr. Raj Narayan Singh took a vow to make the city clean. He wanted to build

public toilets at different places ensuring their maintenance. One morning, while I was sitting at his residence, he asked the Chief Engineer of the Corporation to build a public toilet near the Reserve Bank of India in Patna. The building is located adjacent to the Gandhi Maidan, which is a

big ground, where more than five hundred thousand people congregate on different occasions. Suddenly he invited me to come to the place at 3 pm. At the scheduled time, I reached the place, and heard him directing his Chief Engineer to construct a public toilet in a day. The Chief Engineer was flabbergasted and expressed his inability to do so saying that it was impossible to build a public toilet in a day.

The administrator, Mr. Rajdev Narain Singh, turned towards me and asked whether I could do it. For a few seconds, I thought over the matter and felt it was a great opportunity that I should not lose. So I expressed my readiness saying "Yes sir, I can do it." On hearing this, he told me that the Corporation would provide the land and the cost of construction, but not the cost of maintenance and suggested that I should maintain public toilets on "pay and use" basis. Indian people were not in the habit of paying for the use of toilets. In 1878, though an Act was passed by the then British Government in Bengal for maintenance of public toilets on "pay and use" basis, it did not work.

Before my coming on the scene public places including religious, tourist and other places had no public conveniences. The following letter will explain the position of toilets in India.

In the days when you could not count on a public toilet facility, an English woman was planning a trip to India. She registered to stay in a small guest house owned by the local schoolmaster. She was concerned as to whether the guest house had a WC.

In England, a bathroom is commonly called a WC which stands for "Water Closet". She wrote to the schoolmaster inquiring of the facilities about the WC. The school master, not fluent in English asked the local priest if he knew the meaning of WC.

Together they pondered possible meanings of the letters and concluded that the lady wanted to know if there was a "Wayside Chapel" near the house. A bathroom never entered their minds, so the schoolmaster wrote the following reply:

"Dear Madam,

I take great pleasure in informing you that the WC is located 9 miles from the house. It is located in the middle of a grove of pine trees, surrounded by lovely grounds. It is capable of holding 229 people and is open on Sundays and Thursdays. As there are many people expected in the summer months, I suggest you arrive early. There is, however, plenty of standing room. This is an unfortunate situation especially if you are in the habit of going regularly. It may be of some interest to you that my daughter was married in the WC, since she met her husband there.

It was a wonderful event. There were 10 people in every seat. It was wonderful to see the expressions on their faces. My wife, sadly, has been ill and unable to go

recently. It has been almost a year since she went last, which pains her greatly. You will be pleased to know that many people bring their lunch and make a day of it.

Others prefer to wait till the last minute and arrive just in time! I would recommend that your ladyship plan to go on a Thursday, as there is an organ accompaniment. The acoustics are excellent and even the most delicate sounds can be heard everywhere. The newest addition is a bell which rings every time a person enters. We are holding a bazaar to provide plush seats for all since many feel it is long needed. I look forward to escorting you there myself and seating you in a place where you can be seen by all.

With deepest regards,

The Schoolmaster."

The woman never visited India!!!

Public toilets were supposed to be hell on earth. So when the people heard about the idea of running public toilets on "pay and use" basis, they did not take it seriously, being skeptic if anyone would pay for the use of a toilet. However when I put up the first public toilet with urinal and bath facilities, I also provided soap powder to wash hands because Indians use water for ablution after defecation. As a result, on the first day itself, five hundred persons used the toilets on payment basis. Important persons in Patna used to come in the morning to see the system, where people paid for the use of toilets. This simple idea worked very well and in 1974, the demand for putting up toilets and conversion of bucket toilets into Sulabh ones in other parts of the Patna City and also in other towns of Bihar increased. Throughout Bihar, people began to accept the "pay and use" system for the use of toilets.

Another initiative I undertook was that in a public toilet, I first put up a pit latrine with provision of space for 8 ft³ per person per year for disposal of human waste. It worked well for six months. But after that it started filling up frequently, because human excreta at the bottom used to get converted into manure. Therefore, it became difficult to maintain such pit latrines. I later switched over to construction of septic tanks which too filled up frequently because of the pour-flush provision in the public toilets. The human excreta used to get accumulated very soon and led to frequent filling up of the septic tank. I therefore started searching for a suitable technology for disposal of the human waste.

In 1978, a National Seminar was organized by the Government of India, WHO and UNICEF in Patna in which the government officers of Government of India, secretaries of the state governments and the chief engineers of the state governments and various experts from the state and central governments participated. They went house to house to see the functioning of

individual toilets and also public toilets at public places. After seeing these toilets for the first time in India, it was recommended that the programme implemented in Bihar be extended to other states of India. Thus the diffusion of these inventions and innovations started from Bihar and spread to other parts of the country.

In 1979, UNDP came into the picture and for 7 years it evaluated the schemes of low-cost sanitation and the water conditions from pit latrines. It prepared a manual for low-cost sanitation and distributed it amongst the international agencies and countries of Asia, Africa and Latin America.

In 1980, UNICEF funded an International Seminar organized by UNDP in Calcutta (now Kolkata) and they also started taking interest in this project. So far, Sulabh has constructed more than 7500 public toilets and other NGOs and governments have put up many more public toilets in India. Now people are used to paying for the use of a toilet. These are used by 10 million people daily. Sulabh toilets have improved availability of and access to toilet facilities for the public as well as foreigners who visit India occasionally as tourists.

By converting bucket toilets to the Sulabh design by state governments and with the efforts of municipal bodies, a large number of scavengers (more than 120,000 scavengers) have been freed. Till now 1.2 million bucket toilets, in 1320 local bodies in 1499 cities/towns in 25 states and 4 Union territories of India, have been converted by Sulabh. The Sulabh toilets built in individual houses and public places are used by 10 million people daily.

Because of many religions and caste systems in India the case of caste and religious tensions are sometimes reported. However, Sulabh public toilets can be said to have a unique feature because they are places reflecting national integration. So far, there has not been a single case reported where Hindus or Muslims, members of the upper or lower castes or former untouchables have refused to use public toilet because of the reason that others also use the toilets.

Biogas technology

The use of the Sulabh public toilet led me to switch over from septic tank to biogas disposal technology, where biogas digester (constructed underground) is connected to the public toilet and human waste flows into it through gravity. In the biogas digester, a floating dome type was first tried. Abundant quantity of gases was produced for cooking and lighting but there was foul smell because human excreta, after decomposition, used to float. Also when attracted by low temperature in winters, it resulted in sharp decrease of biogas production. Therefore I kept on searching for another design.

Finally, I switched over to the fixed dome biogas digester, with some change in the design. Whereas the septic tank was rectangular, biogas digester is circular, with provision of a dome to contain the biogas. On the

first day, 30 - 40 kg of cow dung was required to be put inside the digester, after 30 days of which, human excreta starts decomposing and starts producing biogas. This biogas can be used for lighting mantle lamps, cooking food, warming one's body and during winters and can also be converted into energy to supply electricity to the neighbourhood and for street lighting. 200 such biogas digesters have been connected to public toilets in various parts of India.

One public toilet was constructed and is also being maintained by Sulabh in Bhutan. Five public toilets with biogas digesters and also Sulabh effluent treatment plants have been put up at Kabul in the war-torn nation of Afghanistan. Awareness programme was conducted there to make people aware of the advantages of using the toilets. The public toilets are functioning efficiently; even though the winters of 2007, when the temperature went down to -30°C. Sulabh designed individual toilets also functioned very well at Srinagar, the capital of Kashmir, in 1984 - 85, when the temperature went down to -14°C. Hence these technologies are suitable not only for tropical hot climates but also for the cold climatic regions.

To convert biogas into energy, earlier the engine was run on diesel and biogas with a ratio of 20:80%. We did further research and have now shifted to the battery system, where the engine is run 100% on biogas.

Sulabh effluent treatment (SET) technology

The water discharged from the biogas digester, is treated through Sulabh effluent treatment technology - a sedimentation chamber, a sand filtration tank, aeration tank, activated charcoal and finally passed through ultra violet (UV) rays. The Biochemical Oxygen Demand (BOD) of the waste water is thus reduced to less than 1 mg/l.

This is pure water containing phosphorus, nitrogen and potash and is a good nutrient to raise farm productivity. It can also be used as a fertilizer in flower beds and in kitchen gardens. This technology is far better than the septic tank system. So I recommend that in non-sewered areas, in housing colonies, high-rise buildings, schools, colleges, hospitals etc., biogas digesters instead of septic tanks, should be used for disposal of human waste. In this technology human excreta is recycled on-site and it is one of the best examples of sustainable development.

Both technologies developed by me are suitable, not only for developing countries, but also for developed ones, because in household Sulabh designed toilets, the gases produced are absorbed in the ground and the soil facing that pit. They are not allowed to exit into the atmosphere. In the biogas digester, also all the gases produced methane, carbon, nitrogen, hydrogen sulphide and others, are not allowed to enter the atmosphere, but being combustible are burnt for different uses.

Both Sulabh technologies, firstly, help to reduce global warming because they help reduce pollution in the atmosphere. Secondly, in both technologies water is conserved. Only 1-1.5 of water per person per use is required to flush whereas in the septic tank system the water requirement is 10 L and in sewer system, even more than that. Therefore an enormous quantity of water is saved if these technologies are used globally. Thirdly both technologies which contain phosphorus, nitrogen and potash produce bio-fertilizer and are a good nutrient to raise the productivity of fields. They can also be used for horticulture, floriculture etc. Both technologies fulfill all the conditions of a sanitary latrine. Therefore, these technologies are universally applicable.

In brief, it can be said that Millennium Development Goals can be achieved only by the use of these technologies adopted with some modifications according to local conditions. On the basis of sewage and septic systems, the Millennium Development Goals were not achievable.

Delivery mechanism

The development of technology was important, but equally important was adoption of a delivery mechanism to get this technology to the people so that bucket toilets in their households could be converted to Sulabh toilets. Generally, when the beneficiaries go to the municipal bodies, it takes them time to get subsidy and loan from them and they have to face harassment at the hands of the officers. Hence householders get discouraged going to municipal bodies. To deal with the problem, it was decided by the Government of Bihar that social workers of Sulabh should go from house to house to motivate, educate and persuade the beneficiaries to convert their bucket toilets.

The social workers, accordingly, tell the householders about the health hazards due to the stinking environment caused by bucket toilets. Further, they were told that no scavengers would be required to clean the Sulabh toilets and that there would be no foul odour, stinking environment and health hazard of any kind. When thus informed, beneficiaries would agree to convert their bucket toilets. Then they fill a form and sign the required agreement between the municipal bodies and the beneficiaries and would authorize Sulabh to draw money from the municipal body on their behalf. The Sulabh social workers then visit the municipal offices, follow procedures and complete the necessary formalities. The money is then received by them on behalf of the beneficiaries and materials are collected, and masons and labourers arranged. The Sulabh social workers get the toilets constructed in the premises of the beneficiaries.

In light of the prevailing ethos of corruption, Sulabh, while building toilets in the houses, takes utmost

precautions to use good materials as per the estimates prepared and also closely supervises the construction. Enquiries are made through postal mail on the satisfaction of the beneficiaries and guarantee cards are given to the beneficiaries, stating therein that if anything goes wrong or some defects develop in the construction during a 5-year period, rectification would be done free of cost. In this manner conversion of bucket toilets into Sulabh toilets started in Bihar.

All beneficiaries, municipal bodies and the government were satisfied with the conversion work and this established the credentials of Sulabh with the government and amongst the public in general. The delivery mechanism stated earlier is still in existence even at present. This procedure has shown that complaints are received only in 1-3% cases which are then rectified at the earliest possible time. By converting bucket toilets to the Sulabh design by state governments and with the efforts of municipal bodies, millions of scavengers (more than 120,000) have been freed. Till now 1.2 million bucket toilets have been converted by Sulabh in different municipal bodies in various parts of the country.

Training of foreign professionals

Sulabh trained professionals from 14 African countries (namely Ethiopia, Mozambique, Uganda, Cameroon, Burkina Faso, Kenya, Nigeria, Senegal, Ghana, Zambia, Tanzania, Cote d'Ivoire, Mali and Rwanda) in 2005 and 2006 on the techniques of construction and maintenance of both types of toilets. Sulabh has started consultancy work in Mozambique, Ethiopia and Bangladesh and proposes starting work in 50 countries where there is lack of sanitation facilities.

Liberation and rehabilitation of scavengers

After liberating scavengers from their demeaning and sub-human occupation (120,000 by now), I opened vocational training centres in Patna, Jhambul, New Delhi etc. for their rehabilitation. I also started a centre in the name of 'Nai Disha' or "New Direction" in Alwar, Rajasthan to give the liberated scavengers education and vocational training in different trades like embroidery, beauty care, making eatables such as *papadam*, noodles etc. to make them self-employed. The edibles prepared by them are now bought by local people in whose houses they used to go to clean toilets.

This is a sea change in the attitude of the people. Recently a Brahmin invited one untouchable scavenger to the wedding of his daughter. He even accepted a gift from her and allowed her to dine with his family members. This had never happened before in the history of 5000 years of India. I did all this without any hesitation, but only through peaceful means and a silent revolution. It is a long story which may not find place because of

paucity of space.

We organized programmes for their social interaction with the elite in society and took them to important places to mingle with them. The Prime Minister of India, Dr. Manmohan Singh, the President of India, Mrs. Pratibha Devisingh Patil and Mrs. Sonia Gandhi, all gave them audience.

They were invited to the United Nations to participate in the Conference "Sanitation for Sustainable Development" on July 2, 2008. They even addressed the audience from the podium of the United Nations and participated in a Fashion Show "Mission Sanitation" inside the UN building. They later went to the Statue of Liberty in New York to tell the world that they were no more untouchables.

Hindrances and obstacles

I have been working for the last 40 years but not without opposition, criticism, hindrances and barriers, the wrath of some journalists, politicians, bureaucrats and others. The factors that hindered my progress were the jealousy of some people who at times criticized our work without any basis and foundation but it did not affect us because of our credibility and we have been going forward from strength to strength. It is difficult to narrate the full story here, but I had to face insult, humiliation and opposition many times in life. But by the grace of God, till now, I have been able to continue to solve the problem of defecation in the open and manual cleaning of human excreta by scavengers. The technologies which I have developed will also help to achieve the UN Millennium Development Goals.

Publications

WHO published literature about Sulabh and distributed it on a large scale. UN-HABITAT also published a case study, 'International Year of Shelter' in 1987 and distributed it in various countries (Table 1).

In 2003, UNDP in its Human Development Report recommended the use of Sulabh technologies by international agencies and other nations.

UNDP again in its Human Development Report, 2006 wrote about the successful functioning and self-sustainability of public toilets in India. UNDP has also prepared a report for Harvard University. Sulabh technologies are being taught in Stanford and Berkley Universities, California. After studying the Sulabh technologies and methodologies, a student of Indian Institute of Management, Ahmadabad, evaluated and prepared a case study about the Sulabh Sanitation and Social Reform Movement. The Asian Development Bank and Ashoka Foundation have also prepared documents on the work of Sulabh. Dr. A.P.J. Abdul Kalam, the former

President of India, in his book has also written of how Sulabh Sanitation Technologies and Methodologies have changed the Indian sanitation scenario.

Awards

I was conferred one of the highest civilian awards, 'Padma Bhushan' in 1991 by the Government of India for my work in sanitation development and social service. His Holiness Pope John Paul II gave me audience at the time of conferment of the International St. Francis Prize for Environment (Canticle of all Creatures) in the year 1992. In June 1996, Sulabh technology was declared one of the Global Urban Best Practices by United Nations Centre for Human Settlements (UNCHS) at Habitat II Conference held at Istanbul. The UN-Habitat and Dubai Municipality conferred the 2000 Dubai International Award for the 'cost effective and appropriate sanitation system' for improving the environment on Sulabh. The 2nd Annual IREO Renewable Energy Award was presented to Sulabh at the United Nations in June, 2009. I was awarded the 2009 Stockholm Water Prize by Stockholm International Water Institute during the 2009 World Water Week.

My vision for Sulabh and conceptual mission for the organization for the next few decades are inextricably linked to the huge problem of lack of sanitation and safe drinking water in India as well as in the entire Third World countries. Today more than 2.6 billion people in the world lack access to sanitation and over 1.1 billion lack access to safe drinking water.

What we have done and proposed doing in the light of the dimension of the problem is coupled with sociological as well as scientific aspects. The infusion of social reforms in the working of Sulabh is as important as the technical aspects like the designs and techniques of waste and excreta disposal. Total abolition of scavenging, restoration of human rights and social dignity for the scavengers, total elimination of untouchability from society, promotion of a safe system of human excreta disposal in urban and rural areas as well as ensuring the security and safety of our natural water sources are the basis of our future dream and vision.

Impact of Sulabh

The Millennium Development Goals sets forth the target of halving by 2015 the proportion of people without sustainable access to safe drinking water and sanitation.

It is established that 71% of the earth's surface is covered with water, of which a mere 0.6% is in the shape of surface water bodies such as lakes and rivers. These figures only show how important it is to save this meagre percentage from pollution and from being wasted. It is here that Sulabh has stepped in by designing devices which prevent pollution. Keeping in mind that the

Table 1. Micro and Macro Achievements

	1970	2010
a)	I was alone	Now, there are 60,000 people – 35,000 on regular basis and 25,000 as associate members.
b)	In 1973, one municipality awarded the work	Now, we are working in 1320 local bodies in 1147 towns/cities.
c)	One State govt. – Bihar	Now, 25 States and 4 UTs.
d)	Two twin-pit, pour-flush toilets (Sulabh Shauchalaya) built in Arrah Municipality in Bihar for demonstration	More than 1,200,000 (1.2 million) toilets built by now.
e)	First public toilet constructed in Patna	More than 7,500 Sulabh public toilets constructed and maintained throughout the country.
f)	Number of users 500 per day	Each day, over 10 million people use the 1.2 million individual toilets and more than 7500 public toilets constructed and maintained by Sulabh.
g)	Number of scavengers liberated	More than 120,000 scavengers have been liberated from scavenging and rehabilitated after proper counseling and vocational training.
h)	Towns made Scavenging-free	240 towns have been made scavenging – free till date.
i)	Man-days created	More than 130 million man-days created.
j)	First Biogas plant constructed on an experimental basis in 1980 in Patna	Now 190 biogas plants linked with public toilets constructed in different parts of the country and five public toilets with biogas facilities in Kabul in collaboration with Kabul Municipality, Afghanistan. Technologies of wastewater treatment, composting solid waste into fertilizer and use of dried water hyacinth in raising biogas production are now in use.
k)	Quality Education English Medium Public School - none	500 children enrolled in Sulabh Public School, New Delhi (60% students from scavenger community and the rest from other communities).
l)	Vocational Training Centre - none	Wards of scavengers - about 3100 boys and girls (50% from of scavenger community and the rest from other communities) at Vocational Training Centre in New Delhi.
m)	Scavenger women training - none	28 women who were carrying human excreta manually till March 2003, have been trained and rehabilitated at Nai Disha, a Vocational Training Centre at Alwar in Rajasthan. These women have learnt to produce and market their goods (food products and apparel etc.) by forming self-help groups. Next group of 28 women also under training. New Centre started in 2008 in Tonk, Rajasthan.
n)	Foreign Visitors to Sulabh Campus - none	People from more than 100 countries have visited Sulabh Campus to learn more about the Sulabh sanitation technologies.
o)	Capacity building/training being imparted: - nil	Students and teachers from Schools, Engineering and Medical Colleges, Nursing and Social Work Institutes etc. Professionals from Government, Urban Local Bodies, Pollution Control Boards, other NGOs etc. provided training.

Table 1. Contd.

Training of foreign professionals – none	Training programme organized in collaboration With UN-HABITAT for sector professionals from 14 African countries - Cameroon, Ethiopia, Mozambique, Uganda, Burkina Faso, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Mali, Nigeria, Mozambique, Senegal, Tanzania, Uganda and Zambia in 2005 and 2006.
	Regular summer training/internships provided to students from France, Germany, USA, Kenya, Nepal etc.
p) Training of women volunteers from Urban Slums – none	Over 14,000 women from urban slums have been trained on health, hygiene, safe drinking water, HIV/AIDS etc.
q) Health centre attached to toilet complex – none	Two Health Centres attached to Sulabh Toilet Complexes are providing free medical services to slum dwellers in Delhi.
r) Special consultative status	Sulabh has been accorded special consultative status by the economic and social council (ECOSOC) of the UN.
s) Duckweed Technology for Wastewater/Public Toilet Effluent Treatment – no technology	Based on the results of the project on waste water treatment through Duckweed, by Sulabh, the Central Pollution Control Board (CPCB), Government of India, made a guideline to use this weed for Waste Water Treatment.
t) No Museum on toilets	Sulabh International Museum of Toilets at New Delhi, which nearly 10,000 people have visited.
u) Training to unemployed youth- none	Over 6000 youth have been trained in plumbing, electrical and motor winding, gardening and as security guards.
v) Food processing training centres - none	Centres in 6 blocks in Mewat area in Gurgaon. Over 900 women have already received training in food processing.
w) Sewing and Embroidery Centre - none	Nearly 900 women have been trained in sewing and embroidery.
x) ENVIS (Environmental Information System) Centre) - none	Sulabh International is an ENVIS Centre of the Ministry of Environment & Forests, Government of India for data collection and dissemination on the topics of Hygiene, Sanitation and Sewage systems. (www.sulabhenvi.in)
Support to persons with disabilities	
y) Children	50 hearing impaired children have been provided with five-year education based on the CBSE curriculum and then integrated in other reputed schools for further education.
Women	114 disabled women were trained in various revenue-generating vocations. Twenty-four women were trained in beauty-care and hairdressing and are now employed, earning between two to three thousand rupees a month.
z) No presence in foreign countries	Public toilets in 2 countries – Bhutan and Afghanistan.
aa) International agencies co-operation – nil	Now, WHO, UNICEF, UNDP, World Bank, UN-HABITAT, UN-ECOSOC, WSSCC, WEDC, ILO, ADB, SIWI, WTO, SuSanA, Ashoka Foundation, IWA, etc.
bb) UN recognition – none	Now, Economic and Social Council of United Nations has given Special Consultative Status to the Organisation.
cc) World toilet summit – not held Artistic form from manure of human excreta - none	Organised the World Toilet Summit-2007 in New Delhi in which delegates from over 40 countries participated. 21 artistic pieces in the shape and size of doors, made from manure converted from human excreta from the pits of Sulabh Shauchalayas were displayed at the Lisson Gallery, London, U.K.

Table 1. Contd.

dd) Broadcast only on All India Radio, Bihar	Broadcast on Radio and Television:- Worldwide News – BBC, Mexican TV, German TV, CNBC-INN, National Geographic Channel, Australian TV, French TV, Dutch TV, Doordarshan (Indian TV Channel) DD News, NDTV, etc.
ee) Reports in print media only in Patna, Bihar	<p>Now in national and international dailies and magazines such as:</p> <p>NATIONAL: Hindustan Times, The Statesman, The Tribune, The Hindu, India Today, The Pioneer, The Sunday Express, The Economic Times, The Indian Express, The Asian Age, The Times of India, Punjab Kesri, Hindustan, Dainik Jagran, etc.</p> <p>INTERNATIONAL: BBC News, The Canadian Press, The Asian Wall Street Journal, Der Spiegel, The New York Times International, The Washington Post World News, Gulf Times, Chicago Tribune, Asahi Shimbun, Der Uberblick, etc.</p>
ff) Seminar and conferences attended - none	Attended nearly all important international and national conferences worldwide on sanitation.

technologies developed by me are free from patent, any organization or country can adopt the same free of charges without any royalty and could help other countries to achieve the Millennium Development Goals not only on water and sanitation, but also on health, human rights, poverty alleviation etc.

Sulabh is an NGO whose work has been successful and has had a great impact as it works in co-operation with the Government. It has both sanctioned and widespread acceptance of the people, nationally and internationally. The impact of the work of Sulabh is visible in micro and macro achievements. Apart from restoring social dignity and improving health, the Sulabh toilets have in-built mechanism that reduces green-house effect. Gases produced during decomposition of excreta in the pit do not escape into the atmosphere rather they are absorbed in the soil. Thus, it prevents global warming and improves the environment.

I also found that any innovation, initiative or implementation should be based on the requirement of and demand from the people. They should have a wide and large scale acceptability and social relevance. They should suitably take into account the social scenario and should be adaptable to varying conditions. The technologies developed by me will help the 2.6 billion people without access to improved sanitation, to use toilets with safety and human dignity.

In order to bring the sanitation issue to a higher level and also make it technically accessible to the professionals of this sector, Sulabh has prepared a Sulabh Encyclopaedia of Sanitation under my guidance as Editor-in-Chief. To further make the sanitation sector more lucrative, technically and professionally, I initiated the setting up of a University of Sanitation. It was realized that sanitation is equally a technical as well as social problem. It is more challenging to overcome the problems in a heterogeneous society with respect

to socio-economic and cultural aspects. The magnitude of problems also varies widely in different regions of the world. University of Sanitation would help a lot to overcome the problems in different regions/societies. Thus our vision and mission go hand in hand with the Millennium Development Goals.

Affordable Sanitation in India

Much defecation in India still occurs in open spaces but pioneering work by Sulabh International, a non-governmental organization (NGO), has shown that human waste can be disposed of affordably and in a socially acceptable way. Sulabh's approach is based on partnerships with local governments, backed by community participation, and this has substantially improved environmental quality in rural and urban slums inhabited by poor people.

Sulabh's solution is a low-cost, pour-flush water-seal toilet with leach pits for on-site disposal of human waste. The technology is affordable for poor people because designs suit different income levels. Flushing requires only 2 L of water, compared with the 10 l used by other toilets. Moreover, the system is never out of commission because there are two pits; so one can always be used while the other is being cleaned. The latrine can be built with locally available materials and is easy to maintain. It also has high potential for upgrading because it can easily be connected to a sewer system when one is introduced in the area.

Since 1970, more than 1 million of the units have been constructed in houses. In addition, 5,500 have been installed in pay-and-use public toilets, staffed by an attendant around the clock who supplies soap for

washing hands. The public toilets include facilities for bathing and doing laundry and offer free services to children, disabled and poor people. As a result more than 10 million people have received improved, low-cost sanitation, and 50,000 jobs have been created.

Sulabh's door-to-door campaigns also provide free health education to millions of people. The organization trains local people to construct more latrines themselves, and has helped set up and maintain fee-based community toilets in slums and other areas.

The extent and magnitude of the sanitation problem is tremendous and as an organization, Sulabh with its family of more than 60,000 dedicated volunteers must rededicate their services to be equal to the challenging tasks. "We have miles to go before we sleep" (Table 1).