

2009 World Water Week

Speech of 2009 Stockholm Water Prize Laureate

Your Excellency President, Republic of Liberia, Hon'ble Mr. Jan Eliasson, Chair, WaterAid Sweden and President of the United Nations General Assembly 2005-2006, Hon'ble Mr. Sten Nordin, Mayor of Stockholm, Hon'ble Ms. Gunilla Carlsson, Minister for International Development Cooperation, Sweden, Hon'ble Mr. Munqueth Mehyar, Chairperson and Jordanian Director, Friends of the Earth Middle East, Hon'ble Dr. Colin Chartres, Director General, International Water Management Institute, Hon'ble Prof. Mohan Munasinghe, Munasinghe Institute for Development, Hon'ble Mr. Loic Fauchon, President, World Water Council, Hon'ble Mr. Anders Berntell, Executive Director, SIWI, Hon'ble Ms. Cecilia Martinsen, Director, World Water Week and Water Prizes, SIWI, Hon'ble Prof. Lundqvist, Chair of the World Water Week Scientific Programme Committee, SIWI, Hon'ble Ms. Gunnel Sundbom, Director, Stockholm Water Prize, Hon'ble Prof. Per-Arne Malmqvist, Scientific Director of SIWI, Distinguished Delegates, Ladies and Gentlemen.

I thank Stockholm International Water Institute for nominating me as 2009 Water Prize Laureate and for giving me this opportunity to speak in the opening Plenary Session of the 2009 World Water Week and to exchange my views on the subject of water and sanitation with the experts and the distinguished persons present on the dais and in the august gathering. I feel proud and privileged to be present on this occasion.

Lack of safe water and facilities of human excreta disposal are the two key factors behind the huge burden of infectious diseases like diarrhoea, dysentery, cholera, typhoid, hepatitis, worm-infections etc., particularly in the developing countries.

In the older civilizations like Greeks, Romans and Indus there were provision of toilets, baths and other facilities but with the advent of new civilizations everybody around the world started going outside for defecation in the open. By 20th century, Europe, America and Australia had solved the problem of sanitation with the provision of septic tanks and the sewerage systems. As these technologies are not affordable in terms of both construction and maintenance and they required enormous quantity of water to flush, the problem remained in Asia, Africa and Latin America and 2.5 billion people in these continents do not have access to safe and hygienic toilets.

In India, the sanitation scenario, till the late sixties was dismal and in rural areas no house had a toilet. Everybody in the village used to go for defecation in the open. Because of lack of toilets, women had to suffer the most; they had to go for defecation before sunrise or after sunset. Sometimes they had to face criminal assaults or snake bites while going for defecation in the evenings. Girls generally did not go to schools as no school in rural areas had toilets. In the villages many children used to die because of diarrhoea and dehydration. My own sister's son died of diarrhoea.



In India 700 million people, out of 900 million, defecate in the open which is a source of environmental pollution and health hazards.

In urban areas only few towns had the facilities of the sewerage system. 15% of the urban population used septic tanks and the rest used to go outside for defecation in parks, lanes, and on both sides of railway tracks and the remaining population used bucket toilets cleaned by the human scavengers who carried human excreta as head-load.

If scavengers had not cleaned bucket toilets, there would have been epidemics of cholera, diarrhoea, dysentery, etc. and people would have died in large numbers. But society kept them at the lowest ladder of the social structure of the caste system and gave them the stigma of being 'untouchable'. They were ostracized and had to live at the outskirts of the city/town lest they touched anyone by mistake. Women would not give them food hand to hand but dropped it in their palms. If they were thirsty, water was poured from a safe distance in their cupped palms. Even the traders would accept their money after cleaning the coins. There was no question of their going to school, entering temples and their children playing with children of other communities. They played amongst themselves or with pigs.



Scavenger carrying night soil

There are two types of prisons-one is the physical prison run by the government, wherefrom a prisoner can be released after days, months or years except for heinous crimes but in India there were social prisons without walls called the caste system, where a person born an untouchable would die as an untouchable before independence of India.

Another critical problem was that there were no community toilets and urinal facilities in public places near railway stations, bus stands, market yards, religious and tourist places. It was very difficult for the people to manage when they used to feel the call of nature, they had to go to a nearby pond or bush or any dirty place just to defecate. Because of lack of public conveniences, people, especially foreigners used to get discouraged to visit India.

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

She wrote to the schoolmaster inquiring of the facilities about the WC. The school master, not fluent in English, asked the local priest if he knew the meaning of WC.

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



Scavengers were not allowed to drink water from a water pot or a water tap as they were considered untouchables. The lady house owner, therefore, pours water in the cupped hands of a scavenger to drink

Dear Madam,

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

It was a wonderful event. There were 10 people in every seat. It was wonderful to see the expressions on their faces. My wife, sadly, has been ill and unable to go recently. It has been almost a year since she went last, which pains her greatly. You will be pleased to know that many people bring their lunch and make a day of it.

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

With deepest regards,

The Schoolmaster.

No wonder the woman never visited India!!!

Another problem was that Indians had no habit of making payments for the use of toilets. The British Government passed an Act in 1878 to maintain public toilets on "pay and use" basis but it did not work. Toilets built by local bodies were not maintained properly, hence, it used to be considered as a veritable hell on earth. Nobody liked to go inside the public toilets and tried to avoid even passing by those areas because of the terrible stink. Therefore the absence of public toilets in public places was a great problem in India.

Mahatma Gandhi was the first person whose attention was drawn towards the plight of scavengers. He wanted scavengers to be relieved from their sub-human occupation of cleaning human excreta manually and wished to restore their human rights and dignity, to bring them on a par with others in society.

I wanted to be a teacher of Sociology in the University but somehow I could not become one. I did small jobs and finally I joined the Gandhi Birth Centenary Celebration Committee in Bihar in the year 1968. There I got the idea of fulfilling the dream of Mahatma Gandhi. It was difficult for me to solve the above problem of sanitation which India was facing as I belonged to an orthodox Brahmin family. Once I touched an untouchable lady Dom for which my grandmother made me swallow cow dung, cow urine and Ganges water to purify myself.

In Sociology it was taught that if you wanted to work for a community you must build a rapport with the people of that community so that you come to know about them. It was this lesson which prompted me to live in a scavengers' colony with the help of a scavenger. I went and lived in the colony of scavengers for three months and came to know about their origin, culture, values, mores etc. While I was coming to live in the scavengers' colony named after Mr. Jagjivan Ram, a freedom fighter and the former Deputy Prime Minister of India, I was not quite sure, whether to continue in the profession, as my father was very upset because Brahmins and toilets did not go together. By the time I was also married and my father-in-law was extremely angry and berated me in a language which I loathe to repeat. The people of the Brahmin community also used to ridicule and humiliate me occasionally. The situation was totally unfavourable and nobody appreciated my initiative to change the lives of the untouchable scavengers.



A life of degradation, humiliation and discrimination in store for the new bride of a scavenger family

While living in Bettiah in the scavengers' colony, one particular morning, it came to my notice that a newly married girl was being forced by her in-laws' family to go to clean bucket toilets and that she was crying bitterly as she was most unwilling to do so. On hearing her cries I went and intervened, trying to persuade the family members not to force her, if she was unwilling to go and clean toilets. They heard me but did not agree, counter asking me what she would do from the morrow if she did not do the work of scavenging and earn some money. Even if she sold vegetables who would buy them from her, she being an untouchable. Finally despite my protests they sent her to clean bucket toilets.

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



No help was extended to the boy, attacked by a bull, as he was an untouchable

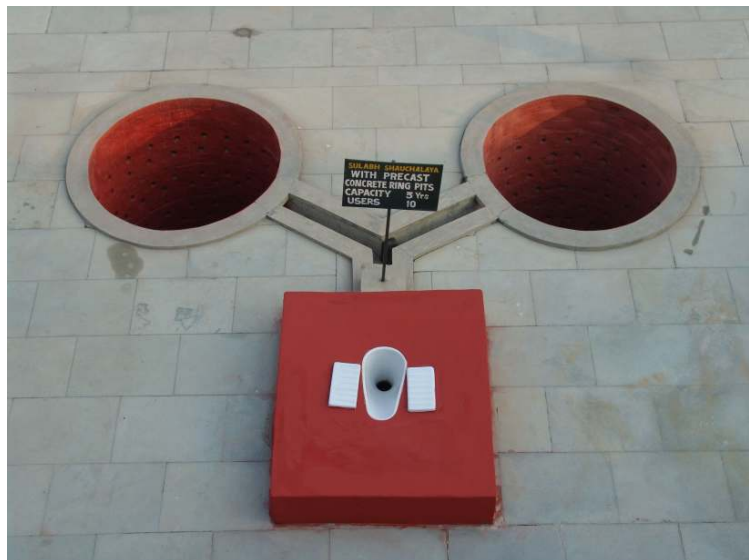
While living in the colony I studied carefully the books written by Mr. Rajendra Lal Das and the book “Excreta Disposal for Rural Areas and Small Communities” published by the World Health Organisation in 1958. The following sentence from WHO book left a deep mark in my memory:

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

This book was about disposal of human waste in rural areas but the problem of scavenging was mainly an urban one because most scavengers used to work in urban areas. Here I applied my mind and thought that if the soil condition in a rural and an urban area was the same, then why a technology recommended for rural areas couldn't be applicable to urban areas. In my opinion application of mind is more important than knowledge. Knowledge can be borrowed but application has to be your own.

Ideas have changed the World! It may be the case of the idea of James Watt who gave the concept of Steam Engine on which principle the train system was developed or Newton's theory of Gravity which he conceived when he saw an apple falling from the tree or Alexander Fleming of Penicillin. Ideas play a very important role in the solution of problems.

Being a follower of Mahatma Gandhi, I decided to start a silent revolution of non-violence and peace for the removal of untouchability through liberation of human scavengers with the help of a toilet technology whereby scavengers would not be required. To get them relieved from this occupation, I had to find out technologies which could be appropriate, affordable, indigenous and culturally acceptable



Sulabh two-pit pour-flush toilet system, modified and developed by Sulabh in 1970, has found favour with the people, state and central governments, national and international agencies. This is a solution to both the problems in India.

I innovated, invented and developed a technology which helped to solve both the problems of defecation in the open as well as manual cleaning of human excreta by the human scavengers. The technology was simple and therefore it was named as Sulabh Shauchalaya (Sulabh toilet) – a twin-pit, pour-flush, compost toilet suitable for individual households. The two pits are used alternately. In this technology a gas pipe is not provided. The bottom of the pit is of earth and not concrete, and the walls of the pits are lined by bricks in lattice-form to permit the liquid and all the gases produced to be absorbed in the soil. The gases are not allowed to exit in the atmosphere, so it helps to reduce global warming.

In about two years the sludge gets digested and converted to manure, a good soil conditioner. After two years or so, when the second pit is full, the first pit can be emptied out and waste therein used as bio-fertilizer. In different geological conditions, this technology remains the same, only the building materials and period of emptying of pits vary.

Squatting pan with steep gradient for pour-flush and trap with 20mm water-seal is used in Sulabh toilets. The pan can be of ceramic, fibre glass, mosaic or cement concrete. Sulabh toilets



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



PVC P-trap having 20 mm water seal which does not allow the smell from the pit to enter the toilet

require only 1.5 litres to flush per use. Therefore when the Sulabh water-seal is used it saves enormous quantity of potable water. In Sulabh system there is no chance of contamination of drinking water supply lines as in case of sewerage system. The hand-pumps should be located five metres away from the latrine pits and open wells should be ten metres away from the same.

The Sulabh toilets can be constructed even in areas where water table is high. The upper portion of the pits have to be kept two feet above the water table. This could be constructed in the smallest place, even at the door step of a house, or on the upper floor of a house. The slab of the pits can be used for various household purposes like cleaning of food-grain, cutting fish and vegetables, cooking and offering prayers. On a septic tank these are not possible. Sulabh toilets have been designed in such a way that the poorest of the poor, middle class and even the rich can have toilet facilities, according to their financial capacity.



Mosaic Pan

For construction of the pits of Sulabh toilets, it requires minimum space of one metre or equivalent to the depth of the pits below the level of incoming pipe or drain, whichever is more. The dividing wall is made of 1 foot 3 inches and the pan is placed on that. This can be constructed even in narrow lanes. Locally available materials such as bricks, stones, logs and burnt clay rings, etc. are used for lining of the pits.

In 1985, in Srinagar, the capital of Jammu and Kashmir, India, when the temperature went down to -14°C, this technology worked very well, as the gases from the pits prevented the water in the water-trap from freezing.

We have installed more than 1.2 million individual household toilets and Government of India has installed more than 54 million toilets on the same technology. Thus we have been able to improve the living conditions of the people, upgrade the environment, reduce diseases and also reduce poverty so that there are more mandays for economic productivity. UNDP, in its Human Development Report-2003, has recommended the use of this technology by the international agencies and developing countries.

When the people heard about my idea of running public toilets on 'pay and use' basis, initially there were skeptical views about the success of this model. They used to ridicule me. When people did not pay for bus or rail fare, would they pay for use of toilets? However, in 1974, I set up the first public toilet in Patna. This simple idea worked very well. On the very first day, five hundred persons came to use the toilets and paid for the use. As a result, the first day's collection was Rs. 50 (US\$5). Now this concept has been accepted not only in India but also in Bhutan and Afghanistan. Sulabh alone maintains more than 7500 public toilets throughout India and both the toilets, individual as well as public, are used by more than 10 million people daily.

Apart from toilets and bathing facilities, urinals, facilities of lockers, washing clothes, cloak rooms, drinking water, telephones, first aid, health centre, etc. have been added. For prevention of HIV/AIDS, condoms and other materials are also made available.

In public toilets, pit latrines and septic tanks frequently get filled up, therefore, I innovated, invented and developed a technology to recycle human waste. From a public toilet human excreta, through gradient, flows into the attached biogas digester. Before commissioning of the digester, 30-40 kgs. of cow-dung is put inside, 30 days

after which biogas is produced. The biogas is channelised for burning mantle lamps, warming oneself during winter, cooking and also for conversion to energy for supplying street lights. The neighbours in the vicinity also get the facilities of biogas which they use for cooking or lighting.



One of the World's Biggest Toilet-cum-Bath Complexes in Shirdi, Maharashtra (India) having 120 WCs, 108 bathrooms, 28 special toilets and 5,000 lockers for the convenience of the pilgrims



Biogas used for lighting of mantle lamps with spark ignition

The effluent discharged from the biogas plant is treated through another technology developed by me which is Sulabh Effluent Treatment technology. The technology is based on filtration of effluent through sand, activated charcoal and aeration tank followed by exposure to ultraviolet rays. The treated effluent is colourless, odourless and pathogen-free. Here the water, after treatment, becomes so pure that the Biochemical Oxygen Demand (BOD) comes down to less than 1 milligram/litre. This water is fit to be discharged in water bodies.



Biogas used for cooking

Five public toilets linked with biogas plants have been put up in Kabul, Afghanistan. All are functioning very well and also worked when the temperature in Kabul went down to -30°C in 2007 so this technology is suitable even for cold climate.



Before Treatment BOD about 200 mg/l After Treatment BOD < 1 mg/l

This technology could be used in housing colonies, high-rise buildings, schools, colleges, hospitals, etc. In septic tanks we have no use of human excreta. In this technology methane, which is 65% of all the gases, burns and is used for different purposes and not allowed to exit into the atmosphere. So this technology also helps to reduce global warming. Hence it prevents climate change.

Technology is important but also important is how to deliver it to the people. Only development of technology will not suffice. So I developed a system of delivery to the beneficiaries at their door-steps. In Sulabh ethics, morality and integrity are maintained in the delivery system. Sulabh workers go house to house, motivate and educate the beneficiaries and



Sulabh Public School, where the ratio between the number of children of scavengers and others is 60:40

have the onerous responsibility of going to local bodies for taking grants on their behalf to build the toilets in their houses. We give them guarantee that we will rectify defects if developed within five years and in that way Sulabh has been able to gain the confidence of the people as well as the government and has gained credential amongst them.

In India, there is problem of maintenance and follow-up of the work after completion. Since we developed a system of maintenance and follow-up, the system worked successfully. While doing all these things, I had to take many unconventional decisions to relieve the scavengers and to bring them into the mainstream of society.

With the implementation of Sulabh on-site technologies scavengers are liberated from their dehumanizing work. They were the most oppressed and suppressed class of Indian society – hated, humiliated and ostracized. I started vocational training programmes for them to help them develop their skills in various market-oriented trades such as tailoring, embroidery, typing, shorthand, electrical job, audio-visual assembly and repair, beautician's course, etc. to change the course of their lives.

As education holds the key for any progress, especially for the downtrodden and oppressed, I started Sulabh Public School of English medium at New Delhi in 1992 with the aim to prepare children of weaker section of society for a better life. The school has 60% children from scavenger families and 40% from general class so that they can inter-mingle with each other from childhood. The children share their tiffins with each other which helps to break the social barriers.

In Sulabh School Sanitation Clubs, teachers and students, both are taught how to keep the toilets clean, which they do turn by turn.

A centre called Nai Disha (New Direction) was started at Alwar in the state of Rajasthan, for women who were engaged in the work of scavenging till March 2003 to rehabilitate them through vocational training. They were taught personal hygiene, basic literacy knowledge and were trained to make eatables like papads, noodles, pickles, etc. The training programme is followed by rehabilitation so that they get sufficient time for their economic empowerment. The social transformation brought about can be gauged by the incredible fact that the same society that was averse even to the touch of a scavenger, today readily purchases products (even eatables) prepared by the hands of these very scavengers. They were given stipend through banks and taught to maintain a bank



In tailoring class, erstwhile women scavengers learning how to stitch the clothes



HRH the Prince of Orange of the Netherlands felicitating erstwhile women scavengers in Delhi on the occasion of World Toilet Summit 2007

account which has also helped them to acquire self-confidence.

During the World Toilet Summit 2007 organised by Sulabh in New Delhi, after the erstwhile scavengers walked the ramp with top models of India, who displayed their handiwork, HRH The Prince of Orange of the Netherlands applauded their work and felicitated them with flowers.

For social interaction I took the 'untouchable' scavengers to the best restaurants. People laughed at me because they were unable to conceive this idea but I wanted to show them that they could also come to these places. It was not meant only for the 'elite' class people. I took them to the Hon'ble Prime Minister of India who gave them audience. The Department of Economic and Social Affairs of the United Nations invited them to participate in the UN and make a presentation on "Sanitation for Sustainable Development". Two erstwhile scavengers spoke from the podium. The women participated in a fashion show "Mission Sanitation", walked the ramp along with eminent Indian and American models, who showcased



The Prime Minister of India, Hon'ble Dr. Manmohan Singh gave an audience to erstwhile women scavengers trained at Nai Disha, Alwar, on 16th May, 2006 and blessed them.



Hon'ble President of India Smt. Pratibha Devisingh Patil, on 25th July 2008, gave an audience and blessed the erstwhile women scavengers trained at 'Nai Disha', Alwar

their skills. Finally they went to the Statue of Liberty to declare themselves free from the bondage and shackles of slavery and tell the world that they were no more untouchables.

On their return from New York, the Hon'ble President of India gave them audience and blessed them. The upper caste people who shied away even from the shadows of the 'untouchable' scavengers, now sit with them and have food with them.

Recently a Brahmin invited a scavenger to the marriage of his daughter, accepted her gift and gave her food along with her family members. This was unheard of in the social history of India, but has now happened. Now the pages of history have been turned over and they have been accepted by the society.



View of Sulabh Museum of Toilets

To arouse interest of people in sanitation, I established the Sulabh International Museum of Toilets in 1992 at New Delhi. I was inspired to do so during my visit to Madam Tussaud's Museum in London. The Museum has chronologically displayed development of sanitation in the world for the last five thousand years. It has a unique display of Su-jok Therapy by Dr. Sir Park of Korea, which shows that the call of nature can be controlled or vice versa by accupressure on the palm. People from more than 100 countries have visited Sulabh Centre for Sanitation and Social Change.



Sulabh Health Centre

80% of diseases in the world are due to unsanitary conditions. For achieving integrated health care, I established Sulabh Institute of Health and Hygiene in 1994. Health centres have been set up in public toilets for preventive, curative and rehabilitative medical care of the poor and needy. 11,000 women in urban slums of various states have been trained on good hygiene practices and manuals prepared for the same. Women volunteers have been trained to serve safe drinking water to urban slum dwellers.

Besides an Academy on Environmental Sanitation and Public Health was set up for planning, monitoring and implementation of projects relating to Environmental Sanitation with the focus on water, sanitation, health and hygiene, capacity building and training at national and international levels and for carrying out applied and fundamental research as well as consultancy in the area of environmental sanitation.

The Sulabh Encyclopaedia on Sanitation, a reference work, has given a new dimension to public health. It is a unique academic exercise which was spread over a decade and compiled by a team of dedicated technical professionals with expertise in the area of sanitation.

Further, to make the sanitation sector more lucrative, technical and professional I have initiated the setting up of a University of Sanitation. It was realized that sanitation is equally a technical as well as a social problem. To overcome the problem in a heterogeneous society with respect to socio-economic and cultural aspects is more challenging. The magnitude of the problem also varies widely in different regions of the world. University of Sanitation will help a lot to overcome the problem in different regions/societies. Thus our vision and mission go hand in hand with the Millennium Development Goals.

In summum bonum, I want to say that with the Sulabh technologies, their applications, vision, implementation, commitment, capabilities and efficiencies, we have been able to provide dignity to women for use of toilet with safety. We have relieved millions of scavengers from their sub-human occupation, brought them into the mainstream of society by giving them education, training and empowering them on a par with others.

Both technologies developed by me are suitable not only for developing countries, but also for developed ones. In household toilets of Sulabh design, the gases produced are absorbed in the soil and they are not allowed to exit into the atmosphere. In the biogas digester also all the gases produced – methane, carbon dioxide, nitrogen, hydrogen sulphide and others, are not allowed to enter the atmosphere. Methane is combustible and burnt for different uses. In this technology human excreta is recycled on-site and hence is one of the best examples of sustainable development.

The Sulabh technologies, firstly, help to reduce global warming because they help reduce pollution in the atmosphere. Secondly, in both the technologies water is saved. Thirdly, in the technologies, bio-fertilizer is produced. Both technologies fulfil all the conditions of a sanitary latrine. Therefore, these technologies are universally applicable.

In brief it can be said that the Millennium Development Goal on sanitation can be achieved by use of these technologies, adopted with some modifications according to local conditions, and



in a decentralized manner we can solve the problem of low sanitation coverage. The Millennium Development Goal on sanitation cannot be achieved if we think in terms of sewerage and septic tank systems only.

Sulabh has Special Consultative Status with the Economic and Social Council (ECOSOC) of the United Nations. Sulabh's sanitation programmes have been acclaimed as outstanding innovations in improving environment, ecology and community health, both in rural and urban areas. His Holiness Pope John Paul-II gave an audience to me in 1992 before bestowing the International St. Francis Prize for the Environment (Canticle of All Creatures).

Before I conclude I would like to make a reference from a story Jonathan Livingston Seagull by Richard Bach. The seagull was dissuaded not to fly in the sky by his parents as his job was to fly from the shore to where the fishermen used to cut fish. He was insulted, humiliated and faced difficulties while flying high, but he finally succeeded. After he became successful, he trained other seagulls to fly high also. My story is the same because I belong to a Brahmin family. My father was sad and my father-in-law was very angry when I took up this job. In the same way as the seagull, I faced many difficulties and succeeded. We are training people in Sulabh technologies which are free from patent and empowering them. We have got constructed public toilets in Bhutan and Afghanistan. We have trained professionals from 14 countries of Africa, so that they can install

these technologies with some modifications in their respective countries. I suggest that the entire world should adopt the technologies mentioned above to solve the problem of sanitation to achieve the Millennium Development Goals.

Martin Luther King Jr. once said that even if a person's job was to sweep the road, he should sweep the road so well that all the angels in heaven should stop and say, "Here lives a wonderful sweeper!" I have done the same in my life and for that you have nominated me for this award.

I thank you all for your patient hearing.

