

Follow-up Conference of the International Year of Sanitation (IYS)

SESSION 2 – “Optimising sanitation technology – Ways to select the most suitable sanitation technology tailored to local conditions”

THEME: Introduction of various sanitation technologies

Sulabh Pour-Flush Toilets With Twin Pits

January 26-27, 2010

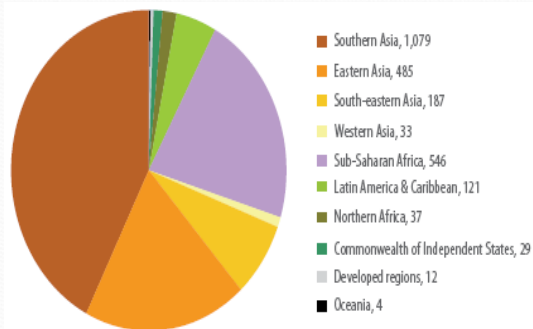
The United Nations University, Tokyo, Japan.

by

Dr. Bindeshwar Pathak, Ph.D., D. Litt.
Founder, Sulabh Sanitation & Social Reform Movement



FACT: Access to Sanitation Provision



Population without improved sanitation, (region wise) in 2006 (millions) – UNICEF-WHO JMP 2008

- Globally over 2.5 billion people lack basic sanitation worldwide – of which 650 million people reside in India.

PROBLEMS DUE TO LACK OF SANITATION

- In the late sixties, when I came on the sanitation scene in India, no house in rural areas had a toilet.
- Women were the worst sufferers because of lack of toilets. They had to go out for open defecation in the dark – before sunrise or after sunset. Their dignity was put to risk when subjected to criminal assaults or snake bites.
- Girls dropped out from school because of no toilets.
- Child Mortality Rate was very high.

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- In urban areas, 85% people either used bucket toilets or used to go out for defecation in the open.
- Public places like railway stations, bus stops, religious and tourist places, had no provision of public toilets.
- Hence foreign tourists had to face a lot of difficulties because of absence of toilets and were discouraged to visit India.
- The following story will explain the situation of public toilets in India at that time:

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WC Story:

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 contained a WC (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. That the letters could mean a bathroom, never entered their minds. So the schoolmaster wrote:

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“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.

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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.”

No wonder the woman never visited India!!!

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- **Main technologies available for sanitation**

There are following 4 technologies available in the world:

I. Sewerage system

II. Septic tank system

III. Sulabh two pit pour flush compost toilet

IV. Sulabh biogas plant with on-site effluent treatment system

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- The sewer system, of course takes care of total waste water, but its prohibitive cost of operation and maintenance makes it economically unacceptable by most of the developing countries. In India, only 232 towns out of 5161 towns/cities are sewer based and that too partially. Situation in other developing countries are more or less the same.

- The septic tank system also could not be disseminated properly in developing countries due to its high cost, requiring larger space and high volume of water to flush excreta- not less than 10 litres per use and human excreta onsite does not get converted into manure.

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The Genesis: Sulabh Sanitation And Social Reform Movement

To overcome the problem of human scavenging and safe disposal of human wastes, I invented, innovated and developed two technologies -

- I. Sulabh two-pit pour-flush compost toilets.*
- II. Public toilet complexes linked with biogas digester with on-site effluent treatment system .*

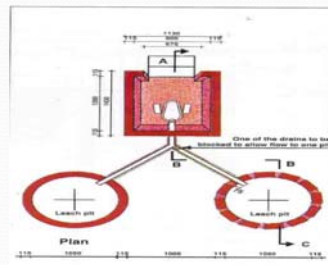
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Sulabh two-pit, pour-flush, compost toilet (Sulabh Shauchalaya)

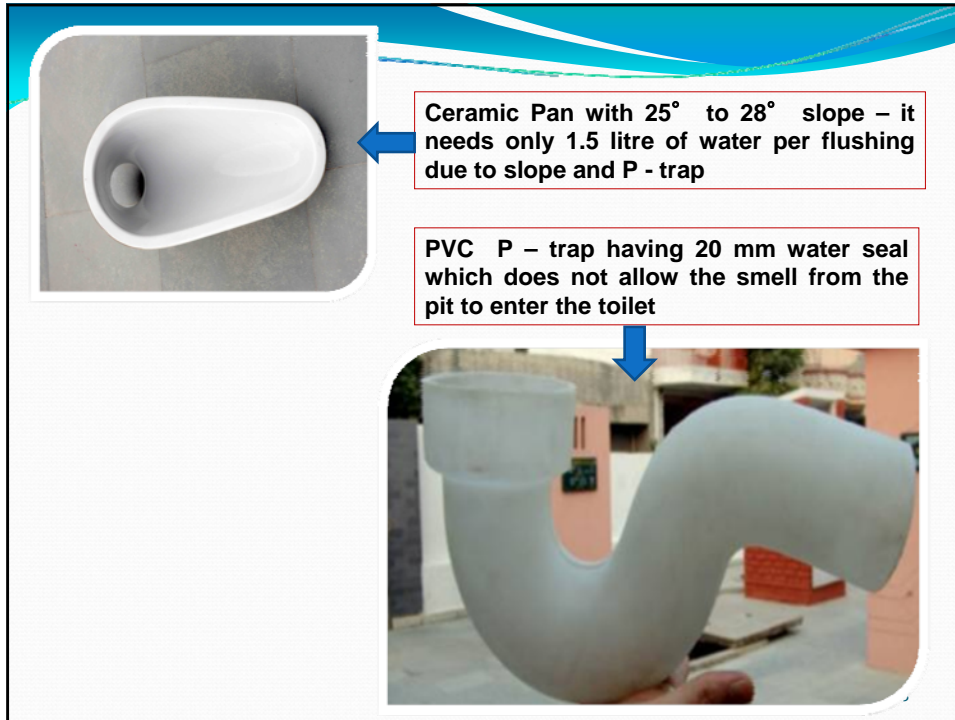
- In individual toilets there are two pits, one used at a time and the other is kept standby. When the first one fills up, the excreta is switched over to another one. After two years in the first pit human excreta gets converted into manure to be used for agricultural purposes



Sulabh Toilet with circular pits.



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- So, alternately both pits are used. As water-seal or trap used in a Sulabh toilet is of 20 millimetres, therefore it requires only 1-1.5 litre of water to flush per use. So it saves enormous quantity of water compared to sewerage or septic tank systems wherein 10 litres of water is used for flushing per use.



The manure is taken out from the pit by the beneficiaries **without involving scavengers** as it is odourless, pathogen free, semi solid containing 1.8% nitrogen, 1.6% phosphate and 1% potassium. It is readily used for agriculture/ horticulture purposes to raise the productivity of the field and the fruits and flowers.



Taking out of manure from the pit of a Sulabh toilet



Manure from Human Excreta



High yielding variety of fruits



High yielding variety of crops

- Because of the presence of small quantity of gases inside the pits, the gases in contact with water in the water-seal, do not allow the water to freeze during winters. In 1984, in Srinagar, India, temperature went down to -14°C and all the Sulabh toilets functioned very well whereas septic tanks and sewerage pipelines got frozen.

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Sulabh two-pit, pour flush, compost toilets fulfills all the seven conditions of a sanitary latrine laid down by the WHO. (Excreta Disposal for Rural Areas and Small Communities by E.G. Wagner & J.N. Lanoix, WHO, 1958, pp. 39).

- I. The surface soil should not be contaminated.
- II. There should be no contamination of ground water that may enter springs or wells.
- III. There should be no contamination of surface water.
- IV. Excreta should not be accessible to flies or animals.
- V. There should be no handling of fresh excreta; or when this is indispensable, it should be kept to a strict minimum.
- VI. There should be freedom from odours or unsightly conditions.
- VII. The method used should be simple, inexpensive in construction and operation.

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Advantages of Sulabh Two-pit pour flush compost toilet:

- I. It is sanitary, cost-effective and durable.
- II. It is a replicable and sustainable technology.
- III. It can be designed in different cost ranges to provide an option to the householder to choose a design that suits him most. Thus, even the economically weaker section of society can afford it.
- IV. There is no odour at all.

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- v. Vent pipe is not necessary as the gases get dispersed in the soil through holes in pit lining.
- vi. It requires less space than a septic-tank latrine. It can be constructed even in the courtyard, corridor, verandah or in the living room of a house, as it is free from foul smell and there are no mosquitoes, flies or insects.
- vii. The technique of construction of pour-flush toilet is simple; an ordinarily trained mason can easily build it. It can be constructed by using local labour and materials that are locally available.

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contd...

- viii. The maintenance is easy, simple and costs little. The maintenance is done by the householder. .
- ix. The house owner himself or any labour can clean the pit, because the sludge of leach pit is safe for handling after two years rest period.
- x. As the pits are covered with airtight and watertight reinforced cement concrete slabs, the place can be utilised for other purposes like running small business and several household purposes.

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- xi. It is free from all health hazards and does not pollute surface, ground water or drinking water sources like hand pumps, wells etc. if proper precautions are taken in its construction.
- xii. It can be constructed in the most congested areas. Design can be modified to suit the space available.
- xiii. It can be constructed at a distance of 30 feet from a well, 15 feet from a hand-pump and no distance is required if there is provision of piped water supply.

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Different designs of Sulabh two-pit, pour - flush, compost toilet:

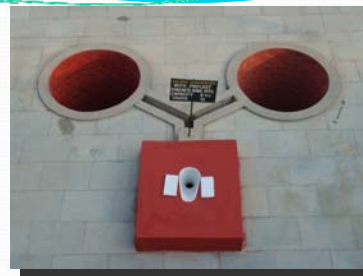
- The toilet has been designed in such a way that poorest of the poor, middle class and the rich people can have the facilities of Sulabh toilets because the cost of construction varies from US\$ 15 to US\$ 1100.
- The technology remains the same, only the building materials differ and the period of cleaning of the pits. The minimum period of cleaning a pit is 2 years and maximum 40 years. Because the pits in the Sulabh toilet are earth based, having holes in the walls, gases are absorbed in the soil. This helps reduce global warming and improves the climate change.

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Different designs of Sulabh two-pit, pour - flush, compost toilet:



Cost – US \$30 (Rs. 1500)



Cost – US \$35 (Rs. 1750)



Cost – US \$32 (Rs. 1600)



Cost – US \$50 (Rs. 2500)

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Cost – US \$53 (Rs. 2650)



Cost – US \$145 (Rs. 7250)



Cost – US \$152 (Rs. 7600)



Cost – US \$160 (Rs. 8000)



Cost – US \$185 (Rs. 9250)

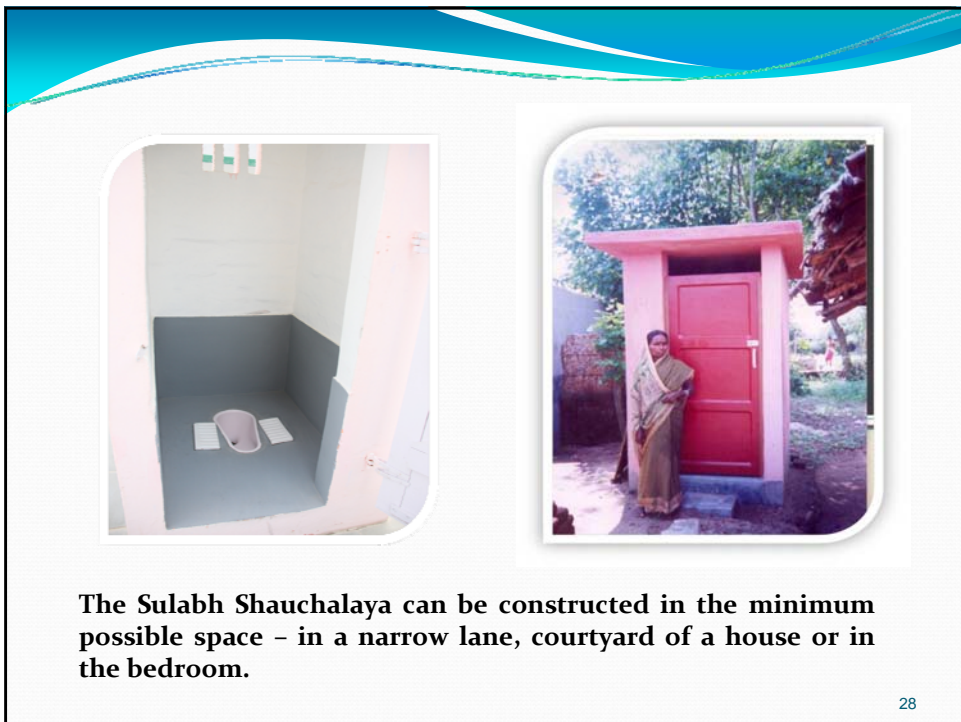


Cost – US \$190 (Rs. 9500)



Cost – US \$1100 (Rs. 55000)







Sulabh pour-flush toilet for linear space with common dividing wall



Sulabh pour-flush toilet for least space with toilet on top of pits



The Sulabh toilet can be constructed in areas where the water table is high and even in upper floors of buildings.



Sulabh pit platforms can be used for variety of purposes like cooking, chopping fish, chaffing grains and running small shops.

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Recycling and Reuse of Human Waste

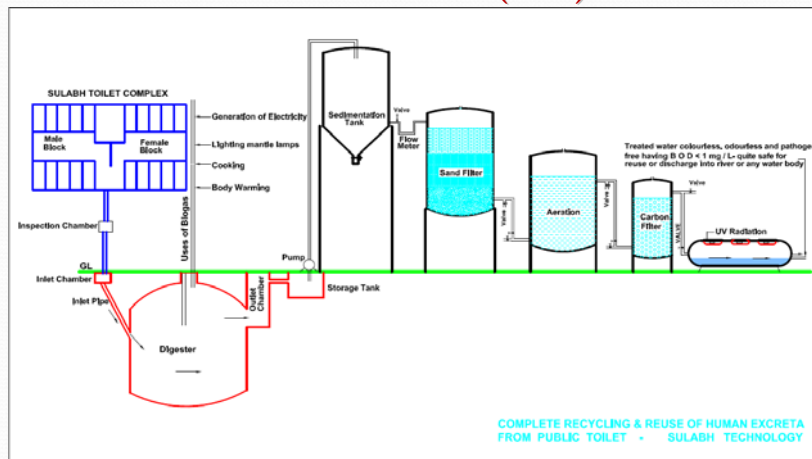
- The other technology developed by me, is human excreta based biogas technology with effluent treatment plant linked to public toilets. From public toilets human excreta goes inside the digester and biogas is produced without any chemicals, bacteria and change agents. Only 10-20 kgs. of cow dung is required to put inside the digester the day of beginning of the use. The biogas is channelized for lighting mantle lamps, warming oneself in winters, cooking and also for conversion into energy for street lighting.

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Biogas Plant Linked To A Public Toilet



Public Toilet linked to Biogas Digester and Sulabh Effluent Treatment (SET) device



- The water discharged is treated by passing it through sedimentation chamber, sand filter, aeration tank, charcoal and through ultra violet rays.

Sulabh Effluent Treatment Technology



- The effluent discharged from public toilet, after treatment, becomes so pure that its Biochemical Oxygen Demand is less than one milligram per litre.

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Sulabh Effluent Treatment Technology

- This water is safe for discharge into rivers or water bodies, without polluting them. Hence, this also prevents pollution from the sewage. It can also be used for cleaning of floors of public toilets.
- These technologies is suitable for market places, housing colonies, high-rise buildings, public places, schools, colleges, hospitals etc.
- Both the Sulabh technologies help reduce global warming. In the first technology gases produced are diffused in the soil where as in the 2nd technology, biogas produced is used for different useful purposes and not allowed to escape in atmosphere.

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Use of Biogas



Biogas used for cooking



Biogas used to warm oneself in winter



Biogas used for lighting of mantle lamps



Biogas used for Lighting of Street Lights³⁷

- Initially, requirement to run the engine was 80% biogas and 20% diesel but now it runs on 100% biogas because it is ignited by battery.



Biogas used for electricity generation

We have installed 1.2 million toilets in individual houses and the Ministry of Rural Development and the Ministry of Urban Development, Government of India have got installed more than 2.8 million and 54 million toilets respectively based on Sulabh technology.

- Millions of scavengers have been freed from the sub-human, centuries – old practice of cleaning and carrying night-soil manually as head-load, for further disposal of human excreta.
- We have installed more than 7000 public toilets throughout India as well as one in Bhutan.
- Five public toilets have been set up in Kabul, Afghanistan.
- Now more than 10 million people in India are using these facilities everyday.

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Sulabh Toilet Complex at Kabul, Afghanistan



Even when the temperature in Kabul went down to -30 C in 2007, these biogas plants worked very well. Hence this technology is suitable for both cold as well as warm climates

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Global Warming:

1 Person produces 1 cft biogas per day

So, 6 billion people produce 6 billion cft biogas per day

In Biogas, 65% is Methane Gas

So from 6 billion people – **3.9 billion cft Methane** is produced per day

0.11143 billion cum methane produced per day

In One Year (365 days) = $0.11143 \times 365 =$ **40.67 billion cum methane per year.**

Emission of methane gas in the atmosphere = 40.67 billion cum methane per year.

Since, Methane damages the Ozone layer of the atmosphere, from environmental point of view, it becomes harmless when used for different purposes like cooking, heating, or electricity generation.

Water saved by using two-pit system:

Septic tank water requirement per use is = 10 litres

Twin-pit water requirement per use is = 2 litres

So water saved per use = $(10-2)$ litres = 8 litres

If toilet is used twice each day

water saved is 2×8 litres = 16 litres per day person

So water saved from 6 billion people each day = 6 billion x 16 litres

= 96 billion litres

So, in a year = 96 billion litres x 365 can be saved, or

= 35040 billion litres water can be saved

Manure from Sulabh Technology (if used) by 6 billion people:

1 person produces 40 kg manure in a year
6 billion persons produce 40 x 6 billion kg manure in a year
= 6000000000 x 40 kg
= 24,0000000000 kg
= 240000 Million kg

Manure in a Year = 240 Million tons

Say, cost of 1 kg = Rs. 5.00

Cost of Manure for 240 million tonnes

240000000000 x Rs. 5

= Rs. 1200000000000

= Rs. 1200000 Million Rupees

Methodology and Delivery System adopted by Sulabh for Construction of Toilets:

- Contacting the house-owners to convince and persuade them to agree to the conversion of dry latrines into Sulabh Shauchalayas (*toilets*).
- Beneficiaries were given directory of the list of materials required.



Delivery Mechanism:

- Sulabh Directory was distributed explaining the details of Sulabh Shauchalaya to the beneficiaries.
- Filling of forms by house-owners for construction of toilets.
- Processing of forms by Urban Local Bodies.
- Amount for construction of toilets received from ULB by Sulabh volunteers.
- Sulabh workers complete the construction of toilets based on the choice of the householder selected from a wide range of design options.

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- Certificate of completion is given by the beneficiaries.
- Another worker of Sulabh goes to check and verify the work done.
- To avoid human error, the beneficiaries are also sent post-cards to certify satisfactory completion of work through mail.
- Thereafter, Guarantee Card is issued with Sulabh accepting the responsibility of rectifying defects free-of-cost for a period of five years.
- Further, it also ensures that if any complaint is received, it will be attended to within seven days.

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- As proof of construction done, a photograph is also taken of the toilets and beneficiaries.

- The methodology has been a great success generating mutual trust and confidence between beneficiaries, Sulabh and Urban Local Bodies.

- For effective delivery system of services, vision, dedication, ethics, morality and follow-up



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Training on Sulabh Sanitation Technologies

- Sulabh trained officials / entrepreneurs from 14 African countries namely Ethiopia, Mozambique, Uganda, Cameroon, Burkina Faso, Kenya, Nigeria, Senegal, Ghana, Zambia, Tanzania, Cote d' Ivorie, Mali and Rwanda on sanitation technologies for capacity building in the year 2005 and 2006.

- Since 1980, visitors from more than hundred countries such as Sri Lanka, Bangladesh, Nepal, China, U.S.A., U.K., Ghana, Ethiopia, etc. have visted the Sulabh campus in New Delhi to see the Sulabh technologies.

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- In 1973, I introduced the system of maintenance of public toilets on “*pay and use*” basis. Initially there were skeptical views about the functioning of the technologies and its success. It took me several years to convince the Government and the people.
- On the first day 500 people used the public toilet in Patna.
- Earlier people were not habituated to paying for use of toilets.

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Sulabh Public Toilet Complexes



Largest Sulabh Toilet complex in the world at Shirdi (Nasik), Maharashtra, India.

Funded by SHIRDI TRUST, constructed and maintained by Sulabh International Social Service Organisation, it has 148 toilets with dressing, baby sitting, breast feeding facilities and 108 number of bathrooms, 5,000 lockers for keeping the belongings of pilgrims. The complex is lit by the electricity from the bio-gas generation from the human excreta. 50,000 persons can use these facilities daily.

- Facilities for lockers for keeping belongings, safe drinking water, telephone facilities, night shelter, health centre, etc. are provided in Sulabh toilet complexes.



Cloak room facility at Sulabh Toilet Complex, Shirdi, Nasik, Maharashtra



Inside View – 'Dormitory' Sulabh Toilet Complex at Deoghar, Jharkhand.



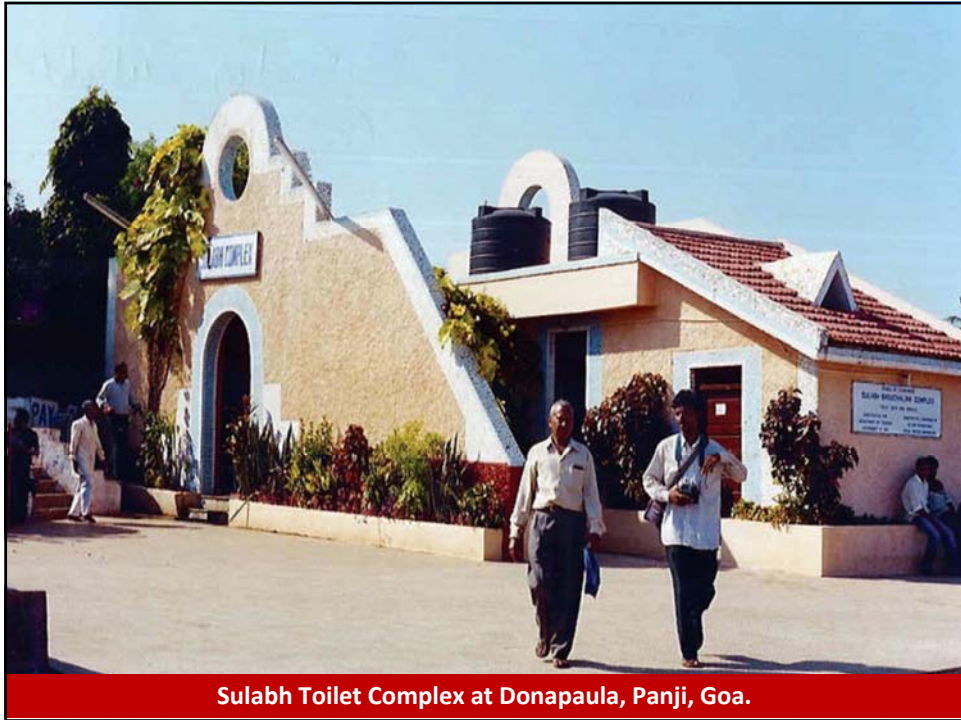
Inside View - Sulabh Toilet Complex, Taj Mahal, Agra



Inside View - Sulabh Toilet Complex, Taj Mahal, Agra



Sulabh Toilet Complex, Mathura, Uttar Pradesh



Sulabh Toilet Complex at Donapaula, Panji, Goa.



Sulabh Toilet Complex, Hoshangabad, Madhya Pradesh





CONSTRUCTED SULABH TOILET COMPLEX AT CIRCULATING AREA OF BILASPUR RAILWAY STATION BY SOUTH EAST CENTRAL RAILWAY IN CHHATTISGARH



Inside View- Ultra Modern Sulabh Toilet Complex at Deoghar, Jharkhand.



Wash Basin for Hand Wash – Inside view of Sulabh Toilet Complex, Delhi.



Girl combing her hair using mirror inside the Sulabh Toilet Complex



Hand Wash facility – Ethiopian Ambassador to India, Her Excellency Ms. Genet Zewide using the facility at Sulabh Toilet Complex.

NAI DISHA: An Initiative Towards Rehabilitation of liberated Scavengers

❖ ‘Nai Disha’ Vocational Training Centre was set up by Sulabh at Alwar, Rajasthan in April 2003, to liberate and rehabilitate women hitherto engaged in the profession of scavenging till March end, 2003.



A group of women, many wearing blue saris, are standing in a line outdoors. They appear to be participating in a program or training. The background shows a clear sky and some buildings.

Nai Disha Training Centre

A comprehensive 2-year training is being provided to women scavengers in food-processing, beauty-care, tailoring and embroidery, with a three year rehabilitation programme.



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Social Transformation



The Hon'ble President of India, Smt. Pratibha Devisingh Patil crowning Smt. Usha Chaumar in the Rashtrapati Bhawan.

Social Acceptability



Hon'ble Prime Minister of India, Dr. Manmohan Singh, giving audience to the erstwhile scavengers of Alwar, Rajasthan, who used to clean nightsoil earlier: and now after education and training have become self-employed and lead a life of dignity.

Mission Sanitation



HRH the Prince of Orange of the Netherlands felicitating erstwhile women scavengers, who were liberated and rehabilitated by Sulabh, with bouquets of flowers, lending prestige to the scavengers who cleaned human excreta manually till March, 2003.

Invitation by UN ECOSOC in International Year of Sanitation to the United Nations



H.E. Mr. Vijay Nambiar, Chef de Cabinet of the Executive Office of the Secretary General of the United Nations, crowning Mrs. Usha Chaumar, an erstwhile women scavenger of Alwar, Rajasthan on July 2, 2008 at the event "Sanitation for Sustainable Development" in the United Nations at New York.

Freedom at Last !



The liberated women scavengers showing the sign of 'V' for Victory as a sign of triumph, in front of the Statue of Liberty in New York, USA to show their liberation from the demeaning profession of cleaning dry privies and carrying human excreta (nightsoil) of others, to eke a living for their families.

Recognition of Sulabh Technologies

- In 1996 UN-HABITAT declared Sulabh technology as one of the Best Urban Practice.
- In 2000, UN-HABITAT and Dubai Municipality declared it as one of the Best Practices to Improve the Living Environment.
- The above technologies have been implemented and proven over the last four decades and recommended for worldwide replication by UNDP in the Human Development Reports of 2003 and 2006.

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- On the initiative of UN Secretary General, an Advisory Board on Water and Sanitation was formed which is chaired by HRH Willem Alexander, the Prince of Orange of the Netherlands, who appreciated the work of Sulabh at the launch of 2008 as the International Year of Sanitation in November 2007 in New York:

“Sulabh International showed me a good example during my recent visit to New Delhi. This organisation has proved how effective small-scale solutions can be and how they can be extended all over India within a short time span.

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Thousands of 'pay & use' public toilet-cum-bath complexes and more than a million pour-flush latrines in private houses have been built (and are maintained), and they are used by more than ten million people every day. By doing so, Sulabh has restored human dignity and a new future to thousands of 'untouchable'."

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Erstwhile 'untouchable' and liberated scavenger of Alwar welcoming the Prime Minister of Sweden, H.E. Mr. Fredrik Reinfeldt, by applying traditional Indian style Tilak on his forehead. Seen also in the picture are his wife, Hon'ble Mrs. Filippa and Dr. Bindeshwar

**Interaction with Swedish Prime Minister on 6th
November, 2009 at Sulabh Gram, New Delhi**



His Excellency Prime Minister of Sweden Mr. Fredrik Reinfeldt and his wife Ms. Filippa along with Dr. Bindeshwar Pathak, giving audience to the erstwhile scavengers of Alwar, Rajasthan, who used to clean nightsoil earlier: and now after education and training have become self-employed and lead a life of dignity.

**Ambassador of Belgium to India on 21st December 2009 at Sulabh Gram,
New Delhi**



His Excellency Mr. Jean M. Deboutte, Ambassador of Belgium to India, shaking hand with Mrs. Lalta Nanda, a liberated woman scavenger from Alwar, Rajasthan, during his visit to Sulabh campus. Ms. Dolly, a liberated scavenger from Tonk, Rajasthan, and Mrs. Usha Chaumar, President of Sulabh International Social Service Organisation, are looking on.

Ambassador of U.S.A. to India on 15th January 2010 at Sulabh Gram, New Delhi



H.E. Mr. Timothy J. Roemer, Ambassador of U.S.A. to India and Ms. Sally Roemer with Dr. and Mrs. Pathak and the erstwhile scavengers who have been liberated and rehabilitated by Sulabh International.

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Address of His Excellency Timothy J. Roemer

Namaste!


Dr. Pathak, the Sulabh family, Thank you so much for making me feel that I am part of your family this morning. Thank you for welcoming my wife Sally Roemer, to your warm embrace Sulabh, thank you so much and I hope that I will always be part of your family and feel this warmth and this embrace and its love from your welcome, from your handshakes and from your warm greetings this morning. I read a sign when walking in the prayer hall 'Please Smile, You are in Sulabh.' How can you not smile? It brings smile to my face and a bigger smile to my heart and my soul. Thank you so much.

When I was asked by President Barack Obama to be his personal representative to come to India, my wife Sally and I had the opportunity to go to the White House and meet with the President.


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We sat down with President Obama and talked to him about the importance of United States relationship to the great Republic of India. We talked about the important issues, global security, about cooperation on counter terrorism, we talked about health care and we talked about entire poverty programmes. And when the Prime Minister of India, who was selected by President Obama to be the very first visitor to State Dinner of the Obama's administration, came to Washington DC just recently, one of the issues both the President and the Prime Minister talked about, being personally important to both of them was the issue of water and water supplies in the future.




So I look forward in my next conversation with President Obama to tell him when I met with the Sulabh family and I have been here to see the great work that combines our efforts to advance technology, to seek ways to enhance our water, water supply and to reach out and include all the people in India in a just and righteous way, inclusion in society of all those principles so important to our President, to our country and to India. Just the other day I had a visitor in my office, the grandson of Gandhiji, Dr. Rajmohan Gandhi, and he talked about the importance of Martin Luther King's and Gandhiji's connection and we are so proud in America that Gandhiji and Martin Luther King shared so many principles about reaching out to all people in society.



After all, both the United States Constitution and India's Constitution begin with the words - 'We, the people' - all the people, not select groups of people, everybody should be included in those great words. Everybody in our society should be included in justice, in equality, in opportunity to succeed in society.

Martin Luther King Jr., Dr. King had a great word, like justice rolled down like thunder and righteousness like a mighty stream, let that righteousness and justice touch all of our hearts, like all of us included in the society's benefits. Those efforts go on today and just let me conclude by quoting one of my favorite leaders, not just in the United States, not just in India, but in the world, Gandhiji. Gandhiji inspired us in so many ways, he fought for an independent India but he was also willing to fast and fight for equal India.

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For doing things about the 'untouchables', including all people in society, he was willing to put his power, his life on the line and he also said one of my favorite quotes, he said, "the difference between what we do and we can do will suffice to solve about all the problems in the world", 'what we do and what we can do.' What we can do is we can work in places like Sulabh International, this family to solve lot of problems, to solve technology problems with all those people in the solution. Thank you so much, *Shukriya*. Thank you so for all the warmth and love, keep up all your great work here and thank you so much for including me and my family in the United States of America in your welcoming this morning.

Thank you again.

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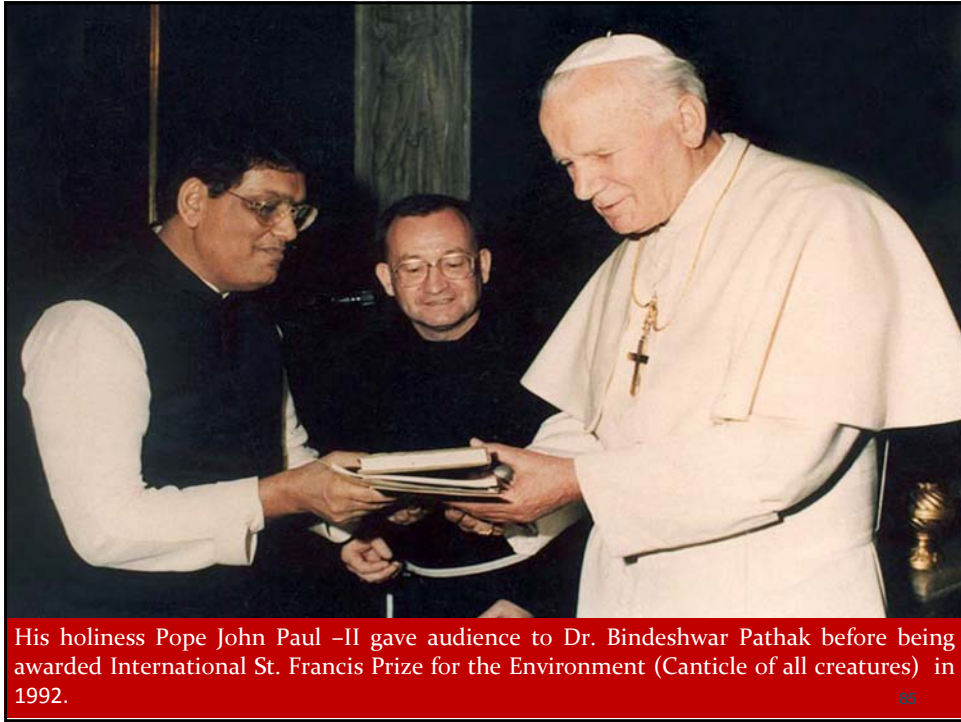
Recognition of Sulabh Technology



The Dubai Municipality and UNCHS (HABITAT) awarded Sulabh '*Dubai International Award for Best Practices to Improve the Living Environment*' out of 1125 entries in the year 2000.



In 1991, Dr. Bindeshwar Pathak was conferred Padma Bhushan by the then President of India, Shri R. Venkataraman, for his 'distinguished social service'.



His holiness Pope John Paul –II gave audience to Dr. Bindeshwar Pathak before being awarded International St. Francis Prize for the Environment (Canticle of all creatures) in 1992.



Dr. Bindeshwar Pathak receiving the UNEP Global 500 Roll of Honour Award for 2003 from Hon'ble Mr. Fares Bouez, Lebanese Minister of Environment. Hon'ble Mr. Kluas Topfer, Executive Director of UNEP is on the right.



Hon'ble Mrs. Anna K. Tibaijuka, Executive Director of UN-HABITAT presenting the UN-Habitat Scroll of Honour 2003 Award to Dr. Pathak.



The United Nations' Inter-Governmental Renewable Energy Organisation (IREO) has awarded the prestigious Renewable Energy Award to Dr. Bindeshwar Pathak, Sulabh International for the year 2009 at New York.



Dr. Bindeshwar Pathak, received the **2009 Stockholm Water Prize** from the hands of H.R.H. Prince Carl Philip of Sweden. Dr. Pathak was awarded for his life's work to improve the health, dignity and lives of millions of people.

Conclusion

We believe that as a socially acceptable, economically affordable and ecologically sustainable approach for urban as well as rural sanitation in the developing countries, based on a step by step upgrading of the existing situation, Sulabh Two-Pit Pour Flush Compost Toilet and De-centralised Bio-Gas-Effluent Treatment System should be considered as the most cost effective and user-friendly choice and score over other available technologies on most of the aspects.

THANK YOU



Sulabh International Social Service Organisation

Sulabh Gram, Mahavir Enclave

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Website : www.sulabhinternational.org / www.sulabhitoiletmuseum.org