Annexure - I

1st Draft Benchmarking Water and Sanitation Practice for Improved Service Delivery

Developed by:

F H Mughal
Water & Sanitation Specialist
October 2006
October 2006

Program Support Unit
Sindh Devolved Social Services Program
3rd floor, State Life Building # 3
Dr. Ziauddin Ahmad Road, Karachi
Tel: 021-9201005- 8 Fax: 021-9201004
www.sdssp.gov.pk

1st Draft Benchmarking Water and Sanitation Practice for Improved Service Delivery

Overview

Improper water supply and sanitation affects the lives of billions of people in developing countries. Globally, 1.1 billion people do not have access to safe water and, 2.4 billion people are without adequate sanitation.

In Sindh, a major portion of the population, in rural and peri-urban areas are without the facilities of safe water and adequate sanitation. In the absence of any benchmarks, wherever the service of water supply and sanitation is available, the quality of service is poor, undependable and unsatisfactory. Unsafe drinking-water and poor sanitation directly affect the health of people. Provision of safe water and satisfactory sanitation is recognized as the human right. Sustainable human development demands that, people should be provided with wholesome drinking-water and acceptable sanitation.

Negative effects of unsafe water and unhygienic sanitation are well known. These effects also impact the economies of the country. In Sindh, there are clearly localized problems in securing safe water and good sanitation. These include lack of local capacity in developing projects, lack of funds, problems in accessing water and sanitation technologies, poor communication system and lack of access to dependable water sources. As a result, unsafe drinking-water and adequate sanitation are the major causes of health and environmental problems; and mortality and morbidity.

Fundamental to rational benchmarking the rural water supply and sanitation, is the adoption of the concept of "demand-responsive" approach. Principles, covering the concept of demand-responsive approach are:

- A holistic approach to the use of water resources should be adopted;
- Management should be focused at the lowest appropriate level;
- Water should increasingly be managed as an economic as well as a social good; and
- Women should play a key role in the management of water.

In order to achieve an endured human development, reduce health and environmental problems and, inch towards meeting the goals, enshrined in the Millennium Development Goals of the United nations, benchmarking the water and sanitation practice in Sindh, will be essential to guide the water and sanitation sectors to a level, where people in Sindh are provided with dignified water and sanitation services.

Overall Benchmarks

The benchmarks, outlined here, are related to the level of service, in providing access to safe water supply and sanitation:

Benchmarks for Water Supply

Level of Service	Water Supply
Deficient	Water source is unsafe or inadequate. Return time for fetching water is more than 30 minutes
Minimum	Communal point source, with safe and adequate water, with appropriate drainage. Return time for fetching water is less than 30 minutes
Intermediate	Point source of water on household plot, with safe and adequate water supply, and appropriate drainage
High	Piped connection in the house with safe and adequate water under continuous pressure

Benchmarks for Sanitation

Level of Service	Sanitation
Deficient	Open defecation or dirty communal latrine
Minimum	Simple pit latrine on household plot
Intermediate	Improved pit latrine, or pour-flush toilet on household plot
High	Flush toilet with septic tanks, or a sewerage system

Specific Benchmarks for Water

- Household water consumption level, in rural areas, should increase to 40 liters/capita per day (lpcd) in 2015
- Low-income households (less than Rs. 5,000 per month income per household) should be converted from public taps to yard connections by 2010;
- In case of those households, which have no access to water supply and, the water is supplied through vendors, the average price of water per liter should reduce by 25 per cent (2006 prices) by the year 2015;
- In case of distant water taps, the travel time for fetching water, which is now more than 30 minutes, should reduce to 20 minutes by the year 2010 (average travel times);
- In case of populations, dependent upon distant taps, the household water consumption level should increase from less than 10 lpcd to 15 lpcd by the year 2010, in 50 per cent of the households, (or 1,000 households, if there are more than 2,000 households in a town);

- In a water supply scheme, 80 per cent of the installed public water points should be in good working order, 3 years after its completion;

- In case of rural drinking-water supply, the number of people with access to safe or improved drinking-water source, within one km, should be raised to 100 per cent, by 2015;

- In case of peri-urban or urban drinking-water supply, the number of people with access to safe or improved water source, within 0.25 km, should be raised to 100 per cent, by 2015;

- The washing of hands after visiting the latrine or toilet is a very important and essential hygienic practice. It protects the population from infectious diseases like diarrhea, cholera, typhoid and a host of parasitic diseases. However, this habit is little practiced in Sindh, let alone the use of soap and water for washing hands after these necessary episodes. Where there is a toilet, pit latrine in either urban or rural areas, hand washing facilities should be provided together with a wash basin, soap and water with bold instructions in a commonly-understood language (Sindhi). Safe hand-washing practice should increase by 75 per cent among adults and, 90 per cent among school-age children, in service population, by 2010; and

- Integrate water, sanitation and hygiene education in all rural water supply and sanitation projects by 2009.

Specific Benchmarks for Sanitation

- Hygienic use and maintenance of sanitation facilities, by the households, should increase by 90 per cent by the year 2008;

- Safe management of children's stools practiced in households, should increase by 100 per cent, by the year 2008;

- In a sanitation scheme, 80 per cent of the installed latrines, should be in good working order, 3 years after its completion;

- Access to pit latrines in rural areas should be raised to 100 per cent by 2015;

- Access to sanitation in urban areas (running-water sanitation systems) should be raised to 100 per cent by 2015;

- In poorest areas, 80 per cent of the population should be within one km of a communal sanitation facility by 2020;

- Sanitation services for 5,000 population and above settlements should require less than 10 per cent subsidy of the allocated recurrent cost by 2020;

- Utility investments for sanitation coverage in the poorest areas should increase by 25 per cent by 2020;

- Awareness-raising programs should increase demand for services of communal sanitation by at least 5 per cent by the year 2015; and

- Establish competent and sustainable hygiene promotion team in each TMA by 2009.

1st Draft Benchmarking Solid Waste Management Practice for Improved Service Delivery & Environment for Healthy Living

Developed by:

Dr. Mir Nusrat Panwhar
Program Officer
Water Supply & Sanitation, Sindh

Engr. Muhammad Khalid
Consultant/Specialist
Environment & SWM

October 2006

Program Support Unit
Sindh Devolved Social Services Program
3rd floor, State Life Building # 3
Dr. Ziauddin Ahmad Road, Karachi
Tel: 021-9201005- 8 Fax: 021-9201004
www.sdssp.gov.pk

1st Draft Benchmarking of Solid Waste Management Practice for Improved Service Delivery and Environment for Healthy Living

Overview

Pakistan is facing a number of environmental issues mainly the pollution of fresh water resources and coastal pollution, unsafe disposal of solid waste management, and air pollution due to the mobile and fixed sources, loss of biodiversity, deforestation, natural disasters and climate changes.

This report is delineating the benchmarking of mainly water, sanitation, solid waste managements related environmental issues. Unquestionably if water, sanitation and solid waste management issues will be readdressed in an environmental sustainable and safe manner it will reduce the impacts and load of pollution on marine, air, soils environment.

Almost all fresh water resources are severely polluted due to discharge of untreated industrial and municipal wastes. Pollution of coastal waters due to waste discharges and oil spills has direct impact on biodiversity in resulting declined fish yields. Air pollution is on the rise, especially in urban areas. There is no proper sanitary landfill site in Sindh, waste dumped indiscriminately in open grounds and at dumping sites. Open burning of waste is common which lead to air pollution.

Recent surveys conducted by Pakistan Environmental Protection Agency revealed presence of very high levels of suspended particulate matter (about 6 times higher than the World Health Organizations Standards). Noise pollution has become a serious issue in major urban centers; mostly noise pollution is generated by two-stroke engine vehicles (rickshaw) which is commonly used in Pakistan.

The Government of Pakistan, Ministry of Environment and Environmental Protection Agency has taken several steps for the improvement of environmental conditions in the country. National Environmental Policy is drafted in 2005 while Interim Drinking Water, Sanitation and Solid Waste Management policy are drafted both at National and Sindh Province level.

Benchmarking of solid waste management and environment is the adoption of the concept of demand-responsive approach using tools of institutional development and capacity building as described in National Environmental Policy, 2005. Principles, covering the concept of demand-responsive approach are:

- Implementation of projects in an environmental safe manner.
- Reduce communicable diseases by safe disposal of solid waste and by improving environmental conditions

- Provision of safe drinking water meeting the water quality standards, and safe disposal of solid and liquid waste meeting the environmental laws, legislation and discharge limits.

In order to reduce health and environmental issues and move towards Millennium Development Goals (MGDs) and to implement National Environmental Policy and Sindh Solid Waste Management policy in province Sindh, benchmarking the Solid Waste Management and Environment will assist and guide the related department to improve their service delivery in the field of solid waste management and environment.

Benchmarks for Solid Waste Management

Level of Service	Solid Waste Management
Deficient	There is no proper collection, transportation and disposal system for solid waste; people usually throw waste in open grounds and sewerage channels, streets and other water bodies. Open burning of waste is common and free access of scavengers to the dumping site and dust bins for the extraction of valuable goods resulting in spread of communicable diseases.
Minimum	Communal bin collection system, or door to door collection system, 100% lifting of solid waste through garbage lifting vehicles to the designated landfill site. Daily sweeping of streets and discourage open burning of waste, and proper management and disposal of hospital waste.
Intermediate	100% lifting of garbage, municipal, commercial, hazardous, hospital and industrial waste collected, transported and disposed off separately. Atleast 20% of total waste should be recycled at garbage transfer stations (GTS) and material recovery facilities (MRF). Old dumping sites and landfill site will be converted into sanitary landfill site with Leachate and gas collection system. There should be no open burning of waste, scavengers should not have access to the dumping grounds and landfill sites.
High	Source segregated municipal waste collection from individual houses (green waste for composting, recycleable for recycling and the waste having high calorific value for waste to energy). Municipal, commercial, hazardous and industrial waste collected, transported to the garbage city. (Garbage city will have the facility of recycling, waste to energy, composting and sanitary landfill site with Leachate collection and gas collection system).

Specific Benchmarking for Solid Waste Management

- Responsibility of collection, transportation and final disposal should be clearly defined amongst union councils (UC), Taluka/Town Municipal Administration (TMAs) and District Government of Sindh by the year 2006.

- 100% of solid waste from each TMA of Sindh by the year 2010 (increasing 20% each year), door to door and communal bin collection system will be introduced from 2006 and completed in 2010. In this regard waste collection system from communal bin to solid waste dumping site will be improved by providing garbage collection bins and vehicles to the town and identification and development of landfill site.

- Identified dumping site (s) will be improved to engineering landfill site by the year 2010.

- Site identification of sanitary landfill site (s) for atleast 10 to 30 years of operation in each district by the year 2007.

- 100% safe handling and disposal of hospital waste by the year 2008.

- Safe handling of solid waste from the communal bins to landfill site, procedures will be developed for health and safety with no manual lifting by the year 2010.

- Continuous training program for solid waste staff on solid waste management starts from the end of 2006 till staff of all the TMAs and District Government are properly trained.

- If hauling distance from the landfill site is more than 25 kilometer than more garbage transfer station will be developed by the year 2007.

- Volume of waste to be landfilled will be reduced to 15% by the year 2012 by introducing plans for reduce, reuse and recycling of waste.

- All the other civic agencies like, Cantonment Board, Defense Housing Authority (DHA), SITE, Railways, PWD, KPT etc sharing the responsibility of SWM with municipal agencies in Sindh will be made responsible to coordinate with local governments in Sindh for ensuring proper collection, transportation and final disposal of solid and liquid waste in their respective areas.

Benchmarks for Environment

Level of Service	Environment
Deficient	• Untreated discharge of municipal and industrial effluents to the water streams, polluting marine environment. Oil spills in marine environment. • Unsafe disposal of solid waste, hospital and industrial waste at dumping site contaminating ground water and soil. • Majority of people do not have the access to safe drinking water meeting WHO standards particularly in rural areas. • Majority of people do not have the access to adequate sanitation facilities particularly in rural areas. • No Initial Environmental Examination (IEE) and Environmental Impact Assessments (EIA) conducted prior to the execution of water supply and sanitation, road, building and other dangerous and offensive trades.
Minimum	• Wastewater treatment plants for municipal and industrial waste shall be installed and wastewater treatment plants shall be an integral part of all sewerage schemes. National or International standards shall be followed for the discharge of water into the receiving streams. Development of standards and regulations of different types of wastewater. • 100% lifting of solid waste through garbage lifting vehicles to the designated landfill site and proper management and disposal of hospital waste as per the legislation set by the government • 100% Provision of safe drinking water and sanitation facilities to the population living in slums, villages, towns, schools, institutes and all public places • Conduct Initial Environmental Examination (IEE) and Environmental Impact Assessments (EIA) prior to the execution of any infrastructure project as per the guidelines provided by Sindh Environmental Protection Agency (SEPA).

Intermediate

- 100% coverage of wastewater treatment plants and facilities for municipal and industrial waste, treated water meeting environmental standards shall be reused in agricultural fields and industrial wastewater shall be recycled by 25% in their industrial respected processes.
- 100% lifting of garbage, municipal, commercial, hazardous, hospital and industrial waste collected, transported and disposed off separately. Atleast 20% of the solid waste shall be recycled.
- Point source of water on household plot (both urban & rural) areas, with safe and adequate water supply and appropriate drainage.
- 100% Environmental Assessments prior to the execution of projects as per the guidelines by Sindh Environmental Protection Agency (SEPA).

High

- 100% coverage of wastewater treatment plants, biogas will be generated by the plants to fulfill its own energy requirements, continual improvement in the technologies with maximum treated water reused and recycled.
- Source segregated municipal waste collection from individual houses, industries, commercial, hospitals and others. There shall be separate treatment units for the treatment of biodegradable, toxic and industrial, hospital and commercial waste.
- Piped water connection in the residential areas including slum areas, villages with safe and adequate water under continuous pressure
- 100% toilets in houses, and public places (both rural & urban areas) connected to the trunk sewer lines to the wastewater treatment facilities.
- Implementation of Environmental Standards set at National and International level for any housing, water and sanitation, industries, transportation projects, etc to reduce environmental impact on the society and surroundings.

Specific Benchmarking for Environment

- Development of the environmental standards, laws and legislation for solid waste collection, transportation, disposal and identification of landfill site by the relevant civic agencies including local government by the year 2007.

- Development of the standards and legislation for the provision of safe drinking water supply by the year 2007

- Necessary rules, regulations and standards shall be developed for operatilization of environmental policy at the Federal, Provincial, District level, TMA level and UC level.

- Awareness program for environment shall be initiated at school level, incorporate environmental health and health care waste management component into medical teaching and trainings by the year 2007 through Sindh Environmental Protection Agency (SEPA).

- Necessary rules, regulations and standards shall be developed for operatilization of National environmental policy at the Federal, Provincial and District level by the year 2007 by SEPA and special monitoring committees shall be developed to implement the policy, legislation and National Environmental Standards up to the TMA level

- Provision of safe drinking water to the majority of people living in Sindh by the year 2010, including execution of water treatment facility with full surveillance and monitoring facilities.

- Piped water connection in the residential areas including slum areas, villages with safe and adequate water under continuous pressure by the year 2012 (increase 15% each year)

- 100% collection, treatment and disposal of Solid and Liquid waste as per Environmental Protection Agency rules and regulation by the year 2010 (increase by 20% each year).

- No discharge of untreated effluent in the water streams by the year 2012 (decrease discharge of untreated effluent into water streams by 20% each year)

- Establish environmental analysis laboratory to check National Environmental Quality standards of the on going activities in Water and Sanitation and other environmental related projects by the year 2008.

- Build capacity of District and Local government officials for effective environmental management and environmental assessments by the year 2007.

- SEPA and the related departments will devise a plan for the reduction in the burden of rabies, water borne diseases, fly borne diseases and mosquito born diseases. SEPA and related department will analyses the situation in Sindh with regard to the impacts of above discuses on the economics of the victims of these diseases in Sindh.