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Promotion of Sanitation : The Sulabh Model

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PROMOTION OF SANITATION - THE SULABH MODEL

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Adequate supply of safe water and sanitation are vital for sustainable development to improve the quality of life and alleviating poverty. Sanitation has many linkages, most important among them being water supply, safe and hygienic disposal of human waste. Sanitation is not only keeping clean but protecting those sources of environment which support sustainable development. Biodegradation of immediate surroundings in which we live should be very important to all of us. The development programmes, however, innovative they may be, are not likely to yield desired results unless environmental sanitation and ecology are improved and protected.

India has made tremendous progress in the fields of agriculture, industry, economic and social sectors. But inspite of the impressive levels of growth over the past four and a half decades, large percentage of population is still below the poverty line. Besides being poor, several hundred million people are deprived of basic services like education, primary health care, clean water, sanitation, shelter and improved nutrition.

Insanitation has wide spread effects; water courses get polluted, incidence of diseases rises affecting billions of people all over the world, labour force is affected, productivity of industry and agriculture falls putting stresses on budgetary resources needed for development and to strengthen the economy. Invariably people who are unserved with basic facilities of water supply and sanitation are the poor ones. They lack not only the means to have such facilities but also information on how to minimise the ill effects of insanitary conditions in which they live. Poverty breeds disease and disease breeds poverty and that high rate of child mortality encourage couples to have more children resulting in increase in population causing them to fall increasingly behind.

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Consequences of neglect : The enormity of the problem can be gauged from the fact that nearly two billion people (about a third of world's population) are without adequate basic sanitation facilities and by the year 2000 the number may increase to 3 billion*. In India the situation is not different, more than 750 million people out of 900 million population either defecate in the open or use insanitary bucket/dry privies cleaned manually or community facilities, if available and clean.

The health implications for this state of affairs are appalling. It is responsible for 2.5 million child deaths all over the world per year, countless lost days from schools and tremendous loss of nutritional status in growing children**. The WHO Bulletin of Regional Health Information (1986-87) states that the highest number of deaths in India were from diarrhoeal diseases. In India 3 to 4 hundred thousand children die every year from diarrhoeal diseases which result from lack of proper sanitation.

Sanitation is a broad term and includes water supply, disposal of human waste, waste water, solid waste, control of vector diseases, domestic and personal hygiene, food sanitation, housing etc. The scope of sanitation may vary and emphasis may shift with the need and communities but in developing countries management of human waste is very vital for improving the quality of life. Human excreta is the cause of many enteric diseases such as cholera, dysentery, typhoid, paratyphoid, infectious hepatitis, hookworm, diarrhoea etc. Over 50 infections can be transferred from a diseased person to a healthy one by various direct or indirect routes from human excreta and causes nearly 80% sickness. Appropriate human waste management should be the primary objective of improved sanitation to build a healthy nation and provide a cleaner environment.

Sanitation Scenario in India

History reveals that household privies were not suited to the culture and tradition of this country in the past, and therefore were not an

* World Health Organisation 1992. The International Drinking Water Supply and Sanitation Decade, End of Decade Review (As at December 1990). The countries referred to include those belonging to WHO's South-East Asia Regional Office : Bangladesh, Bhutan, India, Indonesia, Maldives, Myanmar, Nepal, North Korea, Sri Lanka and Thailand. Some of these countries have made good progress in sanitation coverage.

** World Health Organisation : Control of Diarrhoeal Disease Programme.

essential feature of a house. Defecation direct on to the soil was a matter of habit and convenience. The habit so cultivated became the tradition. Intensity of the problem was not so acute as long as India was largely rural with only a few scattered towns and their population reasonably within bounds. With rapid urbanisation and population explosion, the problem has taken a catastrophic dimension.

In India the major cause of concern is the existence of millions of bucket and dry privies. The Task Force for tackling the problems of scavengers and their rehabilitation constituted by the Planning Commission, Government of India in its report (1990-91) had assessed that the number of bucket/dry privies in India was about 7.6 million, of which 5.4 million exist in urban areas. In towns and cities, human excreta from the buckets is often spilled in the vicinity during transport to the disposal site. It is a common sight to find excreta flowing in open drains due to defecation by children as well as many a time by adults. Washing from the bucket privies and the hazardous septic tank effluent also find their way into the drains flowing in front of the houses. Age old unhealthy practice of open air defecation and use of bucket/dry privies are a potential hazard to health and hygiene and expose the entire community to foul environment and pollute the rivers and other water courses.

Since the excreta is not properly segregated, collected and disposed of, it is likely to get access to water supply, contaminate food through flies and spread hook worms and other worms by polluting the soil. Consumption of polluted water and contaminated food and exposure of people to polluted environment transmit pathogenic micro-organisms from the sick persons to the healthy ones.

The reasons for appalling insanitary conditions in the country lie in factors like inadequate attention being given to the sanitation sector; sanitation being an issue of least popular public support, scant regard for adopting on a wider scale the available low-cost sanitation technology, scarcity of fiscal resources and the poor promotional measures.

The disadvantaged section of the population, which suffers most are least organised to clamour for better sanitation services, probably because household sanitation facility for them is not as important as is the reasonable shelter and other pressing problems of bread and butter. The neglect of sanitation also prevails at the level of policy planning too. Moreover, there is hardly a well-conceived approach to the problem upon which sound policy and pragmatic programmes could be based.

Poor institutional framework with fragmented responsibilities often contribute to inadequate measures of sanitation - infrastructure-building. In respect of resource allocation, both Central and State Governments complain about severe financial constraints and therefore, sanitation receives only a mini proportion of earmarked resources for planned development. To complicate the problem further, often such technological options are suggested which are both unacceptable and affordable to people. Consumers are often taken for granted when technology choices are prescribed. The socio-cultural, economic and geographical conditions of the beneficiaries are not given due attention. Poor promotion techniques also fail to attract the target group. The concept of social marketing in the area of sanitation is yet to take roots.

The reasons for poor sanitary conditions notwithstanding, India's sanitation scenario is a matter of grave concern. The severity of the problem could be judged from the following facts and figures :

- According to the estimate of the Planning Commission, Government of India hardly 20% of the urban population has access to flush arrangements connected to sewerage system; 14% have access to water-based toilets connected to septic tanks, 33% have bucket or dry latrines and the remaining 33% do not have access to any latrine facility.
- In most cities and towns, nearly one-third of the people defecate in the open and about one-third have manually cleaned latrines which require the services of large number of scavengers.
- About 76% of the people in the country (both rural and urban) have no latrines.
- Nearly 89% of the total population (about 750 million people) either defecate in the open or use bucket/dry privies or use community toilets, if available.

The daunting problem of sanitation accompany another serious social problem; the problem of manual scavenging which has to be done by 4,00,000 scavengers belonging to the lowest caste suffer from inhuman and degrading discriminations because of their profession of cleaning and carrying human excreta.

On sanitation front the country faces a painful paradox. On one hand there is a gigantic leap in the fields of science and technology which makes the country ready for entering the 21st century; on the

other hand the centuries old practice of manual handling of human excreta and its disposal by scavengers remains a lingering disgrace.

Problems in Promotion of Sanitation

The author has the experience of working in the field of sanitation for more than two and a half decades. He analysed the problems and feels that reasons for poor status of sanitation facilities in the country primarily are as under :

- i) **Lack of political will** : Water supply is given priority, though sanitation is equally important to improve quality of life, health and environment. Sanitation is not accorded a deserved priority in development process, perhaps because it is a social sector, not directly connected to production. Political commitment is needed for giving priority to sanitation. Water supply and sanitation should be linked to each other.
- ii) **Lack of education and awareness** : Majority of the unserved people are illiterate. They are not aware of the benefits of sanitation and personal hygiene and linkage of sanitation with health and environment. Therefore for the communities belonging to the economically weaker section, sanitation is not a felt need; their priorities are different especially when they can hardly meet the demand of food, clothes and shelter.
- iii) **Poorly resourced municipalities** : It is the obligatory function of the municipalities to provide sanitation facilities in the urban settlements but they are poorly resourced and even poorly managed.
- iv) **Lack of coordination** : Different agencies are involved in sanitation. Most cities in the country have more than one authority for city development. There is hardly any coordination at the planning and implementation level between the different agencies.
- v) **Absence of effective delivery system** : In place of fragmented responsibilities, it is essential to have an effective delivery and follow-up system based on local needs to promote sanitation.
- vi) **Imposed methodologies** : Imposed technologies, methodologies and time schedule incompatible with the local attitudes, socio-cultural beliefs and customs have proved a deterrent in wide acceptance of sanitation.

- vii) **Link agency** : There should be a link agency between the government and the community. The NGOs can play a critical role in mobilising the community and ensure their participation in promoting sanitation by changing their perceptions and attitude.
- viii) **Lack of women's involvement** : The women can bring about a sanitation revolution but they are seldom involved.
- ix) **Low prestige** : Low cost and affordable technologies are not considered prestigious either by the Engineers or the beneficiaries. The engineers are interested in high-tech projects. They consider that sewerage is the only answer to solve the problem of insanitation. Beneficiaries also consider sewerage or septic tank more prestigious.
- x) **Appropriate and sustainable technology** : The National Water and Sanitation Committee 1960-61 observed that "Except a few provincial capitals, sewerage is still an unattainable luxury". This continues to hold good even now. Most of the households which have bucket/dry privies or no latrine in their houses belong to low income group or economically weaker section. Hence due to financial constraint they are unable to afford to get their bucket privies converted or to have a sanitary latrine in their houses. The technological option to replace the bucket privies and stop open air defecation has to be socio-culturally acceptable, affordable and easily available. Thus it has to fulfil the criteria of sustainability and replicability at the least economic cost.

Sulabh International Social Service Organisation

When we look at the history of sanitation movement in the country, it becomes obvious that initially the programme had the social objective. Sanitation programme was undertaken in the context of abolishing the evil of untouchability related to manual scavenging. The programme could not succeed because it was not supported by appropriate system for safe disposal of human excreta. After independence various governmental and non-governmental organisations started a dynamic search for safe and economical alternative for disposal of human excreta. Various types of latrines were developed and tried but their efforts were mainly confined to rural areas. Sanitation programme could not make much headway as the latrines developed did not suit the socio-cultural and economic conditions of the people.

The coming of Sulabh International Social Service Organisation in the arena of sanitation in the year 1970 gave a new turn to the sanitation programme in India. The organisation developed most appropriate low cost, socio-culturally acceptable, affordable and easily available technology and then applied innovative marketing and delivery system to make the facility available at the door steps of the community. But technology alone is not the answer, people's perceptions and attitudes on sanitation have to be changed. Public awareness and community participation is the most desirable thing to happen. And this can happen only when there is a massive national awareness followed by a strong and nation-wide citizens' movement, like the one being currently spearheaded by Sulabh. Beginning from a small town, Sulabh is now operating all over the country, even crossed the borders having a work force of over 35,000 committed volunteers belonging to various disciplines like administrators, planners, financial and management experts, engineers, scientists, sociologists, media persons, doctors, field workers etc.

Sulabh International Social Service Organisation, earlier known as Sulabh Shauchalaya Sansthan and later Sulabh International was founded in 1970 by the author. The organisation is dedicated to the cause of sustainable development. Sulabh is a non-profit voluntary organisation. The funds for the work are provided by the Government or the local authority. The implementation is done by the organisation and it charges 20% implementation charges on the estimated cost of works to meet its overhead expenses. The organisation has become the first voluntary organisation to be self-supporting, working without any subsidy or grant from government or any other source to meet its establishment cost. It earns and serves the people.

Sulabh 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. It plays an important part in identifying ways and means to solving common social problems through people's participation on self-sustaining basis. Sulabh provides an efficient delivery system for providing basic services to the community by forging partnership between the government, public, private sectors and the NGOs. The poorest among the poor are the centre of Sulabh's concern. The decision-making process is broad-based, deploys appropriate technology and aims to create awareness about sanitation.

Appropriate technology : In developed countries, the standard solution for safe disposal of human waste is water borne sewerage. Due

to severe financial constraints and very high capital as well as operation and maintenance cost, sewerage is not the answer to solve the problem of human waste disposal in developing countries. Sewerage needs considerable quantity of water to function properly, which is a scarce commodity in most of the rural and urban areas. Due to poor economic condition of the people, since all the houses on a street are not connected, the household waste water along with waste from the streets is led into the sewers through gully pits. Discharge of such waste and soil and insufficient water due to lack of house connections results in chokage of sewers and making many of them non-functional. Septic tanks too, besides high cost, have many draw backs and operational problems.

With the present economic condition, we can not provide sanitation facilities to all in the foreseeable future, if we continue to advocate sewerage. Therefore a most appropriate technological option has to be adopted, which provides the most socio-culturally and environmentally acceptable level of service at the least economic cost.

Sulabh Shauchalaya (Twin Pit Pourflush Toilet) : Sulabh Shauchalaya, developed by the author is the most appropriate technological option to serve as an alternative to bucket privies and to stop open air defecation. It can be constructed in the most congested areas of cities and towns. Sustainability and replicability are two important issues which should be considered while choosing an appropriate technology. Sulabh Shauchalaya fulfils these criteria fully. It is socio-culturally acceptable, affordable, easily available and users are able to operate and maintain it easily. It is an indigenous technology and the toilet can easily be constructed by local labour and materials. It provides all the health benefits by safe disposal of human excreta on-site, which sewerage provides. It is pourflush and requires only 2 litres of water for flushing, thus conserves water. However, if desired it can be cistern flush also. It does not need the services of scavengers to clean the pits. When one pit is full, excreta is diverted to the second pit. In about two years rest period, the sludge gets digested and is almost dry and becomes safe for handling. Digested sludge is a good manure and soil conditioner. Sulabh Shauchalaya does not need vent pipe as gases are dispersed into the soil. It can be constructed on the upper floors of the buildings also. It has a high potential of upgradation, can be easily connected to sewers when introduced in the area. Sulabh Shauchalaya can be designed with different specifications and use of different materials in varied costs without compromising the design principles. Thus the need of families with different income can be met easily.

When economic condition of the country improves, sewerage may be provided in the areas where Sulabh Shauchalayas are constructed. The expenditure made on provision of Sulabh Shauchalayas would not become infructuous because when sewers are laid, these toilets can be connected easily to them. Even where sewers exist, since most of the people can not afford to have conventional flush toilets connected to sewers, pourflush toilets with connection to sewers be provided. Whenever, the household desires, it can convert it to cistern flush.

Marketing and delivery system : The earlier procedure followed in Bihar, a state in India, for construction of individual toilets was that the local body used to give grant and loan to a householder who intended to get his bucket/dry privy converted into Sulabh Shauchalaya. The earlier procedure for obtaining the funds was lengthy and the house owner had to run about from one office to the other. The Sulabh International Social Service Organisation takes the entire responsibility for collecting the application, getting it processed by the municipality and for construction of Shauchalaya and follow-up. The social workers of the organisation go door to door, persuade and motivate the people to get their dry privies converted. This has been found to be a very effective mode of communication with the people who have little education and are tradition bound. When the householder agrees, he fills the necessary forms, including application for both grant and loan and authorises Sulabh International Social Service Organisation to receive the amount on his behalf. The organisation deposits the filled up forms in the municipal office and after proper scrutiny the amount is sanctioned by the local body and given to Sulabh in advance on behalf of the house owner for carrying out the work.

The organisation gives a notice to the house owner before starting the construction. The house owner is requested to keep a watch on the construction and materials used by Sulabh. After the work is finished, he is required to fill a form confirming the date of completion of the work and stating that he is satisfied with the work or not.

After completion of the work, Sulabh issues a guarantee card to every householder. This ensures free rectification of construction defects or deficiencies, if any, noticed during the next five years. The organisation thus ensures trouble-free functioning of the Sulabh Shauchalaya. The house owner is also educated on use and maintenance of the toilet. A sample checking of completed toilets is undertaken periodically by senior workers of the organisation as a follow-up action. Sulabh has built a special infrastructure to ensure quality construction and render satisfactory follow-up service.

Community toilets : Sulabh's innovativeness is best demonstrated in the public "pay and use" toilet system which is self-sustaining. For the construction and maintenance of community toilets with bath, laundry and urinal facilities called Sulabh Shauchalaya Complex, Sulabh's strategy is to play the role of a catalyst between official agencies and the users of the facility. Funds and land for the construction of community toilets are made available by the local authorities. Design and construction are done by Sulabh which then undertakes to operate and maintain it on pay-and-use basis for a period of 30 years. The user-charge is nominal; disabled, children and those who can not afford to pay are allowed to use the facility without charge; urinal use is free for all.

The complexes are manned by attendants round the clock and have separate enclosures for men and women. These have lighting arrangement to facilitate their use in the night and 24 hours water supply. Ever green trees and shrubs are planted to create shade and to make the complexes pleasing. These also act as a buffer zone between the complex and its surroundings. Soap powder is provided to all users for washing hands after defecation.

The Sulabh Shauchalaya complexes with "pay and use" system have found acceptance throughout the length and breadth of the country and abroad. This novel idea has been accepted in cross-cultural settings. The scheme is totally viable and after the initial cost of construction, the complex is operated and maintained by Sulabh for thirty years out of the proceeds obtained from the users. This may be regarded as one of the unique projects of people's participation.

Mobile latrines : In many slums, there is no space for construction of community latrines with bathing facilities. Sulabh has designed mobile units mounted on wheels. These units provide toilet and bathing facilities, wash hand basins, water storage tank and collection tank for human excreta and waste water. The unit is carried and parked on the roadside at the appropriate place. After use, it is brought back to discharge the waste into the sewer or trenching ground and the unit is cleaned for next operation.

Biogas from human excreta : Another area of achievement of Sulabh International Social Service Organisation is energy from human excreta at community toilets. The biogas is utilised for cooking, lighting, to supply warm water for bathing and providing fire for body warming during winters at the complexes. The biogas minimises the use of fuel wood and coal which are one of the major pollutants of environment.

Sanitation in Rural Areas

Learning from the experience and understanding of rural problems, Sulabh has developed an innovative approach for rural sanitation. The salient feature of this approach is to select two youths from each panchayat (rural local authority) and train them in various fields of rural development work to develop social entrepreneurship. The trained youths stay in the villages because they are able to earn their livelihood by getting small amounts in return of their services rendered. They act as a link between the programme implementing agencies and the beneficiaries at the panchayat/village level. They inform the beneficiaries about the programme contents and get the works executed either by themselves or by arranging other agencies.

Sulabh has identified training needs and developed strategies to meet them. The main elements of the suggested training are development of curriculum, orientation seminars, training of trainers and regular system of follow-up after each training.

The work of drawing up development design for sanitation and its implementation is left to the village community. It is the community that is made responsible as well as the ultimate decision-making authority for bringing about the socio-economic transformation of the village along desired lines. A sanitation development project succeeds in a village only when it is pioneered by a person from the community itself. The leader becomes completely identified with the development programmes. The leader has to inspire, instruct and organise others into the development efforts.

Impact of Improved Sanitation

Sulabh has so far constructed over 800,000 Sulabh Shauchalayas in houses and more than 3,000 community 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. Sulabh Shauchalaya has also been provided in households which had no latrines at all. The dumping of fresh pathogenic night soil has stopped, leading to the improvement in the physical environment.

Further, the public latrines operated and maintained by Sulabh have vastly improved the quality of facilities available to users. The users primarily include slum and 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 local authorities have been relieved from the task of operating and maintaining these. This system has proved to be a boon to the local bodies in their endeavour to keep the city clean and the environment safe. The toilet complexes reduce indiscriminate open air defecation and improve health and hygiene of the economically weaker section of the community, thus raising their productivity. The women and children are especially benefited because they are the worst sufferers in absence of sanitation facilities. The complexes restore human dignity by providing facilities for defecation and bathing in privacy to those who are deprived of these amenities. A better quality of life follows, making the family conscious of the need for better health and environment within and outside their dwelling houses. Many Sulabh Shauchalaya Complexes have been turned to social centres by providing some more amenities like cloak rooms, public telephone, primary health care, drinking water etc.

The all-round success of Sulabh led the Government of India and State Governments to implement low cost sanitation programme all over India with the objectives of : (a) converting all dry or bucket latrines to pour-flush sanitary latrines; (b) providing such latrines where none exists; (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.

Awareness and Education

Most of the people, specially economically weaker section and low income group are not aware of the health and environmental benefits of improved sanitation. Their priorities are different. Latrine is not a felt need for them. They are also not aware of the availability of affordable technological options and government's efforts and programmes. General awareness, sanitation and health education and community's involvement in the social infrastructural programmes like water supply and sanitation develop self-reliance and confidence in the community and result in sustainable benefits.

Sulabh has therefore laid special emphasis on health education and creating awareness in the community about sanitation and environment. For this purpose, a large number of health educators and social scientists have been deployed. They visit schools, slum areas, places of mass gatherings etc. and take across the message to the people through audio-visuals, songs, meetings, puppet shows, picture display, pamphlets, speeches etc.

Health facilities and education at Sulabh Complexes : Sulabh has set up primary health care centres in some of these complexes. Each household is issued a health card with basic details. The primary health care centre is fully equipped with basic facilities and is run by a qualified doctor supported by medical staff. Intimate personal interest is taken in the medical problems of the members of the poor families. As a result of this promotional work, considerable awareness has been created in the community regarding close linkage between sanitation and prevention of diseases with positive impact on the health standards of all members of the household, especially the women and children.

Sulabh Public School : Sulabh has established a public school for the children of the socially and economically most disadvantaged group, i.e. scavenger families. Apart from other objectives, one of the thrust areas in the educational curriculum is to teach at a very young age the benefits of observing basic rules of personal hygiene and health. Educating these children at young age has far reaching impact on the families.

Women's participation : 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 given to the needs of women in this group, as well as to those among scavengers. Women hold 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. It has brought about positive impact on the health standards of the community.

Sulabh International Institute of Health and Hygiene in collaboration with USAID, UNICEF and Delhi Government, is implementing a programme of imparting training to women volunteers of urban slums for more than a year. So far 3618 women covering 158

urban slums have already been trained. The training is imparted on various aspects of health, hygiene and sanitation. Those who have been trained work as change agents in the areas of health and sanitation. This programme has brought about significant attitudinal changes in women.

One of the major areas of Sulabh's contribution is school based environmental sanitation and community health training. Sulabh International Institute of Rural Development, Research & Training (SIIRD) has successfully completed an ambitious pilot project under the sponsorship of ODA - British Council in Andhra Pradesh. Under this project 1000 teachers were given intensive training in community awareness and motivation and 300 school children were trained as informal change agents. Besides, orientation training was also imparted to 200 sanitary functionaries of the schools and 60 public health engineers. In the light of the success experiences of this project, Sulabh has developed an effective training model which can be fruitfully replicated throughout India.

Recently Ministry of Environment, Government of India has also sponsored an action research pilot project on community awareness in the public participation programmes of River Yamuna Action Plan under which survey, training and community awareness activities are being undertaken in a number of towns. It is hoped that this project when completed will evolve an effective model for countrywide replication under the National River Conservation Plan of Government of India.

Research and Development

Sulabh efforts are supported by research and development. The Sulabh International Institute of Technical Research and Training has been set up for undertaking and consolidating research and development in the fields of sanitation and biogas technology for overall environmental improvement. A dedicated team of qualified and well experienced scientists and public health engineers are working on the optimum utilisation and techno-economic evaluation of human excreta and other mixed waste biogas plants for community purposes in order to ensure more useful waste disposal as well as harnessing of bioenergy. The Institute is also working on solid waste management and is carrying out study on the design of anaerobic digester in collaboration with the Bremen Overseas Research & Development Association (BORDA), Germany and GERES (Renewable Energy Group) France. The design is

suitable for small housing colonies, hostels, hotels, etc. where sewers are not available. It substantially reduces pollution by waste water, besides biogas and manure are obtained as by-products.

Sulabh has taken up research-cum-demonstration projects on duckweed based low cost waste water treatment in the rural and urban areas with an economic return from pisciculture. In the rural areas it has taken up two projects one funded by the Royal Danish Embassy and the other by the Ministry of Rural Areas and Employment, Government of India. The projects aim to generate employment and create economic growth of rural communities by development of fisheries, besides keeping the village ponds clean, which are used for bathing, washing of household utensils etc. The study undertaken in urban areas with the financial assistance from the Central Pollution Control Board, a Government of India undertaking, would be helpful in providing a low cost technology which would not only treat the waste water but also give economic return on investment. This would encourage small and medium towns to take up waste water treatment projects to improve the environment and health of the people.

Appreciation of Sulabh's Efforts

The initiatives taken by Sulabh have been hailed as an outstanding innovation in combating the menace of environmental pollution in developing countries by national and international organisations like UNICEF, World Bank, UNDP, WHO, Habitat, UNCHS etc. Impressed with the success of Sulabh programme, the Governments of South Africa, Sri Lanka, Nepal, Bhutan, Tanzania and Kenya have sought the assistance of the organisation to improve environmental sanitation in their countries by following the Sulabh Model. The Sulabh model with some minor modifications suiting to local socio-cultural and economic conditions can be replicated easily in other developing countries to achieve the goal of a strong and sustainable sanitation to improve the quality of life in human settlements.

"Cost Effective and Appropriate Sanitation Systems - Sulabh International Project" has been recognised as a Global Urban Best Practice by the United Nations Centre for Human Settlements at the Habitat II Conference, Istanbul in June 1996.

The Organisation has also been given a Special Consultative Status with the Economic and Social Council of the United Nations.