

## Appendix 1

### LESSONS LEARNED FROM ADB SANITATION PROJECTS

1. Latrines (Sri Lanka) – Demand overestimated 6,127 out of 10,000.
2. Latrines- (Pakistan) Slum upgrading implemented except for pit latrines.
3. Sewerage – (Vietnam) Capacity for O&M is inadequate.
4. Sewerage (Karachi) – Sustainability can only be assured if utility is in good financial health.
5. Sewerage (Karachi) –STP only operating at 54% of capacity. O&M problems – only 5 out of 18 pumps operating. Revenues insufficient to cover costs.
6. Sewerage (Karachi) – Project objectives should be clear and monitorable not "to improve environmental sanitary conditions and alleviate pollution in coastal waters".
7. Sewerage (Rawalpindi) – Project took 9 years to complete.
8. Sewerage (Rawalpindi) – Trunk sewers largely remain unutilized due to absence of lateral or secondary sewers.
9. Sewerage (Pakistan)– Three sewage treatment plants as well as collector and secondary sewers were constructed but only about 20% of secondary sewers were provided due to unpopular connection charges.
10. Sewerage (Pakistan) – Only 622 connections made.
11. Sewerage (Pakistan) – A sewage treatment plant and trunk and secondary sewers were constructed but only 300 connections made as against 5000 envisaged.
12. Sewerage (Pakistan)– A sewage treatment plant and sewer network was constructed but only 1,600 connections out of envisaged 8,000 were constructed.
13. Sewerage (Pakistan)– No charges are collected for sewerage services.
14. Sewerage (Pakistan) - Project took almost 10 years to implement.
15. Wastewater Treatment (Anhui) – Most important factor for success was strong commitment from the Government institutions and excellent cost recovery.
16. Wastewater Treatment- (Fuzhou) Failure to increase water and wastewater tariffs could significantly jeopardize financial sustainability. More policy dialogue is needed.
17. Sewerage (Kathmandu)– Rehabilitation of sewage treatment plants and sewers needed.
18. Sewerage – (Colombo)- Rehabilitation of sewerage system needed.
19. Sewerage- (Bombay) – Sewerage services plus slum sanitation component.
20. Sewerage – Only 232 cities/towns out of 4700 in India have sewerage. Average coverage is 60%.
21. Sewerage (Wuhan) – Three wastewater treatment plants and 100km of sewers. Total investment of World Bank in wastewater treatment facilities in China is to top \$10billion over 5-10 years.
22. Sewerage (Shanghai) 50% of pop. Relied on daily collection of nightsoil. Less than 2/3 of wastewater collected is treated.
23. Sewerage (Wuhan) ADB Small-scale ADTA with objectives (i) improve public awareness among poor of benefits of connecting to sewer system (ii) improve sewer connection rates among poor and (iii) assess effects of awareness and connection rates on quality of life.
24. Sewerage and Sanitation (Madhya Pradesh) Project includes supply of equipment for septic tank and sewer cleaning, construction of community toilets, construction of sewerage networks and drainage improvements, construction of sewage treatment plants. Project includes water supply and solid waste components too.
25. Low Cost Sanitation, Community Awareness and Health Education(PNG) Project. Bucket system and simple pit latrines to be replaced with ventilated improved pit latrines.
26. Wastewater Management (Hebei) 300 km of sewers and treatment plants for 540,000m<sup>3</sup>/d combined domestic and industrial wastewater.

## Appendix 2

### LESSONS LEARNED -WORLD BANK SANITATION PROJECTS

1. Project design should incorporate institutional building, financial viability and poverty alleviation. Link revenue to expenditures. More user pays instead of municipal budget transfers.
2. It is important of all polluters connecting to the system both to expand coverage and increase numbers of paying customers. Political commitment is necessary with respect to pricing and enforcement of environmental standards.
3. Ongoing support for project preparation and implementation is important, including construction management, financial and institutional development as well as a technical review panel.
4. In Jakarta the Bank's advocacy of low cost sanitation against local advice caused the project to fail. The sewerage part of the project was scaled down due to slow progress and limitations on the capacity of the treatment pond. People rely on septic tanks and leaching pits, both improperly designed. Most of the 3000 planned leaching pits could not be built because of insufficient space or unsuitable soil conditions. Disposing of more liquid wastes from septic tanks and leaching pits into drains blocked with solid waste and brim full with stagnant sewage has only exacerbated already unacceptable environmental conditions. And shows how trying to solve one part of the problem has created others. Sewerage and sanitation projects require a comprehensive approach that takes into account the final disposal of waste. Open canals carrying raw sewage overflow onto the streets. One thousand cases of cholera per year.
5. In Manila the Bank nurtured a dialogue with receptive well run municipal agencies. Deteriorating sewerage system reached only about 17% of city dwellers. Lack of cost recovery means the rehabilitated trunk sewers are not being maintained. Small bore pipes connect septic tanks to drains which discharge to drainage canals but these are usually choked with garbage. Nevertheless health surveys reported significant improvement in local health by removing sewage from around houses. Now in Manila, World Bank are assisting the concessionaires with septic tank desludging equipment, with septage treatment facilities, and with package sewage treatment plants that treat the septic tank effluent. Conventional centralized sewerage works are too expensive.

## Appendix 3

### SOME GLOBAL CASE STUDIES

#### A. Introduction

1. There is no need to reinvent the wheel. There are enough both successful and unsuccessful examples around that give us the big picture on urban sanitation in developing countries. Here are some examples:

#### B. Urban Environmental Sanitation Planning Lessons from Bharatpur (pop. 200,000), India.

2. Planning process began with a Situation Analysis involving all stakeholders including NGOs. It culminated in a planning workshop in which sanitation problems and their root cause were examined. Conclusion was that the town's problems lay not so much with lack of funds as in poor planning and management.

3. The Guiding Principles of the Plan were:
- (i) Improve environment (river) and social aspects (health) with more latrines and better SWM.
  - (ii) Long term goal to be achieved in small steps (3 year priorities).
  - (iii) Priority to be given to low income people where sanitation needs are the most acute (due to cost factor).
  - (iv) Great emphasis on improving existing O&M.
  - (v) Community participatory approach to be adopted.
  - (vi) Agencies to respect Plan through budget, staff, work plans.
4. Framework of Bharatpur Sanitation Development Plan
- (i) Goals
  - (ii) Guiding Principles
  - (iii) Management and Coordination
  - (iv) Regulation and Enforcement
  - (v) Roles and Responsibilities
  - (vi) Financial Arrangements
  - (vii) Capacity Building Needs
  - (viii) Formal Status
5. Lessons Learned and Advice to other Municipalities
- (i) Adopt city-wide strategic planning
  - (ii) Ensure collaboration between stakeholders and agree on process to be followed
  - (iii) Process must be made official
  - (iv) Consider pilot projects for service delivery
  - (v) Need for capacity building and awareness in (a) Government and (b) NGOs.
  - (vi) Use of Sanitation Coordination Committee is good.
  - (vii) Take small steps.
  - (viii) Incorporate existing schemes
  - (ix) Accept that ideal solution may not be available
  - (x) Recognize there is no maintenance free option
  - (xi) Recognize that sanitation is about behaviour

## **C. Sanitation in Metro Manila (Manila Water)**

### **6. Current Situation**

- (i) Polluted waterways
- (ii) Congested landscape
- (iii) Lack of planning of utilities
- (iv) No proper sanitation facilities
- (v) 70% pollution load is domestic sewage
- (vi) Majority of population use septic tanks
- (vii) Lack of septic tank services emptying, treatment, disposal
- (viii) Lack of properly planned sewerage systems

### **7. Challenges to Sewerage Expansion**

- (i) Congestion (Land for STP and laying pipes)
- (ii) Acceptance (willingness to accept when compared to septic tanks)
- (iii) Sewer rates (50% add on water)
- (iv) Wastewater regulations (legal / community)

### **8. Alternatives to the Sewerage Approach**

- (i) Package Sewage Treatment systems (utilize existing septic tanks & sewers)
- (ii) STP constructed underground with community consultation. Costs around \$25,000 for 900 Households / Capacity 900 m3/d
- (iii) Septic tank emptying and septage treatment offered
- (iv) Community Sanitation Projects
- (v) Use of bio-solids and septage as soil conditioner

## **D. WSP Study Philippines**

- (i) In the past 30 years investments in sanitation in the Philippines totals only 1.5% of that spent on urban water supply. At least 14 sewerage feasibility studies prepared in recent years and none implemented.
- (ii) Coverage with sewerage is low. Only 8% in Manila and 1-3% in other cities.
- (iii) Urban poor remain excluded with unsanitary toilets or defecate in open. Top priority is to provide sanitation services to disadvantaged urban poor. Most of this must come from communal toilets as space and lack of water prohibits on-site solutions.
- (iv) Private septic tanks are usually small single chamber tanks which provide minimal treatment and limited sludge storage. They seldom use effluent disposal systems as regulated and are seldom desludged.
- (v) Most urban households in Philippines prefer to pipe their effluent directly to a nearby drain, canal or water course.
- (vi) It will require substantive evidence of environmental health risks associated with current septic tank systems to pave the way for enforceable sanctions against the discharge of inadequately treated effluent.
- (vii) Begin charging septic tank users (polluter pays) and then use this for sludge and effluent collection and treatment facilities. A 10% environmental tax added to water bill will allow free septic tank desludging.
- (viii) Local governments should not be service providers but monitor and regulate.

- (ix) The development of technologies capable of upgrading septic tank systems and incorporating them into low cost sewer networks will enable more neighborhoods to opt for this sort of improved sanitation.
- (x) Urban households appear reluctant to pay for public sanitation services when there seems little wrong with their private facilities.
- (xi) Independent sewerage systems and communal toilets are viable options for urban sanitation on a smaller scale provided demand is genuine.
- (xii) Government funding is essential, notably for the provision of sanitation services to the urban poor who remain excluded from public sanitation services and unable to develop private alternatives. Political support is essential to financing new sanitation facilities and their sustainability.
- (xiii) Key Constraints are:
  - Limited demand for alternatives to septic tanks
  - Shortage of financially viable options
  - Low awareness of environmental health risks
  - Ineffective enforcement of regulations and user charges
  - Competition from water supply for resources and politics
- (xiv) Inflexible government financing rules give Water Districts few incentives to invest in sanitation services or infrastructure in low income areas.
- (xv) Urban households using septic tanks are generally very satisfied, noting that facilities are reliable and almost maintenance free, whereas sewer connections were perceived to be expensive and require frequent maintenance.
- (xvi) Only one case study out of seven in Philippines (Zamboanga) had full O&M cost recovery.

**E. Another Look At Urban Sanitation  
Lessons Learned From 20 Research/Pilots In Africa  
(PS EAU- France)**

9. "The basic goal of Sanitation is the control of the advance of used waters, excreta and other liquid wastes produced by human activity, domestic or economic, so that the contained pollution, bacteriological and physico-chemical, do not spread infection risks for human health and deterioration of the environment."

- (i) When associated with public health & hygiene there are not enough financial resources and know-how for large scale programs. But in association with water supply, yes. The again sewerage networks are not necessarily good.
- (ii) With the rapid growth of African cities autonomous forms of sanitation will become the predominant response at the disposal of the people. They are the only ones which meet the policy objectives.
- (iii) Sanitation management must solve these three problems:
  - Upstream improvement of household sanitation conditions
  - In Neighborhoods improvement of healthiness and urban hygiene
  - Downstream prevention of environmental degradation
- (iv) Two problems with sewerage networks. (i) Delays in connecting mean not a high degree of sanitation is achieved. (ii) Lack of information, education and communication mean people don't know how to use it properly and can revert to autonomous systems.
- (v) There are five types of domestic installations:
  - external, mere hole, no flush, no roof, dry pit, no cesspit

- external, mere hole, no flush, dry pit
  - Mere hole, roof, covered pit
  - Turkish (?), flush, roof, covered pit
  - Internal, washbasin, flush, septic tank, cesspit.
- (vi) Mechanical (pump) emptying of cesspits most common but manual still frequent.
- (vii) The setting up of mini-sewerage networks to which may be connected some types of already established autonomous installations may help to clean up a neighborhood whose housing densification has saturated the physical environment.
- (viii) The private sector is at times capable of proposing sustainable technical and financial solutions (for instance the profitable artificial lagoon for the processing of wastes of the company Sibeau in Cotonou, Republic of Benin, whose services are paid by the inhabitants).
- (ix) Thanks to their rudimentary maintenance needs, the only purification stations that work sustainably in Sub-Saharan Africa are the artificial lagoons for the purification of wastes.
- (x) Recent anthropological studies have shown that “shame” in the neighborhood is a major factor in the motivations and strategies for equipping households. The logic of hygiene plays a lesser role than the social logic (reputation or honor) or the moral logic (shame).
- (xi) Burkino Faso Water and Sanitation Board established in 1985 a 5% sanitation tax on the water bill. It recognized that in the short term the access of urban dwellers to sanitation will require the use of over 90% autonomous systems. Through 5% water tax for sanitation and  $\frac{3}{4}$  financial investment provided by the people, Burkino Faso has shown it is possible to finance progressively the entire upstream link of sanitation without international intervention.
- (xii) Research has shown the threshold of domestic recurrent expenditures on sanitation to be about 1% (water 5-10%) and this is limited to the emptying of cesspits. But this puts the market at one million Euros for every one million inhabitants and all without public intervention or incentives, so the market is considerable.
- (xiii) The primary and secondary parts of the network system require heavy and costly infrastructure, which need is generally linked to political image of city and therefore financing may be negotiated in the political arena. Financing of the upstream links including emptying of cesspits and septic tanks is better by inhabitants because they are more explicit.
- (xiv) Technicians provide information but it is not always understood. Likewise people express themselves about services and how to live but technicians don't understand.
- (xv) There is a good example in Tanzania (Moshi) of a sewerage success based on the executive committee having tariff autonomy. Still even there 85% of people rely on autonomous systems.

## **F. Down To Earth – Eco-Sanitation V Sewerage**

- (i) The discharge of domestic sewage is leading to heavy pollution of rivers and urban groundwater aquifers requiring a huge investment in river clean up. We divert sewage to treatment facilities, but this sewage comes from the rich not the poor. The more water we use the more investment is needed to clean it up. The political economy of sewer systems is atrocious for developing countries. Hardly any poor city can recover its investments in sewer systems. Users get subsidies.

The users are the rich. Delhi's sewers are choked and silted. Roman aqueducts are not a symbol of intelligence. They are a symbol of great environmental stupidity. Sewage treatment plants when built often lie idle. Sewer systems are built to protect the public health but badly managed systems become a hazard to health. The risks include river pollution from sewage outfalls, groundwater contamination, piped water contamination, sewage backflows (plastic bags) and overflowing sewers causing people to raise the floor level of their houses at great cost. About 80% of the pollution of Indian rivers is from domestic sewage, yet the sewers in Delhi have also lost 80% of their capacity due to age and poor maintenance.

- (ii) There is a growing concern for ecological sanitation and this is giving rise to innovations from the concept of sewerless cities using new technological systems which use extremely low or even no water at all and in which all the wastewaters and the solid wastes are recycled. This must be developed for the rich because it is the rich persons flush that is the biggest environmental culprit today. The objective is the safe disposal of human waste yet flush toilets and sewerage transfer the problem elsewhere. They are complicated ways of spreading pathogens away from the user to the public at large. A family of five using a water toilet contaminates more than 150,000 liters of water in order to transport just 250 liters of excrement in one year.
- (iii) Water is a precious resource and should not be used to transport faeces. Waste should be managed as close as possible to its source. Also faeces and urine should be considered as resources not waste products. We eat plants that get nutrients from the soil. We urinate and defecate and return nutrients to the soil.
- (iv) Clivus Multrum is a single vault composting toilet used in Sweden, where urine, faeces and organic household wastes are combined and processed together. The heap decomposes reducing to less than 10% of original volume and gradually forms humus which is used as fertilizer and soil conditioner.
- (v) Some developments for consideration are:
  - Condominial sewerage (Orangi Pilot Project)
  - Decentralized effluent treatment
  - Use vacuum based sewerage (Germany)
  - Use black water to produce biogas and grey water treat with reed beds
  - Electric incinerator toilets
  - Eco-san toilet in Kerala (Paul Calvert) Don't mix faeces, urine and water. If two (urine and faeces) are separated urine can be used directly as a fertilizer while faeces can be sanitized and then used as a soil conditioner.
- (vi) China has a large ongoing eco-san program. Faeces are dried in toilets and are collected and used in three ways.
  - biogas digester for lighting and cooking
  - left over sludge applied to fields as soil conditioner (urine too)
  - faecal sludge used in aquaculture industry.

**G. South Asian Ministerial Conference On Sanitation  
( Background Paper Dhaka Oct. 2003)**

- (i) Purpose of conference was to (a) raise the profile of sanitation, (b) generate political commitments, (c) strengthen advocacy and leadership and (d) assess the state of sanitation and hygiene

- (ii) **Sanitation Policies.** Several Asian countries have recently developed sanitation policies. USAID issued a guide to sanitation policy development. Policies often refer to
  - (iii) Decentralization to local government level
  - (iv) Allocation of ministerial responsibility
  - (v) Technology selection
  - (vi) Regulations and by-laws
  - (vii) School sanitation
  - (viii) Subsidies on new construction
  - (ix) Emphasis on poverty elimination now so sanitation policy should be compatible
  - (x) The most obvious impacts of sanitation and hygiene are in terms of improved health and environmental protection, but economic productivity, education, empowerment of women and basic human dignity are all powerful arguments that need to be better articulated.
- (xi) **Institutional Arrangements**
- (xii) Governments increasingly seen as facilitators not drivers
- (xiii) Lack of appropriate legislation and regulations
- (xiv) Severe institutional fragmentation
- (xv) **Finance, Economics and Equity**
- (xvi) Where can the resources for sanitation and hygiene promotion be found?
- (xvii) Subsidies, demand responsive approaches and decentralized government finances.
- (xviii) **Demand and Choice**
- (xix) Demand for sanitation may exist but it is limited
- (xx) It is well established that health is rarely the main reason why people build latrines or connect to sewers. Social and cultural reasons dominate such as privacy, dignity, convenience, freedom from smell, a cleaner household and immediate environment.
- (xxi) Sanitation in West Bengal improved dramatically when households reduced their costs by buying only the most basic components to build their own latrines.
- (xxii) Hygiene improvement and social marketing need attention.
- (xxiii) **Advocacy, Communication and Mobilization**
- (xxiv) Stakeholder analysis involves identifying the types of audiences/ groups to be involved and determining how to approach them. Effective policy discussion can help legitimize the process and the result.
- (xxv) Involvement of government remains critical.
- (xxvi) Sanitation and hygiene have been dominated for too long by technical professionals without skills of political advocacy and public communications.
- (xxvii) We need more conferences just on sanitation.

## H. Listening - WSS Collaborative Council

### (i). Sheela Patel – SPARC/Mahala Milan/ NSDF Alliance (India)

10. In cities across India, communities working with this alliance have delivered sanitation facilities that are properly thought through, well built and efficiently run. Unlike government latrines, community toilets are clean, bright, and well ventilated. They have a good supply of water for flushing, hand washing and maintenance. They have separate areas for men and women and special latrines for children. Each block is operated by a management committee and its running costs are paid by the purchase of a family toilet pass that costs 20 rupees per month. The building of a toilet is also an opportunity to show the city authorities that given the



chance and the support, the inhabitants of slums are able and willing to solve many of their own problems.

(ii). **Jockin Arputham (National Slum Dwellers Federation- India)**

11. We come to help them get together, identify a problem, and tackle it today- using their own knowledge, their own talents and their own money. – The people are the greatest resource for their own development. – It is my experience that savings schemes are the best way to spark a movement of self help in a poor community. Pitch the idea to a group that is predominantly women. Sanitation is a very good place to start. If a community savings group approaches the Federation with a request for sanitation, we are able to help them through the process of planning and designing a toilet block, hiring contractors and builders and developing a system that will pay for the running and maintenance of the facilities. The NSDF is now completing the construction of 280 community toilets that were funded with money that the Mumbai City Corporation received from the World Bank. With an average of 20 seats per block this program is providing safe sanitation and clean water to half a million people every day.

(iii). **Ratnakar Gaikwad (Former Municipal Commissioner of Pune)**

12. This is an example of a Champion of the Cause. Sanitation has to be the city's first priority. He built 10,000 toilet seats in 400 blocks of community toilets in just three years. The City paid for the capital works but the people for the O&M. "In order to keep the program on track I took personal responsibility for supervising the key players. Every Wednesday they were asked to come to my office; NGO leaders, engineers, accountants and women from the slums sat at the table for a serious businesslike review of progress. I looked at how far we'd gone and told people where I wanted them to be by next week. Procedures were simplified, decisions were taken, obstacles were cleared. The drawn out process of awarding contracts for example was radically altered allowing some 200 work orders to be issued in the space of three or four days. The procedure for releasing money to NGOs was also adjusted to ensure prompt payment at every stage of construction. The Wednesday meetings were critical to success because they cut out the hierarchies, the parasites and the red tape which can easily ruin a good program"..

(iv). **Rehmatbi Qamar Ahmed (Mahila Milan – Women Together) – Contractor**

13. When the community has worked out the design of their toilet block, decided where they are going to put it and got the Corporation to agree to pay for it, they are going to need some technical help with the job of actually building the toilet. That's where I come in. I've been the contractor for five sites in Mumbai and I've now got my own contacts with people who supply materials and labor at fair rates. There is no shirking and no cutting corners when I'm on site. And that's the point. I am on site all day every day. I do this because I earn good money (and people appreciate what she does).

(v). **Surjya Kanta Mishra (Minister for Health and Family Development – West Bengal)**

14. Sanitation as A Way of Life. That phrase implies a psychological adjustment that will lead not just to the use of latrines but also the washing of hands, the cutting of nails, the safe preparation of food, the refusal to spit in public places and the vigilant protection of local water bodies from all sources of contamination. This attitude of mind – not building toilets will lead to the really dramatic improvement in public health. The solution depends on the participation of

the people. That is being generated by a range of strategies that appeal to the need for privacy, to the economic benefits of hygiene to the social stigma of open defecation.

(vi). **Sait Damodaran (Gramalaya an Indian NGO – Tamil Nadu)**

15. I would advocate a campaign led by communities, civil society and NGOs to make the people aware of the initiatives being promised by their government. If a community group has never heard of the Total Sanitation Campaign, how can they ask their representatives why nothing is happening? Clearly there is a place for local media in raising public awareness. If local authorities are to be held accountable then the community must be in a position to question their methods and practices. Slum residents must have the confidence to challenge local politicians and engineers. This confidence depends on communities having a sound grasp of the new policies and having technical capacity to act as watchdog during implementation. NGOs can help.

(vii). **Bindeshwar Pathak (founder of Sulabh International Social Service Organization)**

16. Sulabh is not an NGO that builds toilets. It is not a local charity that depends on government grants to finance one off projects of water and sanitation. It is a self sufficient movement employing some 50,000 dedicated staff who work day in and day out right across the country to promote the cause of sanitation as a means to eradicate poverty, disease and social injustice. The right to cleanliness, privacy and dignity can be used to rid India of a tradition which for centuries has sentenced people by their birth to the lifelong task of carrying away other people's excreta. We've managed to build over a million latrines but in India there are something like 120 million families who have no toilet at all. Sulabh charges both governments and users in order to maintain their high quality services. Sulabh has innovated technological solutions for the design of toilets, for the treatment of wastewaters, and even for the creation of biogas and fertilizers from human excreta.

(viii). **Kamal Kar (Social and Participatory Specialist – Bangladesh)**

17. The practice of open defecation is a deeply ingrained habit of mind and body. It cannot be reversed by offering subsidies. Human shit will find its way into people's mouths. Community Led Total Sanitation (CLTS) is bringing 100% sanitation to rural villages and has as its main objective the elimination of open defecation. Local people know how to market sanitation.

(ix). **Dipak Gyawali (Former Minister of Water Resources in Nepal)**

18. It is the task of all 'social auditors' to speak out against the inefficiency and self interest of donor bureaucracies. Social auditors may include academics, students, investigative journalists, activist NGOs, public interest lawyers or simply concerned individuals. If these people collaborate across the North-South divide then they do have the power to influence both national and global policy. [This is a lesson that if ADB is going to help governments deliver sanitation to the people in developing countries it must be efficient. When demand for sanitation is raised but not efficiently met then this does much harm. It is also a lesson for governments that once a policy is declared social auditors are necessary to monitor the policy and ensure it is indeed implemented – ACM]

(x). **Umesh Pandey (Founder of the NGO NEWAH in Nepal)**

19. Sanitation and hygiene have been neglected because professionals are not trained in the social and cultural side of their work. They give no thought to the idea of community or local knowledge or social dynamics. This is a failure of the education system. --- If they speak out loudly civil society and the media can make a huge impact on public policy. Civil society is complicit in what amounts to an unforgivable neglect. There are a lot of good ideas being tried out in Nepal. Eco-san toilets for example and CLTS. NEWAH has developed a sophisticated strategy for identifying different levels of poverty and is already using this to provide differentiated subsidies to the very poor. But these kind of forward policies are not being addressed at the national level.

(xi). **Ravi Narayan CEO of NGO WATERAID**

20. The ability to develop local solutions in response to specific circumstances is the one universal hallmark of successful interventions and it is also why no particular model can be accepted as policy or replicated nationwide. But municipal governments do not have the kind of skills and understanding demanded by the new approach. Very often they are untrained, unfamiliar and even unwilling to work alongside communities in the pursuit of people led, locally specific solutions. So training and motivation of these people is needed.

(xii). **Sandy Cairncross (Professor at London School of Hygiene and Tropical Medicine)**

21. Creation of demand for sanitation requires social marketing. Instead of leaving that job to NGOs governments should be thinking about how they can put their own resources into creating a marketing strategy on a national scale. It might mean diverting resources toward promotion rather than production of latrines. A more agile approach would be to rely on the involvement of small-scale private sector producers. Municipal centers for social marketing could be linked to centers that stimulate production, train masons, develop technologies, promote a range of models, act as brokers between client and producers and regulate the work of hardware manufacturers.

**Appendix 4****SOME REFERENCES ON URBAN SANITATION**

- |   |                              |
|---|------------------------------|
| 1. Low-Cost Sanitation  | John Pickford                |
| 2. Sanitation Connection  | Internet Site                |
| 3. Asian Water Supplies (ADB)   | Arthur McIntosh              |
| 4. Urban Environmental Planning   | WSP India                    |
| 5. Sanitation in Metro Manila   | Manila Water                 |
| 6. Sanitation in the Philippines  | WSP Philippines              |
| 7. Another Look at Urban Sanitation (Africa)  | PS EAU –( France)            |
| 8. Down to Earth – Eco Sanitation v Sewerage  | Internet Eco-Sanitation Site |
| 9. EcoSanRes Publication Series Reports   | Stockholm Env. Institute     |
| 10. The Challenge of Financing Sanitation for Meeting the Millenium Development Goals | WSP Africa 2004              |
| 11. Listening - WASH  | WSSCC                        |