

Model Terms of Reference
Diagnostic City
Water Assessments



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Model Terms of Reference

Diagnostic City Water Assessments

Abstract

ADB project officers now have a powerful tool for revealing the facts about water consumers and water and money flows in project cities and towns.

ADB has produced a model Terms of Reference (TOR) for investigating and responding to both the "formal" and "informal" segments of a city's water market.

Why Conduct A Diagnostic City Water Assessment

City water supply projects mostly concentrate on the city water utility. But in developing countries many urban residents obtain water from an "informal" market. There might actually be more money turning over in informal markets than through the water utility.

And formal and informal markets are linked. The informal water vendors, tanker operators, water re-sellers, small piped network operators, and bottlers might be buying or stealing their water from the utility--and some water utility staff and officials might even be complicitly aware of this. Which might explain intractable high unaccounted for water (UFW) in some utilities.

So it could be risky investing in the water utility without also understanding the informal water market. An incisive audit of water and money flows might reveal a governance and leadership problem that needs to be fixed before committing to the project.

Even more important, the project might completely miss those who need support most--underserved and disadvantaged poor.

What The Model TOR Offers

The TOR for undertaking investigative city water assessments provides an approach and methodology for

- surveying all classes of water consumers and all types of water providers
- analyzing the survey results
- undertaking stakeholder consultations based on the survey findings
- formulating responsive city government policy and ordinances
- organizing civil society (consumer groups) to monitor policy implementation

The TOR even contains the survey forms.

With this knowledge and an improved policy setting underway, a successful project can be prepared with influential and well-meaning city and utility leaders.

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A. Background

1. Urban water supply and sanitation (WSS) projects are typically prepared using only limited socioeconomic surveys of the target “market”. There may just be some basic data on water utility customers; and with insufficient analysis to inform local water supply policy development. The survey, the results and the analysis may be inadequate to give a true picture of what is happening and what needs changing. There are strong reasons for finding out more about the water supply situation in a project town or city. First, even though water is scarce and is expensive to transport and treat, the utility may be tolerating high non-revenue water (NRW). Second, even with a piped water network in place, the majority of residents may not be connected and these will invariably include poor families. Third, in urban areas informal water supply is big business, but not much is known about it.

2. When preparing a water supply project, it is necessary to have as complete information as possible about how all people get water now; what source, what quality, what cost, what consumption and what reliability. Project planners need to know about all the water providers and about the consumers using at least a 5% representative sample including the non-domestic consumers. This information then needs to be analyzed under different categories, and presented to and discussed among stakeholders with a view to formulation of new city government policy and investment plans.

3. A diagnostic water assessment will provide the following:

- Verification of the true coverage with piped water and 24 hour supply
- Justification for the registration and licensing of small private piped water operators and water vendors
- Information on the sale of utility NRW
- Verification of consumer information versus utility records
- Tariffs from various suppliers
- What suppliers generate what revenues
- Who consumes the water
- Who pays what for water

4. It is “diagnostic” because it will reveal the truth about informal as well as formal flows of water and importantly, flows of money. This may

be critical to identifying well-meaning development partners and preparing a successful project.

B. Objectives

5. The objectives of the diagnostic city water assessment are to provide facts for (i) formulation of policy and/or ordinances (ii) encouragement of civil society involvement, (iii) determining priorities for a new project, (iv) improving the efficiency and financial performance of the water utility, and (v) highlighting the needs of the urban poor.

C. Scope

6. There are three steps to the water assessment leading to two consequent actions:

- i. **Undertake surveys** of consumers, the water utility, small private piped water operators, water vendors and bottled water suppliers. (See attached Water Assessment Questionnaires, Appendixes 1-5. For Sanitation, see Questionnaires Appendixes 6 and 7).
- ii. **Analyze the results** of the surveys, especially comparing information from the consumers with information from the suppliers (the differences may throw a light on NRW). Publish the results in the local newspaper and on the Internet. (See attached Appendixes 8-11).
- iii. **Discuss the findings of the surveys in a stakeholder consultation** that includes people not served with piped water, people served by the utility, industries that use water, representatives of the utility, small private piped water operators, water vendors and bottled water suppliers, representatives of central, regional and local government, NGOs, journalists, academics and consultants. Publish the stakeholder consultation discussion and findings.

Leading to

- iv. **Formulate** at the stakeholder consultation and publish for public comment new draft city government policy and/or ordinances. After incorporating relevant public comments, the policy statement would be formally endorsed by city council.1

- v. A **civil society** task force convened at the stakeholder consultation, actively monitors the implementation of the new government **policy**, publishing its findings on a monthly basis.

D. Methodology of Surveys

7. Three types of human resources will be required. **One international consultant** will have overall responsibility and will be responsible for conducting the interview of the water utility, analyzing all results and drafting water policy. **Five domestic consultants** will be responsible for logistics and supervising the students undertaking the surveys in five separate geographic areas making up the whole city. These consultants will also be responsible for interviewing all small private piped water operators in their designated areas. **One hundred university students** will undertake 5% sample consumer surveys in each of 100 representative zones of roughly equal population. They will also be responsible for interviewing water vendors and bottled water suppliers operating in each of their zones. Formal permission to survey will be obtained from the local government by the concerned domestic consultant and a copy provided to each student, who will also as a matter of courtesy introduce themselves to the leader of each community in which they are operating.

8. Each of the five domestic consultants will work directly with twenty university students. Details to be explained by them to the students will include (i) location, (ii) how to sample for interview, (iii) who to interview, (iv) length of interview, (v) number of interviews per day, (vi) transport, (vii) total time to complete interviews, (viii) payment for work, (ix) clarifications, (x) testing of survey, (xi) permit to survey and (xii) the questionnaire. Students should also seek and document any anecdotal information given to them about the water industry, which may not correspond to any question asked.

9. Quality control on the surveys will be maintained by random field checks undertaken by both the domestic and the international consultants. The name of the person being interviewed, their address and the name of the person undertaking the interview and the date of the interview must be recorded on each questionnaire completed. In the event a student is

found to be manufacturing results they will not be paid and all the work already undertaken by them will be repeated by a new student interviewing different people.

E. The Questionnaires

10. The questionnaires will be translated from English into the local language by the domestic consultants.

1. Questionnaire – Water Utility (Appendix 1)

11. Apart from details of individual customers this will identify the recipients of bulk sales including small private piped water operators, subdivisions, homeowner associations and water vendors. Its focus will be on identifying the water source and for each type of customer (non-domestic, house service connection, standpipe etc) the total number of connections, the volume sold per month and the revenue gained per month. It will provide information on production volume versus consumption volume to determine NRW. It will note the extent of 24-hour piped water coverage.

2. Questionnaire – Small Private Piped Water Operators (Appendix 2)

12. The domestic consultant will carry out interviews with every small private piped operators in each survey zone. The questionnaire will seek essentially the same information as for the utility except the quality of the service to the customer such as direct connection or hose and drums will be determined. The method and frequency of payment is an important dimension to be ascertained from this interview.

3. Questionnaire – Water Vendor (Appendix 3)

13. If water vendors operate at all in a given survey zone, then at least three different vendors of each type (water tanker, motorized tricycle, pedaled tricycle, rickshaw, ushcart etc) should be interviewed by the student. She/he will also estimate the total number of vendors of each type operating in that zone. Pertinent information being sought includes their source of water (and please check), means of transport of water, number and

type of customers, average distance transported, volume sold and revenue gained. It is important to establish how much the vendor pays at source for the water and to whom it is paid.

4. Questionnaire – Bottled Water Supplier (Appendix 4)

14. The student will interview at least five different bottled water suppliers in his/her survey zone and make an estimate of the total number of bottled water suppliers and type (example mixed goods shop, sole purpose bottled water shop, treatment and sale on site, deliveries of bottled water etc.) in that zone. The focus of the interview is on obtaining information about the source of water, the type of treatment provided, the volume of water sold per month price paid and the total revenue.

5. Questionnaire – Water Consumer (Appendix 5)

15. The student must obtain a 5% representative sample of all water users in his/her zone. This means identifying those served by the utility, by small private piped water operators and by water vendors and surveying them in the numbers proportional to their prevalence. The focus of information sought will be on water source (and it may well be that consumers get water from more than one source), access to water, water quality, reliability of supply, availability of supply, volume consumed per month and cost per month. It is important to record the number of persons in each household. This survey must include a representative number of non-domestic consumers, especially industrial users.

6. Optional Sanitation Questionnaire – Utility/Local Government (Appendix 6)

16. This questionnaire would only be used if undertaking an assessment to prepare a sanitation project. It focuses on sewerage/sewage treatment facilities and services, on-site sanitation and septage collection and treatment.

7. Optional Sanitation Questionnaire – Consumers (Appendix 7)

17. Again this questionnaire would normally be used if undertaking an assessment to prepare a sanitation project. It deals with the ways and

means people address their sanitation and the people's perspectives.

F. Analysis of Results

18. Clarifications will be required from the domestic consultants and the students. The domestic consultants will collate and summarize the answers to all the questions. The international consultant will then consider the following points of interest: deriving basic data from the summary of results.

- Coverage % with 24 hour supply to individual house connection by utility
- Coverage % with individual house connection by the utility
- Coverage % including all utility domestic connections and standpipes.
- Coverage % with piped water in home (all water providers).
- Average household consumption per month by different sources of supply
- Average household cost per month by different sources of supply.
- Total monies paid by small private piped water operators at source per month.
- Total monies paid by vendors at source per month.
- Average price of utility water.
- Average price of small private piped water.
- Average price of vendor water.
- Average price of bottled water.
- Revenue turnover (a) utility, (b) small piped operators, (c) vendors, (d) bottled water suppliers
- Volume of sales (a) utility, (b) small piped operators, (c) vendors, (d) bottled water suppliers
- Official NRW figure from utility.
- Comparison of consumption and cost - consumer record versus utility record.
- Estimate of utility NRW sold to small piped operators and vendors
- Comparison of cost and consumption - piped water versus non-piped water
- Proportion of utility water volume sold to non-domestic
- Proportion of utility water revenue derived from non-domestic
- Comparison of average tariff for utility water domestic versus non-domestic

- Proportion of all piped water where utility maintains the reticulation
- Rating of customer satisfaction with utility.

19. The main purpose of the assessment is to focus on those not served with piped water and to compare their plight with those served with piped water. The comparison of consumption and cost for these two groups is critical. The idea will then be to propose policy for consideration at the stakeholder consultation. This will be policy that corrects inequities in services, guides new development, enhances cost recovery and institutional development to promote sustainability of services, encourages water resource conservation, including reduction of NRW, and ensures that due attention is given to connecting the urban poor to piped water.

G. Stakeholder Consultation

20. About two weeks after the results of the survey and the analysis have been published a two-day stakeholders consultation should be convened for between 50 and 100 stakeholders as identified above. The first day would be devoted to presentation of results and analysis of the surveys and discussion of the analysis. The second day would be devoted to formulation of draft water supply policy for that city or town and formulation of a civil society task force (5 to 10 members and at least half women) to monitor the implementation of that policy. The stakeholder consultation would be facilitated by a domestic consultant skilled in such work, or by a well respected and capable local person.

H. Implementation Schedule

Surveys of consumers and water providers	one month
Clarifications and preparation of summary of results	one month
Analyze results and prepare draft water supply policy	one month
Stakeholder consultation and report of findings	one month
Total Implementation Period	four (4) months

I. Human Resource Inputs

University students	100 person months
Domestic water supply consultants	10 person months
International consultant	1 person month
Stakeholder consultation facilitator	2 person days

J. Financial Resources

Students, consultants, facilitator	\$
Local transport	\$
Stakeholder consultation	\$
Reports / communications	\$
Total	\$

K. Reports:

1. Water Assessment Report for City of _____

As of _____ (Date)

Part A. Summary of Results of Surveys (Domestic Consultants)

Part B. Analysis of Results (International Consultant)

This two- part report will be due for completion not later than three months after start of assignment.

2. Report of Stakeholder Consultation on Water Supply in City of _____

Date _____

International Consultant

This report will be due not later than one month after completion of the stakeholder consultation.

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