

COST-EFFECTIVE AND APPROPRIATE SANITATION SYSTEMS : THE CASE OF SULABH INTERNATIONAL

1. (a) **Name of the Best Practice Project** : Costeffective and Appropriate Sanitation Systems:Case of Sulabh International.
- (b) **Name of the Best Practice Sponsoring Organisation with Address** : Ministry of Urban Affairs and Employment, Government of India.
- Person/Org.** : Ministry of Urban Affairs & Empl., GOI  
**Street** : Maulana Azad Road  
**City** : New Delhi  
**State/Prov.** : Delhi  
**Country** : India  
**Postal Code** : 110045  
**Telephone** : -  
**E-Mail** : -
- (c) **Names of the Partnering Organisations** : (i) HUDCO, India Habitat Centre, Lodhi Road, New Delhi - 110003, India  
 (ii) Local Governments  
 (iii) Community
- (d) **Address of the Best Practice (actual location)** :
- Person/Org.** : Sulabh International Social Service Org.  
**Street** : Mahavir Enclave, Palam Dabri Marg  
**City** : New Delhi  
**State/Prov.** : Delhi  
**Country** : India  
**Postal Code** : 110045  
**Telephone** : (+91+11) 5554844, 5553823, 5553370  
**E-Mail** : -
- (e) **Names of Contact Persons with Their Addresses** :
- Person/Org.** : Dr. Bindeshwar Pathak, Founder  
**Street** : Mahavir Enclave, Palam Dabri Marg  
**City** : New Delhi  
**State/Prov.** : Delhi  
**Country** : India  
**Postal Code** : 110045  
**Telephone** : (+91+11) 5554844, 5553823, 5553370  
**E-Mail** : -

Person/Org. : Mr. A.K. Roy, Chairman Technical  
Street : Mahavir Enclave, Palam Dabri Marg  
City : New Delhi  
State/Prov. : Delhi  
Country : India  
Postal Code : 110045  
Telephone : (+91+11) 5554844, 5553823, 5553370  
E-Mail : -

Person/Org. : Mr. Arun Pathak, Chairman Coordination  
Street : Mahavir Enclave, Palam Dabri Marg  
City : New Delhi  
State/Prov. : Delhi  
Country : India  
Postal Code : 110045  
Telephone : (+91+11) 5554844, 5553823, 5553370  
E-Mail : -

2. Selected Initiatives with Issues  
Regarding the Best Practice

- i) Initiative : Environmental Protection  
Issues : Environmental Health, Environ-mental  
Remediation and Pollution Reduction
- ii) Initiative : Social Services  
Issues : Health and Welfare
- iii) Initiative : Technology and Tools  
Issues : Appropriate Technologies, Hard-ware,  
Management Tools Systems,  
Planning Tools and Technology,  
Research and Development,  
Technology Transfer.

3. (a) Location of the Best Practice

: Continental

(b) Scale

: Global/Regional

(c) Partnerships

: Academic/Scientific  
Government : Central  
Government : States  
Government : Local  
Government : Regional  
International Agencies  
Media Groups  
NGOs/CBOs  
Private Sector  
Professional Associations

(d) International Region

: Asia

4. Summary of the Best Practice

: For safe and hygienic human waste disposal, Sulabh  
International has developed three best practices in India.

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The first is two pit pour flush on site disposal technology, second, construction and maintenance of community toilets on pay and use basis used by 10 million people daily and third, production and use of bioenergy and biofertiliser. These practices are sustainable, replicable, cost effective, affordable and appropriate. These lead to elimination of open air defecation and demeaning practice of cleaning human excreta by scavengers. Thus human dignity has been restored. These practices have been adopted throughout the country and appreciated nationally and internationally.

## 5. Narration of the Best Practice Project

### : BEFORE

Open defecation and use of bucket latrines are widely prevalent in both rural and urban areas of India. This in turn has led to the demeaning practice of manual scavenging of human excreta by humans which stigmatized a particular caste and bred the social practice of "untouchability". Apart from being a degrading, menial practice, manual scavenging also posed many health hazards. During the pre-Independence period, two sanitation technologies - septic tanks and sewerage - were introduced. Apart from their operational and maintenance problems, both the technologies were costly and the developing countries like India cannot afford them under the present economic condition. Besides, desludging of septic tanks poses serious problems; it is health hazardous and needs the services of scavengers as fresh human excreta has to be handled. Attempts were made by Government engineering departments, institutes, non-governmental organisations and individuals to develop suitable and appropriate designs of toilets but their efforts did not prove successful as people did not accept them. This was found to be very unsatisfactory by environmentalists and sanitary engineers alike since it did not effectively treat and dispose of human excreta. Another area where sanitation facilities fell far short of requirements was public latrines. Municipality-maintained public toilets were not successful and these toilets were in a miserable condition. The problem with these toilets extended right from their design to their operation and maintenance, with the result that users mostly preferred to use open spaces rather than these deplorable latrines.

Besides, the severe shortage of affordable serviced land in the urban areas forced more and more of the poor to take refuge in low-lying areas. Given the periodic inundation and fluctuations of the water table, these low-lying locations became particularly vulnerable to contamination of soil and water and posed many health hazards.

### AFTER

Padma Bhushan Dr. Bindeshwar Pathak, an eminent action sociologist, social reformer, environmentalist, internationally known expert on low cost sanitation and

production of biogas from human excreta at community toilets, evolved an appropriate low-cost latrine design of low-cost pour-flush water-seal toilets with twin pits for on site disposal of human waste as an alternative to bucket privies and eradication of open air defecation. He set up the Sulabh Shauchalaya Sansthan in 1970 (now called Sulabh International Social Service Organisation) to disseminate the idea of conversion of dry household latrines into the hand-flush water-seal toilets designed by him to prevent environmental pollution and abolish scavenging.

Sulabh has so far constructed/converted over 700,000 Sulabh Shauchalayas in houses and nearly 3,000 public toilets, providing sanitary facilities to about 10 million people. Over 35,000 scavengers have been liberated from the task of manual scavenging. About 3,400 wards and family members of the liberated scavengers have been given vocational training. Approximately 240 towns have been made scavenging-free. There has been a dramatic positive change in the physical environment of the towns where Sulabh has worked. In the towns which have become scavenging free, all household dry/bucket privies have been converted to the new twin-pit pour-flush technology. In many cases the technology has also been provided in households which previously possessed single-pit latrines or had no latrine at all. The dumping of fresh pathogenic night soil has stopped, leading to the improvement in the physical environment.

Further, the public latrines maintained by Sulabh - which are run on pay-and-use basis - have vastly improved the quality of facilities available to users. The users primarily include pavement-dwellers, cycle rickshaw-pullers, commuters, floating population and those in whose houses individual toilets cannot be built. As Sulabh has taken over these latrines from the municipalities for a contracted period of 30 years, the municipal authorities have been relieved from the task of operating and maintaining these. This system has proved to be a boon for the local bodies in their endeavour to keep the city clean and the environment safe. In addition to the improvement of environment, these toilet complexes have restored human dignity by : (a) providing facilities for defecation and bathing in privacy to those in need of these; and (b) by removing the social discrimination of the scavengers. Some of these complexes have been turned to social centers by providing telephone, medicare and family welfare service, clean water (for drinking) and cloak room facilities.

The all-round success of the efforts of Sulabh International led the Government of India and State Governments to initiate and implement the low cost sanitation programme all over India with the objectives of : (a) converting all dry or bucket latrines in the urban areas to pour-flush sanitary latrines designed by Sulabh; (b) providing such latrines where none existed; (c) making more pay-and-use public toilets available; and (d) doing away with manual scavenging. As a part of this scheme, the scavengers freed from the work have been simultaneously trained for alternative gainful employment.

## **STRATEGY**

### **Technology**

The technology developed was a twin-pit pour-flush toilet that uses only two litres of water for flushing. The excreta falls into a leach pit; the two pits are used alternately. Gas and liquid is slowly dispersed into the soil through holes in the lining of the pit, and the waste is rendered odorless and almost dry after 2 years rest period so that it may later be used as manure and soil conditioner. The technology developed by Sulabh is cost effective, sustainable, replicable and most appropriate. It can be built by indigenously available materials and easy to maintain. It has a high potential of upgradation; can be connected to sewers easily when introduced in the area. It does not need the services of scavengers.

### **Sectoral Policies and Strategies**

Sulabh's short-term goals include the provision of accessible, affordable and easily available latrines and the means to maintain them. Its long-term goal involves bringing about major changes in the attitudes and personal habits of the urban poor. For operational purposes the specific aims of Sulabh are :

- Elimination of the inhuman practice of manual handling of human excreta in servicing bucket/dry latrines, thus improving health, environment and productivity.
- Operation and maintenance of community toilet complexes including bathing, laundry and toilet facilities on pay-and-use basis.
- Producing biogas from human excreta and generating electricity as an alternative source of energy.
- Research and development efforts to work out practical solutions for solid and liquid waste disposal problems with the incorporation of recycling and resource recovery components.
- Rehabilitating the erstwhile scavengers by imparting vocational training to them and their wards.
- Establishing English-medium schools for providing education to the wards of scavengers in order to uplift the families of scavengers.

### **Social Objectives**

Sulabh Shauchalaya has made a critical impact in terms of reducing environmental degradation in slums. They also contribute to the creation of a more socially equitable society. The success of Sulabh lies in its consistency of mission. It stands apart from conventional government responses and provides an opportunity for direct, unimpeded action which draws strength directly from the

public need and support. Sulabh is of particular interest to planners and practitioners in mega-cities. The Sulabh technology permits the provision of basic amenities to a large portion of the population which is cut-off from formal municipal services.

Since isolated populations are less likely to feel social responsibility for citywide environmental conditions, Sulabh undertakes educational efforts to help reverse this frame of mind, and instills a stronger community awareness. Further, in mega-cities where public agencies are financially unable to provide critical services, Sulabh provides an opportunity for low-cost, self-help development. Also given the extremely high population growth rate in mega-cities - which makes it impossible to meet the demand for provision of basic services - Sulabh provides an affordable, extremely effective option that can be delivered quickly.

The major lesson to be learnt from the Sulabh experience is that where financial resources are constrained by central administrations, functions can be effectively delegated to grassroot and community-level organisations.

The Sulabh strategy, besides reducing the burden on municipal administration, enables the municipalities to meet their social obligations more effectively. It provides for the dovetailing of technological and social inputs into a major programme following a three-in-one strategy of :

- Conversion of dry latrines into economical water system latrines.
- Liberation of manual scavengers.
- Rehabilitation of the liberated scavengers through vocational and educational training and other supporting inputs to restore human rights and dignity.

Sulabh's strategy represents a marked departure from the conventional practices in at least three ways :

- In terms of the role of voluntary organizations, Sulabh has shifted the emphasis from propagation and moral support to action and implementation.
- It provides software facilities along with hardware facilities.
- It stresses a decentralized approach, emphasizing the development of micro-level local implementing resources.

#### **Institutional Arrangements and Partnerships**

The Sulabh movement demonstrates how a partnership between a local Government agency and a non-Governmental organization, backed by community participation, can make a substantial impact in improving the environmental quality in areas inhabited by the weaker sections of the society.

On the level of slums, community participation has been central to Sulabh's success. Education programs have been used to create awareness of sanitation which affects the lives of slum-dwellers. The movement thus is more of a social innovation than a technological one. It has helped to permanently alter the values and the hygiene habits of the urban poor and helped them make cleanliness and sanitation a part of their daily routine. By providing toilets to communities, which have requested for them, Sulabh has motivated and reinforced community-level involvement.

### **Management Systems and Decision-Making Processes**

The cornerstone of Sulabh's strategy has been to start a revolution in the minds of the people. To achieve this, Sulabh workers and volunteers have carried out door-to-door campaigns to talk to people and persuade them to convert their bucket latrines into Sulabh Shauchalayas (twin-pit, pour-flush latrines). The beneficiaries have only to fill in forms for applying for loan and subsidy, and authorise Sulabh to receive money and convert their dry latrines into Sulabh Shauchalayas. Sulabh takes over all the work involved in taking the loan and in completing the project.

After conversion of dry latrines, five-year guarantee cards are issued by Sulabh International to the beneficiaries, assuring them of prompt removal of any construction defect or solution of any technical problem free of cost. Sulabh International has developed special infrastructure for ensuring quality construction and for providing satisfactory follow-up services.

For the construction and maintenance of public toilets and baths, Sulabh's strategy is to play the role of a catalyst between official agencies and the users of Sulabh complexes. The land and finance for the construction of public toilets and bath and also electricity and water supply are made available by the local bodies. Sulabh undertakes the construction of these complexes and maintains them on pay-and-use basis for 30 years.

### **A Gender Dimension**

Although the target group of Sulabh's programmes are the impoverished residents of slums and resettlement colonies - in particular those who have no access to sanitary latrines - special attention is also given to the needs of women in this group, as well as to those among scavengers. Sulabh deliberately and consciously includes women as both students and instructors in the re-education process. Recently an attempt has also been made to train women volunteers in sanitation. The women volunteers are in turn expected to train other women and spread the message even further.

Although initiated by an NGO, the Sulabh Shauchalaya program has gained a lot through its association with international aid agencies, most notably the UNDP, World Bank, World Health Organisation, and local and international communication media. International aid organizations have assisted spreading the Sulabh movement through widespread promotion of the program among local and national authorities.

## 6. Sustainability of Best Practice

Sulabh International possibly is the largest NGO to have undertaken self-sustaining development projects to promote sanitation, prevent environmental pollution, initiate social reforms without violence to the existing social structure through education, information and opening out the system to liberal global influences in order to integrate the development process globally. Besides these, Sulabh also works to promote education, social integration, abolishing sources of conflict in society by cementing cultural and ethnic fault-lines in Indian Society.

Sulabh works as an external activating/facilitating force, skilled in both hard and soft technologies, eliciting community participation and resource base for providing sanitation facilities. Accumulation of local knowledge, management skills to utilise the economic and social technologies results in the development of human resources capable of sustaining the momentum of development. Proper communication requires an effective conduit which Sulabh provides.

Sulabh plays an important part in identifying ways and means in solving common social problems through people's participation on self-sustaining basis. Sulabh has proved that people themselves, and not the Government, can solve the problems on self sustaining basis and the NGOs should play the role of a catalyst in making it happen. Sulabh has also been combining in its programme the Best Practices as demonstrated to find common ground for people's co-operation. Women's problem has largely been lack of education and skewed social structure which is set against them in gender bias, especially in developing countries. The prejudices flowing from the prevailing practices of casteism, religious radicalism and untouchability have also been the sources of backwardness which Sulabh continues to combat by organising the underprivileged to work, in cooperation with others for creating an equitable social dispensation.

Women holds the key to the success of sanitation programme. They can bring out lasting change in the family. Also the facilities provided can continue to function and be utilised to their full potential provided the women are educated and involved in the implementation of the programme. Sulabh's strategy is to ensure their full participation in the sanitation programme.

On the level of slums, community participation has been central to Sulabh's success. Sulabh has laid special emphasis on health education and creating awareness in the community about sanitation and environment. It has



set up primary health care centres in the community toilets operated by it. As a result of this, considerable awareness has been created about the importance of personal hygiene and sanitation. It has helped in bringing about lasting change in the values and hygiene habits of the urban poor and helped them adopt cleanliness and sanitation as a part of their daily routine. By providing toilets to communities, Sulabh has motivated and reinforced community-level involvement.

Sulabh works to turn development process into a people's movement with the people themselves becoming agents of change. Its strategy is to involve the community and start a revolution in the minds of men, when they feel the reform must start.

7. **Impact Assessment** :
- i) Sanitation facilities (Nearly 3000 nos. community and over 700,000 private toilets) used by 10 million people daily.
  - ii) Nearly 35000 scavengers liberated from the demeaning and unhygienic task of manual handling of human excreta and rehabilitated in other professions.
  - iii) About 3500 wards of liberated scavengers trained in different vocations.
  - iv) 240 towns made scavenging free.
8. **Key Dates** :
- i) Date of starting : 03/1970
  - ii) Date completed : Continuing
  - iii) Expected completion : Till sanitation facilities are provided to all.
9. **Key Words Describing the Best Practice** :
- i) Accessibility
  - ii) Affordability
  - iii) Basic Services
  - iv) Ecosystems
  - v) Environmental Protection
10. **Description of the Indicators Regarding the Best Practice** :
- IMPACT OF THE PROJECT**

General awareness, sanitation, health education and community's involvement in the social infrastructural programme have developed self reliance and confidence in the people. The literacy among women with education on sanitation and personal hygiene in slums and squatter settlements, programme launched by Sulabh International, has resulted in improvement of environment, ecology and health. These women have become the harbinger of social change to create awareness in the community about the importance of sanitation and personal hygiene. It has brought about positive impact on the health standards of all members of the household, especially the women and children of the under privileged.

## SUSTAINABILITY OF THE PROJECT

Sulabh International has developed its own methodology for providing sanitation facilities to the community in urban areas. It is based on the following premises :

- General awareness of self-reliance and confidence without too much dependence on the government.
- Structuring the programme in a manner that it gets decentralised and gradually handed over to the target groups.
- Adoption of sustainable, replicable, acceptable and most appropriate cost effective technology.
- Creation of awareness about sanitation.
- Involvement of community especially the women at every stage of implementation.
- Training, rehabilitation and removal of social discrimination of scavengers engaged in manual handling of human excreta so that they may not become unemployed once the bucket/dry privies which they clean are converted to pourflush toilets.

Sulabh first developed a most appropriate, affordable, easily available and acceptable technology to replace the bucket/dry privies and stop open air defecation and then it developed an appropriate methodology for marketing and delivery for bringing about sustainable benefits and lasting changes.

The organisation works to turn development process into a people's movement with the people themselves becoming agents of change. Its strategy is to involve the community with special emphasis on women and start a revolution in the minds of the people when they feel the reform must start.

Sulabh International's innovative approach provides sustainable environmental sanitation development to bring about lasting change in the habits and attitudes of the community. This approach has helped in building the capacity in the community to help themselves.

## THE SUCCESS OF THE PROJECT

Sulabh has constructed over 700 thousand twin pit pourflush toilets in individual houses and has built and operating nearly 3000 community toilets with bath, washing and toilet facilities on 'pay & use' system all over India. It has also constructed and operating one community toilet in Bhutan. The facilities provided by Sulabh are being used by over 10 million people daily.

Besides local governments, Sulabh is also approached by railways, coalfields, port authorities, hospitals, road transport authorities etc. to provide sanitation facilities

The low cost sanitation advocated by Sulabh also formed a part of the prestigious project for prevention of pollution of river Ganga undertaken by the Government of India. Seeing the success in this project, it is now being treated as an integral part of the National River Conservation Project.

Efforts made by Sulabh International for improving the environment and community health through low cost sanitation have been appreciated by Government of India, state governments, eminent persons of the World, WHO, UNICEF, UNDP, World Bank, UNCHS, HABITAT and various other national, international and bilateral agencies. The national and international audio-video media and the press have acknowledged the outstanding achievements and contribution of Sulabh International Social Service Organisation in the fields of low cost sanitation, removal of social discrimination of scavengers, harnessing of energy from human excreta, environmental improvement and integrated rural development.

The international and bilateral agencies are advocating adoption of Sulabh technology and its model in developing countries. Negotiations are going on for putting up 'pay and use' Sulabh Shauchalaya Complexes in Nepal. The Governments of South Africa and Sri Lanka invited experts of Sulabh International for advising them to improve environment and sanitation in their countries on the Sulabh Model.