

Water Conservation in Sanitation using Cost-effective Technologies”

Water India 2011
Organized by
Confederation of Indian Industry (CII)
on
11&12th Feb, 2011



By
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Source of inspiration



- Dr. Bindeshwar Pathak, Founder, Sulabh Sanitation and Social Reform Movement, working in the sanitation sector since last more than forty years and in 1970, founded the Sulabh International Social Service Organisation with a purpose to restore the human rights and dignity of the untouchable scavengers and also to help stop defecation in the open and provide safe and hygienic toilets to all.

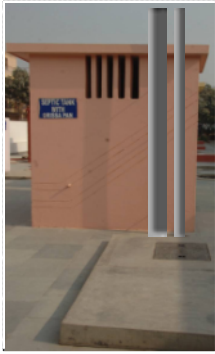
INTRODUCTION

- With the provision of sewer and septic tank technologies Europe, America & Australia solved their problems of lack of toilets by 20th century.
- But in this system, after flush, the human excreta is carried away by water to a longer distance and then human waste is treated. The cost of construction & maintenance is very high and it requires enormous quantity of water to flush.

INTRODUCTION

- Asia, Africa & Latin America lagged behind and could not adopt because the technology of septic tank & sewer were not affordable in these continents.
- Just for example, the sewer system was laid in Kolkata, India in 1870 and after 140 years only 269 towns/cities out of 5161 towns are sewer based and that too partially.
- If there is no growth of towns and cities further, only in urban areas, it will take 3000 years to provide sewerage system.

Septic tank and sewerage system are not affordable & sustainable sanitation solution !



SANITATION SCENARIO

- In the late sixties, sanitation scenario in India was worst, 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.
- More than fifty diseases including diarrhoea, cholera, poliomyelitis, etc. have been



SANITATION SCENARIO

- Child Mortality Rate was very high.
- Drop-out of girls from schools was high because of no toilets.
- In urban areas, only 15% of the population used septic tanks and a large number of people used to go outside for defecation. The remaining population had dry/bucket toilets, cleaned manually by 'human scavengers'.
- 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

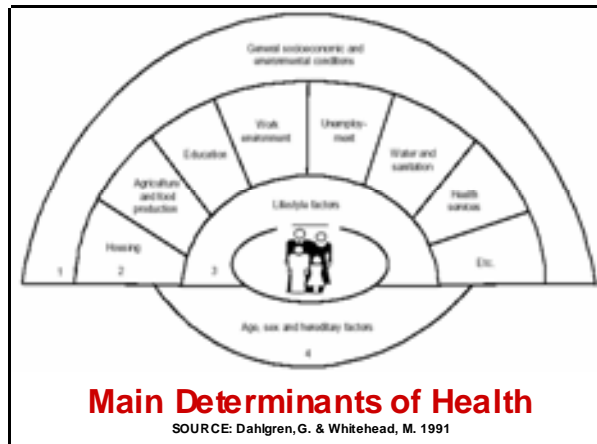


1. ENVIRONMENTAL SANITATION & HEALTH

HEALTH is defined as: "A state of complete physical, social and mental wellbeing, and not merely the absence of disease or infirmity".

In this sense, health is seen as a resource for everyday life, as a positive concept that emphasises social and personal resources as well as physical capabilities.

(World Health Organization, 1948)



Healthcare

- Broadly speaking the general diseases can be classified into 3 categories:
 - Preventive
 - Curative
 - Rehabilitative

Reasons for Unsatisfactory Status of Healthcare in India

- The failure to integrate health services with wider economic and social development.
- Millions of people lacking basic sanitation and hygiene in both urban and rural areas in the country.
- Lack of proper education, training and awareness amongst the masses about the health impacts of Hygiene, Sanitation and safe drinking water.
- The lack of nutritional support.
- The poor participatory involvement at the local level.

Linkages between Sanitation & Health

- Diarrhoeal disease alone amount to an estimated 4.1 % of the total DALY (Disability Adjusted Life Years) Global Burden of Disease (WHO, 2004).
- 1.8 million diarrhoeal deaths each year (90% of them – among children < 5 years of age).
- Lack of attendance in schools (esp. girls) – performance negatively impacted.
- Child and Maternal health adversely affected.

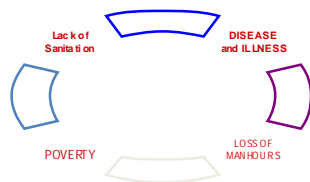
Linkages between Sanitation & Health contd...

- Studies conducted by Dr. Feachem indicating relative importance of alternative preventive strategies concerning water supply, sanitation and health education revealed that health impact of supplying clean water alone is limited. However carefully designed programmes which combine water quality with improvements in water availability, safe disposal of human waste and hygiene education have the potential to be successful.
- The All India Institute of Hygiene and Public Health, Kolkata, in another study observed that the mortality and morbidity rates were higher in villages with only tubewell water supply facility than at places where only pour-flush water seal toilets had been provided. The best results were found where both the facilities were available. The worst where none existed.

Millennium Development Goals (MDGs)

- The Millennium Development Goals (MDGs) are the world's time-bound and quantified targets for addressing extreme poverty in its many dimensions - income poverty, hunger, disease, lack of adequate shelter, and exclusion-while promoting gender equality, education, and environmental sustainability. They are also basic human rights-the rights of each person on the planet to health, education, shelter, and security.
 - Goal 1: Eradicate Extreme Hunger and Poverty
 - Goal 2: Achieve Universal Primary Education
 - Goal 3: Promote Gender Equality and Empower Women
 - Goal 4: Reduce Child Mortality
 - Goal 5: Improve Maternal Health
 - Goal 6: Combat HIV/AIDS, Malaria and other diseases
 - Goal 7: Ensure Environmental Sustainability
 - Goal 8: Develop a Global Partnership for Development

Impact of Lack of Sanitation on the MDG's

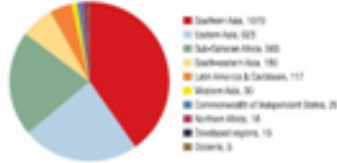


Sanitation a Top Medical Milestone

- More Than 150 Years of Medical Marvels: **Sanitation** Voted the Greatest Advance Since 1840.
- That's exactly the challenge the prestigious British Medical Journal posed to a small group of experts and the many thousands of their readers, mostly doctors. Well, almost exactly. They actually were looking for the greatest medical advance of the past 167 years, back to 1840, the year the journal was founded.
- In light of the truly staggering medical breakthroughs and scientific advances of the past 150 years, final outcome of the contest will shock you. The ultimate winner? **Sanitation!**
- Sanitation received 1,795 votes. Antibiotics was a close second with 1,642 votes and anesthesia took third.

FACT: Access to Sanitation Provision

2.6 billion people – 72% of whom live in Asia – do not use improved sanitation facilities



Population without improved sanitation (region wise) in 2008 (millions) – UNICEF-WHO JMP 2010 Update

Globally over 2.6 billion people lack basic sanitation worldwide – of which 650 million people reside in India.

1. ENVIRONMENTAL SANITATION & HEALTH

•To overcome the problem of human scavenging and safe and hygienic disposal of human wastes from households, Sulabh invented, innovated and developed the **Sulabh two-pit, pour-flush, compost toilet**.

•Sulabh two-pit, pour-flush, compost toilet is scientifically appropriate, economically affordable, indigenous and culturally acceptable.

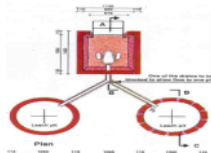
On-site Technology for Sustainable Sanitation

Sulabh two-pit, pour-flush, compost toilet

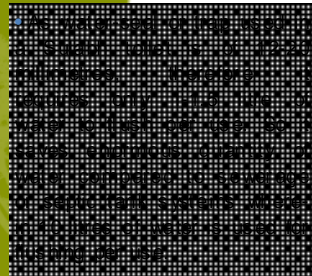
- In the Sulabh toilets there are two pits, one used at a time and the other is kept as standby. When the first pit fills up, the excreta is switched over to the other one.
- Both the pits are used alternately. In the first pit after a period of two years, human excreta gets converted into manure.



Sulabh Toilet with circular

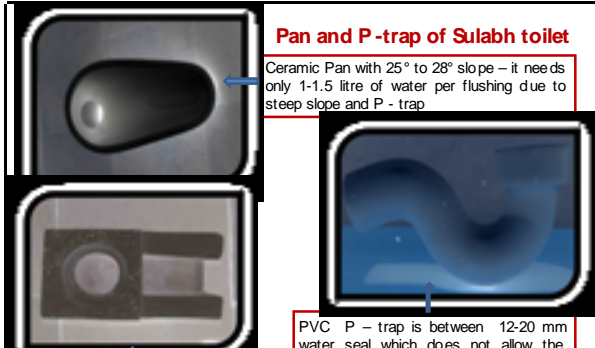


Water-seal or P-trap of Sulabh toilet



Pan and P-trap of Sulabh toilet

Ceramic Pan with 25° to 28° slope – it needs only 1-1.5 litre of water per flushing due to steep slope and P - trap



PVC P - trap is between 12-20 mm water seal which does not allow the gases or the smell from the pit to enter the toilet

Where there is no factory or availability of PVC trap, anyone can pre-cast it so that it is not a constraint.

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Taking out of manure from m pit of a Su labh toilet

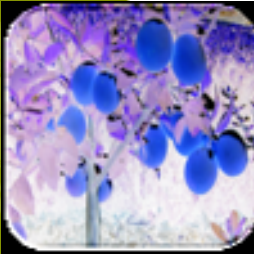
- The manure is taken out from the pit by the beneficiaries without involving scavengers as it is odourless, pathogen-free, semi-solid containing 1.8% nitrogen, 1.6% phosphate and 1% potassium.



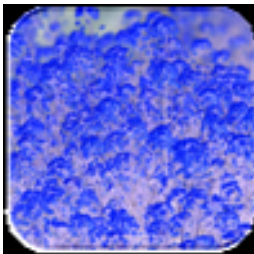
Manure from Human Excreta

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The manure is a rich fertiliser and soil conditioner which improves the productivity of the field and fruits and flowers, when used for agriculture/ horticulture.



High yield of fruits



High yield of crops

Manure from Sulabh two-pit Toilet

Manure obtained in Sulabh two-pit toilet from one person is 40kgs. per year

So, manure obtained from 6 billion people is 6 billion x 40kgs. =240 billion kgs. or 240 million tones in a year

If, cost of 1 kg. manure is Rs 5.00 or US 10 cent

Then cost of 240 million tones of manure produced will be Rs. 12, 00,000 million or US\$24,000 million

The Sulabh toilet can be constructed in the minimum possible space



The Sulabh toilet can be constructed in the minimum possible space –courtyard of a house or in the bedroom.

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The Sulabh toilet can be constructed in the minimum possible space



Sulabh pour-flush toilet for linear space with common dividing wall in a narrow lane⁷

The Sulabh toilet can be constructed in the minimum possible space



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

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The Sulabh toilet can be constructed in areas where the water-table is high, in waterlogged, flood prone and high sub-soil water areas where the pits could be raised.

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Sulabh toilets can be constructed in the upper floors of buildings.

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Different uses of Sulabh two-pit, pour-flush toilet platforms



The platforms on the Sulabh pits can be used for chopping fish.

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The platforms on the Sulabh pits can be used for a variety of purposes like cooking.

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The platforms on the Sulabh pits can be used for chaffing grains

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The platforms on the Sulabh pits can be used for running a small shop.

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Different Designs of Sulabh two-pit, pour - flush, compost Toilet

- The Sulabh toilet has been designed in such a way that the poorest of the poor, middle class and even the rich people can have the facilities of Sulabh toilets because the cost of construction is affordable and can vary 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 toilets are earth based, having holes in the walls, gases are absorbed in the soil. This helps reduce global warming and improves

Different designs of Sulabh two-pit, pour - flush, compost toilet Model No. 1



Cost – US \$30 (Rs. 1500)

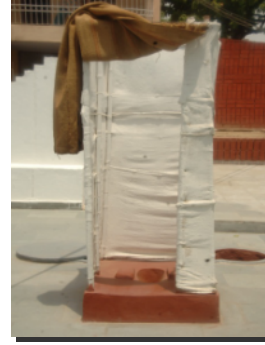
Model No. 2



Cost – US \$35 (Rs. 1750)

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Model No. 3



Cost – US \$32 (Rs. 1600)

The cheapest toilet with jute on all sides on bamboo frame

Model No. 4



Cost – US \$50 (Rs. 2500)

Superstructure made of thatched palm matting – affordable for poor people.

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Model No. 5



Cost – US \$53 (Rs. 2650)

Thatched wall with roof on bamboo frame

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Model No. 6



Cost – US \$145 (Rs. 7250)
Brick wall with no door.

Model No. 7



Cost – US \$152 (Rs. 7600)
Brick wall with jute curtain.

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Model No. 8



Cost – US \$160 (Rs. 8000)
Circular design without door and roof for people who want to enjoy sky and air with privacy.

Model No. 9



Cost – US \$185 (Rs. 9250)
Toilet walls made of bricks with roof and wooden door- more expensive.

Model No. 10



Cost – US \$190 (Rs. 9500)

Brick toilet for those people who can afford to spend more money

Model No. 11



Cost – US \$1100 (Rs. 55000)

Even the rich can get constructed Sulabh two-pit, pour flush toilets where there is no sewerage. The pits can be cleaned after 40 years.

Panoramic View of Different Designs of Sulabh Two-Pit, Pour-Flush, Compost Toilets



In the Sulabh two-pit technology there is flexibility of design which the beneficiary can choose depending upon his affordability and size of family.

Advantages of Sulabh two-pit, pour flush, compost toilet

- Sulabh two-pit, pour flush, compost toilet is eco-friendly, cost-effective, technically appropriate, indigenous and socio-culturally acceptable.
- Sulabh two-pit, pour flush, compost toilet fulfills all the seven conditions of a sanitary latrine laid down in the WHO book- Excreta Disposal for Rural Areas and Small Communities. (by E.G. Wagner & J.N. Lanoix, WHO, 1958).
- 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.

Prevention from Contamination of Ground Water

Hand-pump 15 feet Sulabh two-pit, pour flush, compost toilet 30 feet Well

- The Sulabh two-pit toilet is free from all health hazards and does not pollute ground water or drinking water sources like hand pumps, wells etc. if proper precautions are taken in its construction.
- A Sulabh toilet can be constructed at a distance of 30 feet from a well or a 15 feet from a hand-pump and no distance is required if there is provision of piped water supply.
- If there is a space constraint, then the well nearby should be plastered from inside up to 30 feet, so that there is no chance of pollution.

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Water saved from existing Sulabh Two-pit Toilet in one year

No. of Two-pit Toilets constructed by Sulabh = 1.2 million

No. of persons who use one toilet (average) = 7 million

No. of times toilet used (average) = 2 million

Total no. of users per day, 1.2 million x 7 = 8.4 million

Water used in Sulabh two-pit toilet = 2 million

So, water used by 8.4 million people

= 2 litres x 8.4 million
= 16.8 million litres

Had it been septic tank

Water used in septic tank = 10 litres

So, water used by 8.4 million

= 8.4 million x 10 litres = 84 million

Hence, water saved by existing Sulabh two-pit toilet

= (84.0-16.8) million litres
= 67.2 million litres

If toilet is used twice a day = (67.2 x 2) million litres

= 134.4 million litres

So, water saved in a day = 134.4 million litres

Sulabh Strategy

– Invention of technology alone cannot improve the living condition of the people but this has to be provided at the doorsteps of the customers and adopted two strategies:

- (i) Motivation, Education, Communication and Training
- (ii) The delivery system, Implementation, maintenance and follow-ups.

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*).
- Processing of forms by Urban Local Bodies.
- Sulabh workers complete the construction of toilets based on the choice of the householder selected from a wide range of design options.
- Certificate of completion is given by the beneficiaries.



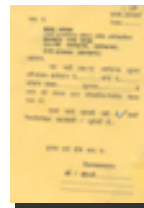
- Thereafter, Guarantee Card is issued with Sulabh accepting the responsibility of rectifying defects free-of-cost for a period of five years.



- 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 is essential.



Maintenance of Public Toilet Complexes

- In 1973, Dr. Pathak 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.
- But on the very first day 500 people used the public toilet in Patna, Bihar.
- However It took several years to convince the Government and the people.
- Earlier people were not habituated to paying for the use of public toilets.



The First Sulabh Public Toilet Complex constructed and maintained at GandhiMaidan, Patna, Bihar

Sulabh has the credit of building & operating the world's largest Public Toilet at Shirdi, Maharashtra.

Sulabh Public Toilet Complexes



AMENITIES
INSIDE
SULABH TOILET
COMPLEXES

- 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, Shir di, Nasik, Maharashtra



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



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



Urinals installed with sensor system, Bhopal, Madhya Pradesh



Water Tap fitted with Sensors



Girl combing her hair using mirror inside the Sulabh Toilet Complex



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



*Public toilets are now working as Public health centers. We have installed condom vending machines and are providing condoms to check population growth and diseases like HIV/AIDS.

GLIMPSES OF SULABH TOILET COMPLEXES



Inside View - Sulabh Toilet Complex, Taj Mahal, Agra



Inside View- Ultra Modern Sulabh Toilet Complex at Deoghar,



Inside View- 'Lift' Sulabh Toilet Complex at Deoghar,



Sulabh Toilet Complex at Donapaula, Panji, Goa.



Sulabh Toilet Complex, Hosh angab ad, Madhya Pradesh

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Sulabh Toilet Complex (Air-Conditioned), Lucknow, Utt ar Pradesh⁴



A view of Sulabh Toilet Co mplex at Sanag aneri Gate, Jaipur, Rajasthan



Sulabh Toilet Complex – New Delhi Railway Station, Delhi.



Sulabh Toilet Complex at New Market Parking Bhopal, Madhya Pradesh



Sulabh Toilet Complex at Manisha Market, Shajapur, Bhopal, Madhya Pradesh



Sulabh Toilet Complex at Vishwakarma Nagar, Bhopal, Madhya Pradesh



People using Sulabh Toilet Complex, Mumbai High Court, Maharashtra



Sulabh Toilet Complex - Premium Business Centre, Nariman Point, Mumbai, Maharashtra



Sulabh Toilet Complex, Dwaraka, Gujarat



Sulabh Toilet Complex with Night Shelter, Port Blair, Andaman and Nicobar



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



2. ENERGY FROM WASTE

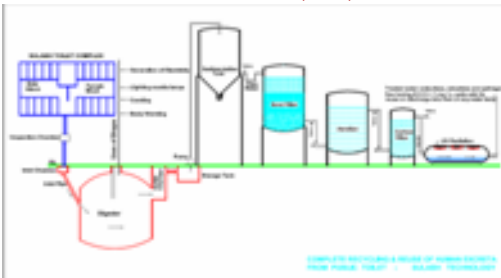
Recycling and Reuse of Human Waste

- Sulabh developed another technology for complete recycling of human excreta through biogas generation and on-site treatment of effluents through a simple and convenient technology for its safe reuse without health or environmental risk.

Sulabh Effluent Treatment (SET) System

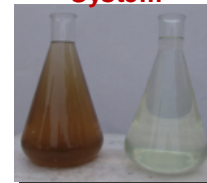


Public Toilet linked to Biogas Digester and Sulabh Effluent Treatment (SET) device



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

Sulabh Effluent Treatment (SET) System



- The effluent discharged from public toilet, after treatment, becomes so pure that its Biochemical Oxygen Demand is less than five milligram per litre.
- 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.
- Both these technologies are suitable for market places, housing colonies, high-rise buildings, public places, schools, colleges, hospitals etc.

Human Excreta Based Biogas Digester Linked To A Public Toilet Complex



Human excreta based Biogas Technology

- From public toilets human excreta goes inside the digester and biogas is produced without any chemical, bacteria or change agents. Only 10-20 kgs. of cow dung is required to be put inside the digester on the first day of use. The biogas produced is then channelized for lighting mantle lamps, warming oneself in winters, cooking and also for conversion into energy for street lighting.

Use of Biogas



Biogas used for cooking

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Ambassador Timothy J. Roemer trying his hand in frying papadum in human excreta- based biogas kitchen at Sulabh Campus, New Delhi.

Use of Biogas



Biogas used to warm oneself in winter

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Use of Biogas



Biogas used for cooking purposes

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Use of Biogas



SULABH BIOENERGY

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Biogas used for electricity generation

Initially, in the dual fuel genset 80% biogas and 20% diesel were required to run the engine, but now under the new system ignition of compressed biogas is done through battery operated spark system.



Sulabh Toilet Complex attached with Biogas Plant at Kabul,

Prevention of Atmospheric Pollution and Global Warming

1 person produces 1 cubic foot biogas per day

Hence 6 billion people produce 6 billion cubic feet biogas per day.

In biogas, the methane content is 65%

So from 6 billion people, 3.9 billion cubic feet methane is produced per day

Hence emission of methane into the atmosphere is 40.67 billion cubic metres per year.

Calorific value- 5000 Kcal/cum

A one thousand cft. (30 cum) of bioga is equivalent to 600

Prevention of Atmospheric Pollution and Global Warming

In a septic tank system gas pipe is required to permit outflow of gases produced into the atmosphere.

But in Sulabh two-pit, pour-flush, compost toilets, vent pipes are not needed and gases are absorbed in the leach-pits into the soil.

In Sulabh public toilet complexes with attached biogas digesters, the gases are burnt when put to different uses like cooking, warming oneself, lighting mantle lamps, etc.

Thus, Sulabh technologies prevent emission of methane into the atmosphere and reduce global warming and improve climate change.

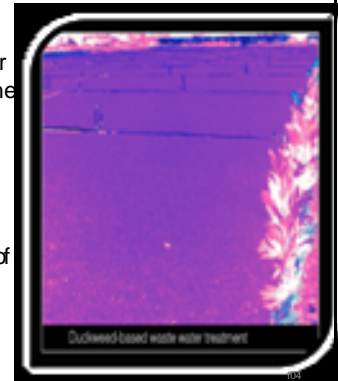
Duckweed Based Waste Water Treatment

- This waste water treatment is suitable for population less than one lac.

- A fast growing free floating plant.

- Reduces BOD, COD of waste water.

- Contains up to 30 % protein.



contd....

- Complete feed for fish.
- In duckweed treated water fish is grown.
- 8-10 tons of fish per ha. of pond/annum can be harvested



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3. SOLID WASTE MANAGEMENT

Water Hyacinth

- Water Hyacinth is an aquatic, seasonal weed and the advantage of this weed is that –
- It is a good substrate for biogas generation.



- Biogas is non functional in summer due to non availability of water hyacinth. The biogas can be produced throughout the year by harvesting, drying and pulverising this weed.
- The biogas generation shows better result when fed with dried water hyacinth and increase the gas production.

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Sulabh Thermophilic Aerobic Composting (STAC) Technology for Solid Waste Management

- A plant of GI sheet having double wall filled with glass wool, partitioned with perforated sheet into three chambers.
- Requires 8 – 10 days to make compost from any biodegradable waste.
- No manual handling.
- It functions at low temperature also
- More suitable for housing



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The benefits of this technology : contd...

- Organic solid waste can be efficiently converted into manure and soil conditioner, giving economic return.
- It can control diseases transmitted from waste; as at high temperature pathogens are eliminated from it.
- Due to a reduction in volume, cartage costs of waste to disposal sites or for land filling will be greatly reduced.
- Spread of weeds from waste will also be

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STAC– Maklorganj (Dharmshala, Himachal Pradesh) Project



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Vermi-Composting

- It is the end product of the breakdown of organic matter by some species of earthworm.
- Vermicompost is a nutrient rich natural fertilizer and soil conditioner.
- The process of producing vermicompost is called vermicomposting.



Benefits of Composting

- Direct employment in composting
- Economic gain through sale of compost & earth-worms
- Reduce dependency on chemical fertilizer for agriculture purpose
- Reduce the expenditure of Municipal body on transportation of Solid Wastes.
- Reduce the need for new landfill site
- Prevention of pollution caused by Solid waste
- Reduce green house gas.



Compost ready to use

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4. RESTORATION OF HUMAN RIGHTS & DIGNITY

- In India, since Pauranic period over 4000 years ago, the inhuman, unhealthy and unhygienic practice of cleaning human excreta manually by scavengers is continuing. They were called 'untouchables'. This is a blot on human civilization.
- The scavengers were humiliated and insulted, even by those, in whose houses they used to go to clean toilets.



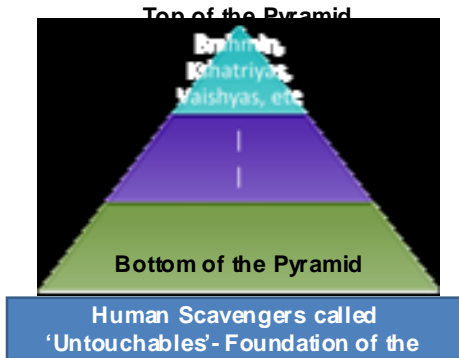
Scavengers had to clean bucket toilets before sunrise, so that nobody could see them or touch them.

- 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 fringes 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 or to do any rituals and ceremony.

Caste System since last 5000 years



Fulfilling Mahatma Gandhi's Dream Sulabh Initiative towards Rehabilitation of Scavengers

- Both Sulabh technologies have removed untouchability. Scavengers have been liberated from the sub-human occupation of cleaning and carrying human excreta as head-load for its further disposal. They were the worst victim of a cruel social order for centuries and reduced to the depths of degradation as 'untouchables'.

NAI DISHA: An Initiative towards Rehabilitation of Scavengers

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



A comprehensive 2-year training is being provided to women scavengers in various vocations to help them earn their livelihoods. They were also taught to read and write through adult literacy classes.

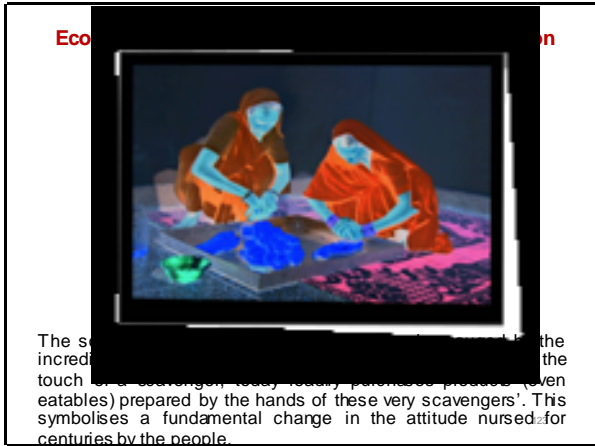




Nai Disha trainees (erstwhile scavengers) taking education and vocational training in beauty care trade.



Nai Disha trainees (erstwhile scavengers) taking education and vocational training in beauty care trade.



Eco

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The so... the
 incred... the
 touch... (even
 eatables) prepared by the hands of these very scavengers'. This
 symbolises a fundamental change in the attitude nursed for
 centuries by the people.



Nai
 also


g is




Nai Disha trainees in a vocational training session - making noodles.



A New Dawn - Nai Disha trainees are making and stitching Namda— a handcraft work which are very popular in Rajasthan, India.



SELF RELIANT – A NEW JOURNEY



A monthly stipend of Rs. 2000 or US\$ 40 is paid to ensure that they do not return to their earlier profession. The stipend is directly put into their bank accounts which they operate themselves.

World Toilet Summit 2007, New Delhi, India



Mrs. Sushila Chauhan, shared the dais with former President of India, Hon'ble Dr. A. P. J. Abdul Kalam and addressed the gathering at the Inaugural Session of the World Toilet Summit at Vigyan Bhawan, New Delhi

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, Chief 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.

Mission Sanitation

The erstwhile women scavengers walked the ramp with the models who showcased their handiwork at the United Nations in New York on July 2, 2008. With this their social status went up.



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 degrading profession of cleaning dry privies and carrying human excreta (nightsoil) of others, to eke a living for their families.

Social Acceptability



The Hon'ble President of India, Mrs. Pratibha Devisingh Patil, crowned Mrs. Usha Chauhan in the Rashtrapati Bhawan.

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Dining With Mahatma Gandhi's Grandson Prof. Rajmohan Gandhi, Sulabh Gram, New Delhi



A unique lunch and an amazing experience when Mr. Rajmohan Gandhi dined with the liberated scavengers and the families where they did scavenging, along with priests, in the lawns of the Sulabh Campus, New Delhi on January 5, 2009.



His Excellency Mr. Jean M. Deboutte, Ambassador of Belgium to India, shaking hand with Mrs. Lalita 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 Chauhan, President of Sulabh International Social

Traditional Welcome of Swedish Prime Minister at Sulabh



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 Pathak

"A Great Sign of Development – Important for the World!"
 - Mr. John Fred rik Reinfeldt, Prime Minister of Sweden



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

Traditional Welcome of Ambassador of U.S.A to India at Sulabh Campus, Delhi, India



H.E. Mr. Timothy J. Roemer, Ambassador of U.S.A. to India being welcomed by Ms. Dolly, an erstwhile scavenger, in the traditional Indian style by vermilion mark put on forehead as a mark of respect and good luck, during his visit to Sulabh Campus, Delhi, India.

Ambassador of U.S.A to India in January 2010 at Sulabh Office in 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.



"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."

- H.E. Mr. Timothy J. Roemer, Ambassador of U.S.A. to India

HRH Princess of Belgium at Sulabh Gram on 23rd March 2010



Erstwhile 'untouchable' and liberated scavenger of Alwar welcoming the Her Royal Highness Princess Mathilde of Belgium by applying traditional Indian style Tilak on her forehead.



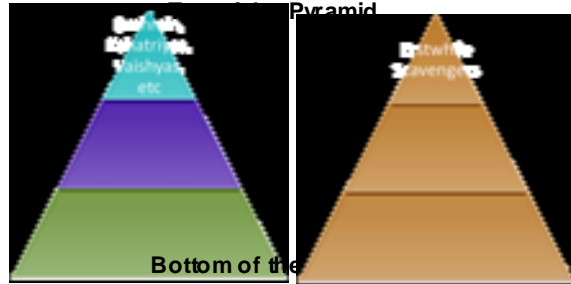
An unforgettable moment for 300 NAI DISHA trainees, who used to work as manual scavengers as they entered the precincts of Parliament to get an experience of the Lok Sabha on Tuesday, 17th August 2010 for the first time.



A Group of Women from Sulabh International Social Service Organization from Alwar meet the Hon'ble Speaker, Lok Sabha Shri. Meira Kumar in Parliament House on 17 August 2010. Also seen in the photograph is Dr. B. Indeshwar Patil, Founder, Sulabh Sanitation and Social Reform Movement.

PRESENT STATUS

Now they are par with other castes of the society and enjoying the rights, rituals, ceremony.



Sulabh – A Silent Revolution brought erstwhile scavengers into the main stream of the society.

QUALITY EDUCATION

Sulabh Public School:

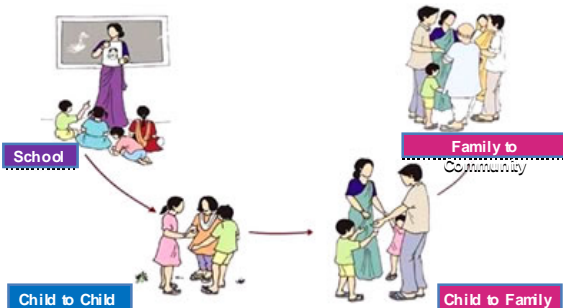
- Premier English medium school.
- Recognised by CBSE.
- Tuition fee is waived and free uniforms, books are provided to children of scavenger community.
- There is a 60:40 ratio of children from scavenger community to other sections of society.
- Students share lunch with one another.
- Messages of proper hygiene behaviour spread from children to parents and community.



Sulabh School Sanitation Clubs

- Sulabh School Sanitation Club is a unique programme involving various schools. It aims to improve school sanitation through focusing on building facilities, providing health and hygiene education with a special focus on maintenance issues.
- The club motivates the school children to form similar Eco clubs or San clubs in their own schools to address the unhealthy environment and for proper monitoring and evaluation.
- It conducts various interactive exchange programmes to instill health creating behaviors and encourage each other to contribute useful information and share their own success stories in helping their school to remain clean.

Student as Agent of Change – changing themselves, family and the community.



School as Resource Center and setting a model for change



Implementing children's rights: Children have the right to be as healthy. Good health and sanitation contribute to a happy childhood.



Sense of Ownership and Hygiene Behavior:
Teacher and Students cleaning toilets and wash basin at Sulabh Public School, Mahavir Endave, New Delhi.



Generating hygiene awareness and demand among teachers and children in schools

HRH Princess of Belgium at Sulabh Gram on 23rd March 2010



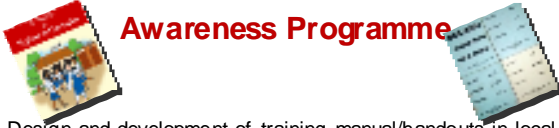
Her Royal Highness Princess Mathilde of Belgium and Dr. Bindeshwar Pathak, with students of Sulabh Public School, Mahavir Endave, New Delhi.

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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'Ivoire, 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 visited the Sulabh campus in New Delhi to see the Sulabh technologies.

Awareness Programme




- Design and development of training manual/handouts in local language for effective usage.
- Sulabh has translated its literature on environmental sanitation, first in 18 official languages and then in 6 more for awareness & motivation.
- Involving people in Hygiene, Hand Washing, Use of Toilets through demonstration and use of Information Education & Communication (IEC) and Information Communication & Technology (ICT) development tools, drama, nukkad natak, etc. Using these tools and techniques we could be able to motivate the customers to accept sustainable sanitation solutions.

Recognition of Sulabh Technologies

- Sulabh's Cost Effective & Appropriate Sanitation Systems were recognised as "*Global Urban Best Practice*" from amongst 625 entries from all over the world by United Nations Centre for Human Settlements (UNCHS) in 1996 at Istanbul.
- The Dubai Municipality and UNCHS (HABITAT) awarded Sulabh technology '*Dubai International Award for Best Practices to Improve the Living Environment*' out of 1125 entries in the year 2000.
- UNDP has recommended the use of Sulabh technologies. International agencies such as WHO, UNICEF, World Bank, UN-HABITAT, WSSCC, apart from national governments, have appreciated the efforts of Sulabh.

Recognition of Sulabh Technology

- The technology has been recommended in the UNDP Human Development Reports (2003 & 2006) for replication in other developing nations.



Recognition of Sulabh Technologies

"This designer's low-cost toilet has helped the planet, improved sanitation for millions – and freed countless scavengers from a life of cleaning human waste".
- TIME



HEROES OF THE ENVIRONMENT 2009

TIME Magazine has recognised Dr. Bindeshwar Pathak, Founder, Sulabh Sanitation and Social Reform Movement as '**HEROES OF THE ENVIRONMENT**'.

Awards



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



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. Klaus Topfer, Executive Director of UNEP is on the right.



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

Achievements of Sulabh At A Glance

Sulabh household toilets constructed	1.2 million
Government of India constructed toilets based on Sulabh design	54 million
Sulabh community toilet complexes constructed and maintained	more than 7000
Human excreta-based biogas digesters attached to Sulabh toilet complexes	200
States/Union Territories where Sulabh is working	25/4
Towns where Sulabh is working	1499
Districts where Sulabh is working	499
Number of Local Bodies where Sulabh is working	1557
Towns made scavenging-free	640
Persons using toilets based on Sulabh design daily	300 million approx.
Scavengers liberated and rehabilitated	120,000
Number of women trained in urban slums	14,000

We have miles to go before we sleep...

Thanking You!

Sulabh International Academy of Environmental Sanitation and Public Health

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