

Model Terms of Reference Planning Urban Sanitation and Wastewater Management Improvements



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Model Terms of Reference

Planning Urban Sanitation and Wastewater Management Improvements

Abstract

ADB has produced an approach and methodology for planning urban sanitation and wastewater (WW) management improvements. The material is in the form of a consultant Terms of Reference (TOR) for a project preparation technical assistance (PPTA). The breadth of technical and institutional options is a standout feature of the TOR.

BACKGROUND

Governments and city leaders tend to favor conventional sewerage systems. But these systems are expensive, technically and organizationally difficult to operate, and they rarely benefit the poor. Poorly planned and operated conventional sewerage damages the environment and misses the opportunity to recycle valuable nutrients and organics.

The TOR directs the project preparation consultant to review a comprehensive range of sanitation and wastewater management options, including

- conventional and low cost
- centralized and decentralized sewerage
- separate and combined industrial and municipal sewerage
- sewage treatment and effluent disposal options
- on-site sanitation options, separate programs for schools
- public toilets
- sanitation in slums
- community-based NGO-supported programs
- Consultants and governments are encouraged to consider where ecological sanitation (ecosan) should fit in the sanitation strategy.

WHAT THE MODEL TOR OFFERS

The TOR for planning urban sanitation and wastewater management improvements offers a step-by-step guide for

- surveying the existing sanitation situation in the project city
- analyzing the survey results
- analyzing all the plausible technical and institutional options
- formulating responsive city government policy and ordinances
- setting project investment priorities

The material is work-in-progress and can be adapted for your particular project circumstances. It also includes lessons learned from ADB and the World Bank, some case studies, and urban sanitation references.

A. Introduction

1. Urban sanitation and wastewater (WW) management project proposals from borrowing governments to ADB are rarely prepared with a full knowledge of the technical and institutional options available. Yet by the time a government submits a project concept it may already be fixed on a preferred approach and technology. In this common scenario it is essential that ADB encourages the government to take a step back and to fully consider the plausible sanitation options that may suit the city or town. This should happen during the ADB-funded Project Preparation Technical Assistance (PPTA).

2. It is conventional wisdom to plan of water supply and sanitation as though they can not be separated. But the reality is development priorities as expressed by the people, and as manifested in funds committed, put water supply far ahead of sanitation. The reasons for this are the high cost associated with sanitation in the form of conventional sewerage and sewage treatment plants and the unwillingness of people to pay for that service as many have on site services such as toilets with septic tanks or latrines. Furthermore such conventional sewerage and sewage treatment is often not working properly in developing countries. For want of 24 hour water supply to flush the sewers, and because solid waste is often added to sewage, sewers are often blocked, creating bigger environmental problems. Many sewage treatment plants do not function properly due to lack of expertise and cutting of operating costs.

3. But there are other reasons too. More and more people are becoming sensitive to environmental concerns associated with the outfalls of sewage and wastewaters whether treated or not. There are concerns about the volume of clean water used to flush excreta. There are concerns about not taking waste from one neighborhood to pollute another. There are concerns about the wisdom of mixing faeces with urine because, separated both can be used as fertilizers of soils. There are concerns about separating excreta from grey water as the latter can be treated close to home with wetlands. There are concerns about mixing industrial wastewater with domestic sewage because of the more difficult and higher treatment costs. This TOR structures an approach to urban sanitation

solutions in DMCs which tries to take into account this current predicament.

B. Objective

4. The objective of this TOR is to plan and prepare urban sanitation improvements for a project proposal for ADB funding.

C. Scope

5. The scope of this TOR is in four parts. The first is to establish what sanitation exists both nationally and in the given project city, in terms of facilities, in terms of institutions and in terms of the people's perspectives. The second is to analyze the pros and cons of the existing system and identify real need in terms of priorities. The third is to identify what options are available for practicable solutions, drawing on lessons learned from the past. The fourth and last is to develop policy and a short term proposal that would be appropriate for implementation under the project, but which also fits into a longer term masterplan for development and management of urban sanitation.

D. Analytical Framework

6. The goal of the project is to improve sanitation and therefore quality of life for people and by so doing reduce poverty in the subject city. Quality of life includes health, dignity, privacy, convenience and employment.

7. The Objective of the Project is to rehabilitate and maintain existing infrastructure and services, construct more sanitation facilities and services as chosen by the people, and provide institutional support for the long term sustainability of all.

8. Selection Criteria for Project Components will be based on the following four main criteria: (i) Use of Existing Facilities and Services (ii) Addressing the Sanitation Needs of the Urban Poor and Schools, (iii) An Options Analysis and (iv) Stakeholder Preferences.

9. Options Analysis will consider (i) unit cost per beneficiary, (ii) maximizing both human and environmental benefits, (iii) sustainability, (iv) a

long term plan, (v) government policy including land use zoning, (vi) piloting new approaches, (vii) beneficiary participation, (viii) wastewater as a resource, (ix) lessons learned from the past and (x) political commitment.

10. Policy Formulation through stakeholder consultation will provide the foundation for the sanitation project and other sanitation developments and management. It is the glue which holds all together and must have government endorsement as well as an informed civil society to monitor its implementation.

E. The Process - Ten Steps in Urban Sanitation Planning

11. The following ten step process in urban sanitation planning may help in preparing ADB projects in sanitation. It was developed by Water and Engineering in Developing Countries (WEDC) attached to Loughborough University in UK.

- (i) Request for assistance (Is this top down or bottom up?)
- (ii) A stakeholder consultation to agree on the process to be followed.
- (iii) Assessment of current status
- (iv) Assessment of user priorities
- (v) Identification of options
- (vi) Evaluation of feasible service combinations
- (vii) Preparation of consolidated sanitation plans for project area
- (viii) Finalization of sanitation plans at stakeholder workshop
- (ix) Monitoring, evaluation and feedback. Identify indicators to be used.
- (x) Implementation.

Part 1 – Existing Sanitation

12. National Review

- (i) Ascertain national policies and plans on sanitation including service levels, coverage, cost recovery and subsidies.
- (ii) Review relevant legislation
- (iii) Ascertain what institutions are responsible for sanitation.
- (iv) Ascertain facts about existing national coverage in terms of facilities.

- (v) What is the national development budget for sanitation?
- (vi) What is national O&M budget for sanitation?
- (vii) What are ongoing projects and which donors are assisting in the sector?
- (viii) Make a summary of findings with conclusions regarding strengths and weaknesses. The purpose of the national review is to put the new project in context of the “big picture” and to consider the institutional framework.

13. Project Area

- (i) **Undertake a sanitation audit** in the project area. This includes a survey of the utility or local government responsible for sanitation. It also includes a 5% sample survey of all residents and other water users such as industry in the city. The ADB Water Audit Toolkit contains two questionnaires specifically on sanitation aspects, one focusing on the institution and the other on the people. The main purpose of the audit is to estimate coverage with different service levels and sewage/wastewater treatment capacity and ascertain the perception of the people regarding sanitation services.
- (ii) **Survey the management and staff of the institutions responsible for sanitation.** What qualifications and experience do they have? Is there a local masterplan for sanitation development? When was it prepared? Is it being implemented? What is the policy on combined or separate sewers? What locations have priorities for sewerage? What is the connection fee for sewerage? Does this discourage people connecting? Discuss maintenance issues. Do sewers get blocked frequently? Are the sewage treatment plants operating to capacity? Any problems? The purpose of this is to see when designing the new project what problems need to be addressed.
- (iii) **Survey local authorities for attitudes, perceptions and priorities.** Discuss implementation of building regulations with inspectors. Discuss land use planning and zoning of industry. Review local legislation. The reason for this is to look into what legal requirements must be met and if these are

not being implemented discover why and try to improve the situation in the new project.

- (iv) **Survey five different industries** re wastewater minimization, treatment and disposal vis a vis regulations. Describe the nature, extent and location of industry in the city, including any industrial parks or industrial zoning. It is important to listen to the managers of these industries and ascertain what they would like to see happening in the future and how it might be done.
- (v) **Obtain maps and plans of existing systems.** Assess the age and condition of existing facilities. If necessary excavate to uncover the sewers in some locations. Explore frequency and extent of flooding in the project area. Document on map. Look at housing and sanitation in low-lying areas. What are people saying? The reason for this task is to examine the efficiency of the existing system and see if improvements can be made to extend services or lower operating costs.
- (vi) **Survey on-site sanitation facilities in at least five areas.** Document type of facility, people's satisfaction, maintenance, cost. Consider odors, aesthetics and health hazards. Survey septic tank de-sludging services. Is there a treatment facility? It is important to fully understand the existing services and how they work before considering improvements or new services.
- (vii) **Discuss past or ongoing sanitation projects in city.** How many people benefited? Rich or poor? How much monies were spent? This gives an idea of advocacy (or lack of it) for sanitation. If it only benefited the rich then more advocacy will be required now to benefit the poor.
- (viii) **Document health statistics regarding water borne or water related diseases.** Are these increasing or decreasing? What is awareness about hygiene? Is there a critical time each year? Most sanitation projects are justified on health benefits. A baseline is needed at the start of every project to measure health improvements.
- (ix) **Assess school sanitation facilities.** Is piped water available? What is perception and awareness of school children about hygiene and sanitation. Is gender an issue for privacy considerations? Discover the reasons why schools did not have proper sanitation and address these issues.
- (x) **Sample wastewater quality** from industries and from domestic residential as well as at outfalls (treated) and outfalls (untreated). What is the chemical (including heavy metal) make up of wastewaters? What is the COD and BOD of receiving waters? The purpose of this is to discover how bad the pollution is now and consider the ways and means and cost of effecting an improvement. Consider also upstream pollution.
- (xi) **Sample groundwater for pollution** of faecal origin and chemical (industrial) origin. Is groundwater used for water supplies? Can this pollution be traced to a given industry? Facts from the field lead to discussion and analysis and may result in new policy.
- (xii) **Survey extent and quality of public toilets.** Are there enough? Are they well used? Are they adequately maintained? Is there cost recovery? Who is responsible? What is the perception of the public about public toilets? In terms of greatest benefit for minimal cost, a good network of clean public toilets is a top priority. Private sector or NGO involvement is needed.
- (xiii) **Review solid waste disposal.** Is this a problem in drains and sewers? What is the answer? Who is responsible for solid waste disposal?
- (xiv) **Summarize results and analyze in a report (see below)** for a stakeholder consultation. Publish a summary in local newspaper and on Internet for any public comment.
- (xv) **Convene stakeholder consultation.** Include a good representation of residents with and without formal sanitation, NGOs, academics, journalists, local councilors, industry owners, institutional staff, consultants, representative of private sector desludging services, water utility, government environmental and health authorities, school teachers and contractors.

Discuss findings, listen to views, **introduce options for consideration (see below)**, formulate policy ¹, prioritize sanitation improvements for the project.

- (xvi) **Discuss findings with mayor of city and record views.** Political commitment is important. If this is not strong in certain areas (e.g. poverty reduction) it may need enhancement as part of the project preparation.
- (xvii) **Establish a website.** Work with local government and/or utility to establish a comprehensive Internet website on the existing water supply and sanitation services in the city including the above findings. [There are good examples from Indian cities].

Part 2 – Analysis of Existing Sanitation

14. The purpose of this analysis is to ensure that all the main aspects of the existing sanitation in the city are reviewed when considering the scope or priorities of the new project. This analysis must therefore include a review of the physical facilities, the comments of the users and those without facilities, and a review of the institution or institutions responsible for the facilities. The sanitation audit questionnaire for the utility/local government and for the consumer will provide answers. This analysis must answer the questions of what existing facilities or services can be improved and where new options are needed. Which are top priority and which can be implemented over the longer term?

15. **Physical Facilities – On-Site** Is on-site sanitation working? Is it acceptable to people? Is it properly designed and constructed and maintained? What is the overall coverage? Is desludging adequate? Are the facilities replicable elsewhere?

16. **Physical Facilities – Septage Collection and Treatment** – Extent of services? Who does this now? What is the cost? Are services only called when septic tank is overflowing with sludge? Where is the sludge taken? Is there treatment of sludge? Where could this be done?

¹ Since policy formulation is lengthy, it may overlap with project design and implementation.

17. **Physical Facilities – Sewerage and Open Drains** – What is the length, sizes, age, condition and location of sewers? Number of sewer connections? How much is this increasing each year?

18. **Physical Facilities – Treatment Plants and Outfall-** Number, location and capacity of treatment plants? Number of pumping stations? Are they all working? If not, why?

19. **Physical Facilities – Schools & Public Places -** What is the coverage with sanitation facilities? What is the quality of these services?

20. **People’s Comments – Existing System** – Is it working? What are the problems? How to do better? This is perhaps the most important part of the PPTA research because sanitation is about behavior.

21. **People’s Answers – No facilities** – How many have no formal sanitation facilities in the city? What would they like to have? Who should provide it? Who will maintain it? These are the most needy and for them there will be a choice of new facilities similar to existing facilities elsewhere or maybe new options to consider.

22. **People’s Perceptions – About sanitation and hygiene** – Where does it rank? For what reasons is it important? Whose responsibility? What can be done? How does this differ for those with or without existing facilities? How strong is the perceived need?

23. **Industry Comments – Existing System** - Is it working? How to do better? What about pre-treatment? Compliance with regulations? Recycling and reuse of water? Belief in polluter pays principle? Are there land use plans and zoning that dictate where industry can locate? Is this being followed? This is one of the most important aspects of sanitation in a city so top priority should be given to addressing this matter.

24. **Institutional Arrangement – Staffing, Organization & Competence** – What is wrong? What can be done to correct it? Is there a champion of the cause? Is the organization over staffed? Does it have the required skills? Is organization development needed? Does the

institution have autonomy to manage its own affairs?

25. Institutional Arrangement – Legislation, Regulation & Implementation – Is this adequate and appropriate now? Is it being implemented? Are new subdivisions constructed according to sanitation by-laws? Are new regulations needed?

26. Institutional Arrangement – Project Implementation – How has the institution performed on past capital works/donor funded projects? What were the issues? What should be done different?

27. Institutional Arrangement – Policies and Plans – Do they exist? Are they being followed? What are the constraints? Does civil society know about them? Are new policies needed? Discuss with NGOs these matters.

28. Institutional Reporting – Is there an annual report on sanitation operations and development? Is this available to the public? Does it compare past years too? Does it cover the right indicators? Is there a website for the public?

29. Health Situation – Statistics and Anecdotal Comment – Is this a mortality or morbidity concern based on local statistics? Do people perceive that their poor or lack of sanitation contributes to the ill health of their families?

30. Environmental Situation – Local and Downstream and Groundwater – Assessment of what damage has been done?. What are the benefits of intervention? What is at risk for the future? What is out of control upstream? What is the nature of the risk from groundwater pollution?

31. Cost Recovery–Policy–Tariffs–Collections–Budget Transfers. What are constraints of current cost recovery? What does it inhibit from happening? What would be better done? Is there a clear policy? Do the people know about it? Is there a water surcharge for sanitation or for the environment? Does sanitation revenue go into O&M of sanitation? What is the collection efficiency? Are revenues and expenditures connected?

32. Rehabilitation – To what extent can existing facilities be rehabilitated? What are the reasons

facilities need to be rehabilitated? Can these past mistakes be avoided in the future? What should be abandoned?

Part 3 – Options Analysis

33. Consider the “do nothing” option. Look at population increases and locations including formal development (subdivision) requirements. Are there any special programs for the poor or in slums? What are the predictions regarding effects on rich and poor? What are the public health and environmental implications?

34. What are the expectations of the people? Have they asked for sanitation? Is this a top down project? Who is asking for the project? How many perceive a real need? Is awareness or lack of it an issue? What is the status of hygiene education? What are their top priorities and for what reasons?

35. Sanitation management must solve three problems:

- (i) Upstream improvement of household conditions
- (ii) In neighborhoods improvement of healthiness and urban hygiene
- (iii) Downstream prevention of environmental degradation.

36. Poverty elimination. For sanitation to succeed in today's developing world it must be directly linked to poverty elimination. So sanitation for the urban poor must be tackled early in a project.

37. Guiding Principles Based On Lessons Learned from the Past (See Attachments). The following guiding principles are taken from many sources. Some are even conflicting with one another and some are impossible to follow in some circumstances. In looking at new options it is nevertheless important to consider how many of these guiding principles could be met.

(i) **Government and Institutional**

- Get political commitment and find a champion of the cause to cut red tape.
- Interagency collaboration and coordination is important.
- Land use zoning especially for industry is critical.
- Upstream financing by the people. Downstream by the government.
- A government sanitation policy monitored by civil society helps

- Use a sanitation coordination committee and build a strong institution
- The major constraint is not funds always. It is poor planning and management.
- Aim to connect all polluters
- Cost recovery with appropriate incentives to achieve policy objectives.
- There is no maintenance free option
- Support project implementation strongly

(ii) Technologies

- Consider pilot projects to try new options
- Consider wastewater as a resource (fertilizer in agriculture and in aquaculture)
- Consider wastewater reuse and recycling
- Minimize the quantity of waste.
- Don't mix urine and faeces – separated they can both be used as fertilizer
- Don't mix excreta and grey water – the latter can be treated in wetlands
- Waste should be managed as close as possible to its source.

(iii) People and Environment

- Consider both human and environmental needs
- Promote locally based solutions at household or neighborhood level
- Participation of users and involvement of formal and informal private sector
- Financial and economic analysis should show consequences of sub-optimal development especially regarding downstream environmental damage
- Long term goal in short steps. One objective to eliminate open defecation.
- Incorporate the existing system. Accept the ideal solution may not be possible.
- Sanitation is about behavior. Listen to the people. Address the unserved poor first.
- Schools and school children as first priority.
- Involve NGOs
- Stimulate demand – then time is of the essence
- Conventional sewerage philosophy has been “pipe it away first, then think about what comes next”. Combining all kinds of wastewaters and stormwater leads to a highly complex mixture of a wide variety of pollutants fluctuating greatly in composition and concentration making removal of pollutants very difficult. Wastewater and removed sludge contain

components such as phosphorus which could be used as a fertilizer if not spoiled by problematic substances such as heavy metals. The new philosophy is that wastewater should be treated (and reused if possible) as close to where it is generated as possible.

- The various disadvantages of centralized sewerage systems as noted from the lessons learned are:(i) takes nearly 10 years to build,(ii) inadequate capacity for O&M and breaks down quickly,(iii)sustainability threatened by ability of utility to charge and collect,(iv) reluctance of people to connect, which jeopardizes technical and financial sustainability and (v) environmental situation is worse when it breaks down.

The Options

38. Centralized sewerage and sewage treatment.

- Advantages include better health and better downstream environment (if properly operated and maintained), may be part of existing and long term plan and probably has political commitment.
- Disadvantages include high unit cost per beneficiary, does not normally include beneficiary participation, reluctance to connect and poor cost recovery can jeopardize sustainability, will take a long time to build, is at risk because of its linear design (any part fails and the lot fails) and subject to control of solid waste disposal.
- Best used where there is a high level of existing sewerage and sewage treatment coverage.

39. Decentralized sewerage and sewage treatment

- Advantages include community decision making and participation in construction and O&M, benefits both people and environment, can be implemented quite quickly and will probably be sustainable.
- Disadvantages are for some people near treatment facility and any pumping station (noise and smell), relies on water to transport, unit cost is relatively high and benefits mostly upper and middle classes.
- Best used where implemented by strong NGO to get community cooperation.

40. Combined domestic and industrial wastewater collection and treatment

- (i) Advantages are convenience and minimizing of capital costs.
- (ii) Disadvantages are higher operating costs and higher risk of environmental damage downstream of treatment as composition and concentration of pollutants can vary greatly.
- (iii) Commonly used in highly industrialized cities (China)

41. Combined stormwater and sewage/wastewater sewers

- (i) Advantages are that one pipe system handles both services.
- (ii) Disadvantages are that pipe sizes are larger and system will carry all pollutants untreated through treatment plant at times of high rainfall. Operating costs are higher.
- (iii) Best used where a combined system is already built and operated.

42. Separate domestic sewers

- (i) Advantages are lower volume of wastewater to be treated and smaller sewer sizes needed which can be useful in densely populated areas.
- (ii) Disadvantages are that storm water has still to be addressed somehow.
- (iii) Best used in new development of high density living.

43. Low cost "settled sewerage" also known as small bore or solids free sewerage

- (i) Advantages are that it complements on-site sanitation options such as septic tanks.
- (ii) Disadvantages are that it may become blocked (solid waste) and it still requires treatment. Septic tanks need desludging and treatment of septage.
- (iii) Best used to improve downstream environment where septic tanks already exist and piped water is connected.

44. Low cost "simplified sewerage" also known as condominal or in-block sewerage

- (i) Advantages are lower cost and community participation
- (ii) Disadvantages are maintenance and downstream sewerage and treatment.

- (iii) Best used to cut local costs where septic tanks are not in use but piped water is available.

45. Eco-san and wetlands on plot for middle/upper class subdivisions

- (i) Advantages are lower capital and operating costs and resource reuse.
- (ii) Disadvantages are marketing for technology change
- (iii) Best used in new developments and could be supported by subsidies

46. Eco-san for dry faeces and use in biogas digester

- (i) Advantages are minimizes pollution and resource reuse
- (ii) Disadvantages are marketing of technology
- (iii) Best used in slum or squatter environment

47. Septic tank and drains

- (i) Advantages are it is a cheap on-site solution with cost to owner
- (ii) Disadvantages are that effluent disposal by percolation to soils is seldom possible
- (iii) Best used in dense low income housing areas in conjunction with surface drains

48. On-site latrine (dry pit or leaching pit)

- (i) Advantages are all costs to user
- (ii) Disadvantages are low-lying locations or low soil absorptivity.
- (iii) Best used for low-income where on plot land is suitable and available

49. Biogas for community waste including solid waste and excreta

- (i) Advantages are reuse of resources
- (ii) Disadvantages are needs community participation
- (iii) Best used in dense low- income living.

50. Blackwater for biogas and greywater for wetlands

- (i) Advantages are reuse of resources
- (ii) Disadvantages are collection and space
- (iii) Best used where land is available to create wetlands

51. Public toilets in shopping centers and bus / ferry terminals

- (i) Advantages are convenience especially for women

- (ii) Disadvantages are it must be pay for use and well maintained
- (iii) This is an essential service which must always be provided if necessary by the private sector for profit.

52. Community toilets in slum locations.

- (i) Advantages are quality control on disposal
- (ii) Disadvantages are inconvenience especially during rain or night
- (iii) In high density low-income areas this is the preferred solution.

53. School toilets

- (i) Advantages are that school children can change parents in sanitation
- (ii) Disadvantages are high cost and who maintains and pays?
- (iii) Another must service. All schools must be given priority of service.

54. Sewage Treatment Options include:

- (i) Lagoons or waste stabilization ponds. (Use a lot of land area which also means high cost to get sewage transported there). The quality of effluent from these ponds can be greatly improved by use of vetiver grass in pontoons on surface and then discharge to a vetiver grass wetlands. Vetiver grass absorbs the high nutrient load from the wastewater.
- (ii) Upflow anaerobic sludge blanket reactors (more costly but use less land and have nuisance factor in built up areas)
- (iii) Constructed wetlands or reed beds.
- (iv) Chemically enhanced primary treatment is the coagulation/flocculation of raw wastewaters with lime or aluminium sulphate or ferric chloride or sulphate followed by primary sedimentation.

55. NGO Implement of Sanitation is an Option – Some Examples

- (i) **Dian Desa (Indonesia)** – Community Sewerage with Underground Treatment Plant
- (ii) **Sulabh (India)** – Flush compost toilets/ Biogas/ Duckweed/Thermophilic aerobic Composting/ Public pay toilets/ Mobile toilets/Involving women
- (iii) **SPARC (India)** – Government funded community toilets (Pune example).
- (iv) **Orangi Pilot Project (Pakistan)** for condominal sewerage

- (v) **Environment and Public Health Organization (Nepal)**– Have working models and training in full ecological sanitation services (all in one house) including rainwater harvesting, eco-san toilet, greywater treatment in reedbeds and use of urine and faces as fertilizer.

Part 4 – Policy and Project Priorities

56. The government policy statement emanating from a stakeholder consultation should cover the following main points:

57. Institutional Responsibility

- (i) The responsibility for sewerage and sewage treatment will rest with (the utility)
- (ii) The responsibility for on-site sanitation facilities and public and school facilities will rest with (the local government).
- (iii) The responsibility for monitoring and control of pollution will rest with (the environmental regulatory authority).
- (iv) The responsibility for community sanitation facilities will rest with (the concerned NGO or CBO).
- (v) Institutions will be required to undertake continual organization development
- (vi) Institutions will be guaranteed long term and autonomous management
- (vii) Institutions will be responsible for promotion of sanitation and hygiene education
- (viii) Private sector, NGOs or CBOs may construct and manage their own sanitation facilities with the approval of the local government and in accordance with local government by-laws and regulations.
- (ix) Institutions responsible for sanitation must prepare an annual report for public consumption on operations and development of sanitation

58. Service Levels

- (i) On-site latrine sanitation will be provided under what circumstances?
- (ii) On-site septic tank sanitation will be provided under what circumstances?
- (iii) Sewerage will be provided under what circumstances?
- (iv) Community toilets will be provided under what circumstances?
- (v) Eco-san toilets will be provided under what circumstances?

- (vi) On-site wetlands treatment of greywater will be provided under what circumstances?
- (vii) Other sanitation options will be piloted with incentive subsidies and approval of stakeholders

59. Cost Recovery

- (i) Construction of on-site facilities will be funded by (owner/tenant)
- (ii) Maintenance of on-site facilities (desludging) will be funded by (owner/tenant)
- (iii) Construction of drains, sewers, pumping stations and treatment facilities for septic tank sludge and sewage will be funded as grant by government.
- (iv) Maintenance of drains, sewers, pumping stations, and treatment plants will be funded by the beneficiaries (surcharge on water bill)
- (v) Connection fee for domestic sewerage will be amortized in total development.
- (vi) Connection fee for industry will be paid by industry up front
- (vii) Environmental fee will be paid by all water users to cover costs of monitoring and control of pollution.
- (viii) Public and community and school toilets will be maintained on a user pays basis.

60. Development

- (i) Private sector will provide sanitation facilities in housing subdivisions for all inhabitants in accordance with local government by-laws and regulations. Such development will provide for all sanitation requirements (collection, treatment and disposal) within the confines of the subdivision.
- (ii) Government will undertake development of sanitation facilities elsewhere.
- (iii) Priority for sanitation facilities and services will be with unserved urban poor, with unserved schools and with provision of adequate facilities in public places. Next priority will be for rehabilitation of existing facilities and services.

61. Project priorities for sanitation need to consider:

- (i) Serving the Unserved Urban Poor
- (ii) Serving the Unserved Schools
- (iii) Serving the Unserved Public Areas
- (iv) Institutional capacity building for sustainability and environmental monitoring

- (v) Grant elements for demonstration pilot projects for eco-sanitation (private developers)
- (vi) Rehabilitation of existing facilities.
- (vii) Improvement of existing sanitation (septic tank sludge and effluent treatment).
- (viii) Extension of existing sewerage and sewage treatment (as a last priority).

Appendixes

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