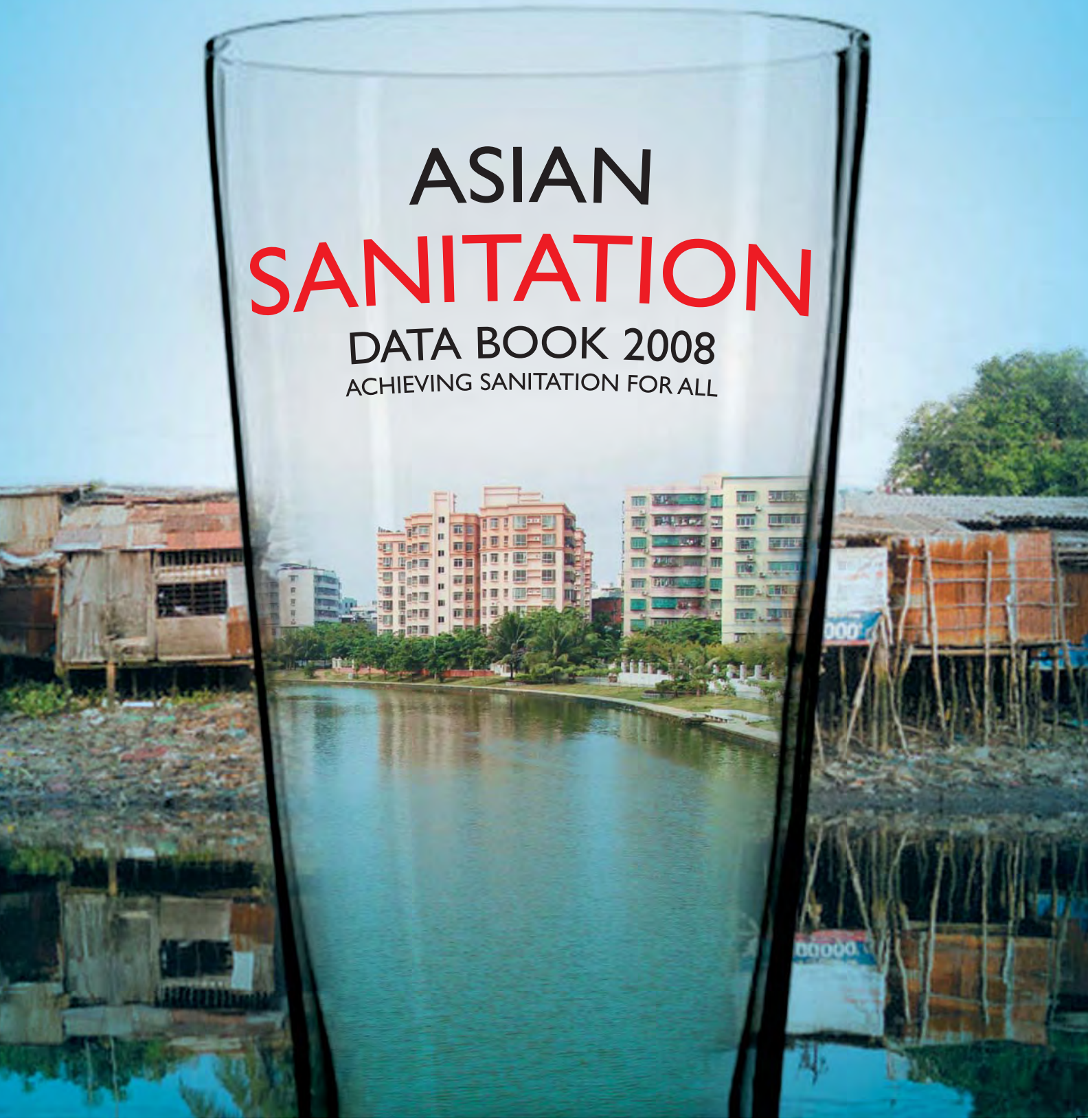
ADB CITYNET UN HABITAT VEOLIA ENVIRONNEMENT

ASIAN SANITATION

DATA BOOK 2008

ACHIEVING SANITATION FOR ALL



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CITYNET
THE REGIONAL NETWORK OF LOCAL AUTHORITIES FOR THE MANAGEMENT OF HUMAN SETTLEMENTS

FOREWORD

It is our great pleasure to present this publication, Asian Sanitation Data Book 2008—Achieving Sanitation for All. This publication is the first data book on sanitation for the Asia and Pacific region and the first joint effort of CITYNET, the Asian Development Bank (ADB), the United Nations Human Settlements Programme (UN-HABITAT), and Veolia Environnement.

The initiative was realized in response to the needs of Asian cities and local governments, which gathered at the International Seminar on Sanitation 2007— Delivering Our Vision: Sanitation For All, organized by CITYNET, ADB, and the city government of Makati, at the ADB headquarters in Metro Manila, Philippines, in November 2007.

Sanitation has long been an issue that has received little attention due to its complexity. The absence of relevant data has hindered cities and local governments from adopting appropriate policies and strategies to meet the provision of "sanitation for all." Moreover, technologies that reflect the needs of communities, as well as the communities' ability and willingness to pay for better sanitation, are limited.

This publication highlights the need for more work to be done on sanitation in Asia and the Pacific. Focus and action must be directed at accurate data collection and management to support decision making, appropriate and low-cost technologies, and the allocation of resources for the provision of sanitation. These are but a few issues that need immediate attention and action.

CITYNET is ready to convert the data book into action by undertaking a "benchmarking program" in the form of city–to–city cooperation—a flagship activity of CITYNET—to ensure improved access to sanitation in more rapid and efficient ways. As a unique network of active local governments in more than 20 countries mainly in Asia and the Pacific, CITYNET will continue cooperating with other institutions working on sanitation issues to meet the Millennium Development Goal target of reducing the proportion of people without access to improved sanitation by half, by 2015.

I would like to express my sincere gratitude to the coauthors of this publication—ADB and UN-HABITAT—as well as Veolia Environnement, the first private company in our network, for their great contribution. I also wish to thank the numerous cities that have submitted information and data that helped make this project a reality, and the program team of the CITYNET Secretariat for their committed work. Without everyone's support, this publication would not have been concretized.

Lastly, I hope this publication will be a useful resource, and will inspire all to believe that sanitation for everyone is possible.

Dato'Lakhbir Singh Chahl
Secretary–General
CITYNET

PREFACE

Access to safer sanitation is on the rise in Asian cities. From 1990 to 2002, urban access to improved sanitation increased by 366 million people. Many countries in Asia are expanding their sanitation coverage at rates that surpass progress on drinking water, but often because they are starting from a low base. Access to basic latrines alone eludes nearly 2 billion Asians, and lags far behind access to safe drinking water.

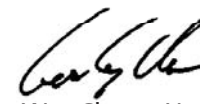
To reach truly respectable and humanitarian levels of sanitation coverage, urban planners, managers, and decision makers need quality data that they currently do not have. Whatever data they have is typically incomplete, distorted, and unreliable. Many utilities do not have reliable systems for data collection and management. Better systems can help planners and managers formulate feasible targets and support the planning and monitoring of the inputs, outputs, and processes that are essential to achieving those targets. Reliable data would also help governments prioritize investments and reforms that support sustainable sanitation and waste management.

Reliable information on sanitation—which can be further refined and expanded—is now available for 27 cities in the Asia and Pacific region. This Asian Sanitation Data Book 2008—Achieving Sanitation for All offers both raw data and analysis. Conceptualized in 2007 by CITYNET, the project was supported by the Asian Development Bank (ADB) and the United Nations Human Settlements Programme (UN-HABITAT).

ADB's experience with producing water utility data books for the Asia and Pacific region made it the natural coordinator for this project. ADB finalized agreements with participating mayors, provided experts on the development of the sanitation indicators, conducted data analysis, and published the book. CITYNET, an active network of urban managers in Asia, coordinated the data collection in the participating cities. UN-HABITAT played a critical support role to CITYNET, successfully expanding the pool of cities included in the survey.

We hope more mayors and urban planners will replicate these efforts and improve the information management methods and tools for their own knowledge development, advocacy, and planning. In particular, we look forward to the enhancement and adoption of the sanitation indicators into the benchmarking programs of the water utility networks that have been created to bring together utilities in Southeast, South, and Central Asia. As they expand their business plan to include sanitation, we hope they will use this data book as a guide for their own sanitation benchmarking.

Sanitation is high on ADB's agenda under the Water Financing Program and we hope to continue partnering with cities in contributing to the overall positive trends in sanitation coverage in Asia and the Pacific. The Millennium Development Goals, specifically Target 10, implores us to monitor and support country and city efforts to cut in half, by 2015, the proportion of people without access to safe drinking water and improved sanitation. This is not just a matter of personal, household, and public health issues, but of creating sustainable environments and economic progress.



WooChong Um
Director
Infrastructure Division
Regional and Sustainable Development Department
Asian Development Bank

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- Gwalior*
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- Ho Chi Minh City
- Hue City
- Song Cau*
- Thap Cham*

* Indicates areas where survey responses were facilitated by UN-HABITAT.

ABBREVIATIONS

ADB	–	Asian Development Bank
BOD	–	biochemical oxygen demand
COD	–	chemical oxygen demand
HH	–	household
PCB	–	polychlorinated biphenyl
UN-HABITAT	–	United Nations Human Settlements Programme

MEASUREMENT UNIT AND SYMBOLS

$/cap	–	dollar per capita
$/con	–	dollar per connection
$/ST	–	dollar per septic tank
#	–	number
CFU	–	colony forming unit
ha	–	hectare
Hg	–	mercury
l	–	liter
lpcd	–	liters per capita per day
mg	–	milligrams
ml	–	milliliter
m^3	–	cubic meter
m^3/d	–	cubic meter per day
mg/l	–	milligram per liter
MPN	–	most probable number
Pb	–	lead

NOTE

In this report, "$" refers to US dollars.

PART I

SUMMARY OF FINDINGS

Introduction

The information presented in this publication, *Asian Sanitation Data Book 2008—Achieving Sanitation for All*, comes from a survey of 27 cities that are members of CITYNET and participants in the Water for Asian Cities Program of the Asian Development Bank (ADB) and the United Nations Human Settlements Programme (UN-HABITAT). Gathering of survey data was facilitated by CITYNET and UN-HABITAT. Information contained in the returned survey forms was not complete, so analysis may not be as extensive (see Table 1). However, a number of conclusions may be drawn from the data.

Of the 27 cities, 1 is in Bangladesh, 3 are in the People's Republic of China, 4 are in India, 1 in Indonesia, 3 in the Lao People's Democratic Republic (Lao PDR), 5 in Nepal, 3 are in the Philippines, 2 in Sri Lanka, and 5 in Viet Nam (see Figure 1).

What does good sanitation mean? For ADB, it refers to good health and environmental outcomes and therefore encompasses personal hygiene and care for the environment. It means dealing with both human and water wastes from households and commercial and industrial enterprises. Good sanitation is best judged by health and environmental outcomes as shown in Figure 2.

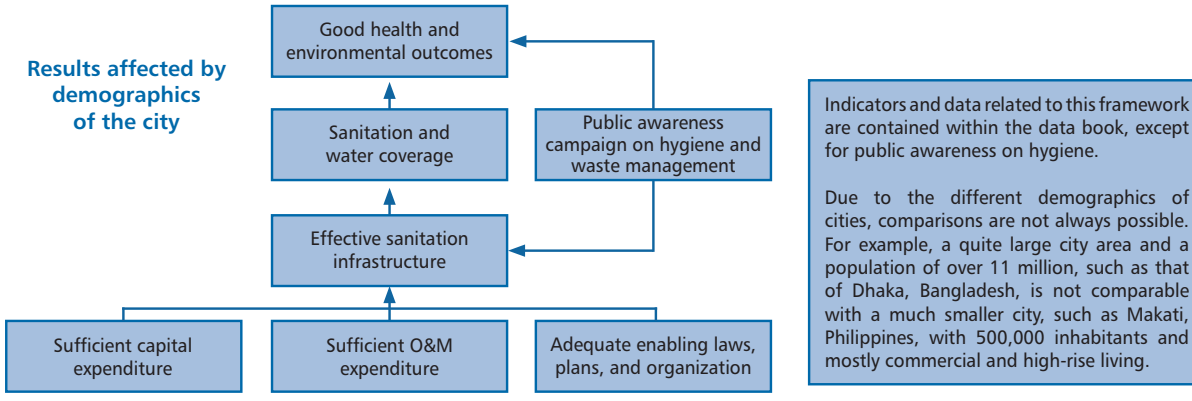
The overall city sanitation picture is not bright. Sanitation has not been given sufficient priority and certainly lags behind provision of drinking water. Based on this survey, the key findings are the following:

- Lack of sanitation and household wastewater treatment facilities is polluting ground and surface waters.
- Sustaining public health is an expected outcome of having adequate sanitation, but over half of the cities were unable to report key health statistics. Those that did reveal increasing diarrheal cases when the share of household wastewater increases.
- Far too many cities still have incidences of open defecation (ranging from 10%–40%) and sanitation coverage depends on private householders investing in toilets and septic tank systems.
- Although almost all cities are aware of their sanitation problems, only 40% of responding cities have sanitation plans, and few were able to provide information on capital expenditure and operations and maintenance costs.
- Most cities that provide sanitation services rely on government funding to pay for capital and operating costs, with only 10% indicating that sanitation fees and charges can cover their costs.
- Multiple agencies have responsibilities for some aspects of sanitation. However, local government seems to be the primary organization. These organizations were operating under at least several national laws and one local law. These

Figure 1. Location of Participating Cities

Source: Asian Development Bank.

Figure 2. Indicators of Health and Environmental Outcomes



Source: Consultants.

institutional arrangements may frustrate action and reduce accountability.

This information may not come as any surprise to those closely involved in public health and water and sanitation utilities. The findings, despite qualifications about data quality, point to priority actions required to increase sanitation coverage and improve health and environmental conditions.

Based on this survey, governments, in coordination with various stakeholders, must undertake the following priority actions:

- Initiate city sanitation plans, including setting targets for sanitation outcomes and coverage.
- Simplify institutional arrangements to strengthen accountability and avoid multiple-agency involvement that can cause delays in taking action; set in place a coordinating mechanism.
- Review operation and maintenance expenditures and cost recovery policies to ensure sanitation providers can sustain operations and extend services.
- Improve sanitation benchmark indicators and set in place a sanitation information management system that will be regularly updated to help planners and decision makers make investment and operations decisions.
- As significant investment is needed, consider sourcing funds from beyond government sources—such as the private sector and user fees; and other revenue-generating mechanisms.

Outcomes on the Key Indicators

a. Good Health and Environmental Outcomes

Based on the results of the survey, wastewater, particularly from households, is slowly polluting the groundwater and surface water sources of the respondent cities. Twenty out of 27 participating cities monitored their groundwater and surface water quality and about half of the water pollution came from household liquid waste. About 70% of the wastewater was discharged to bodies of water without treatment. Four cities reported that their rivers were "heavily" polluted, while the rest reported that the pollution levels of their rivers were "medium" or "low."

Many cities are adjacent to each other and are expected to work cooperatively to address sanitation and wastewater issues. However, only three cities reported that they were working cooperatively with neighboring towns and/or cities on pollution problems. The rest were tackling the issue independently.

Monitoring water quality should be expected in cities. Only 6 out of 27 cities have reported groundwater quality monitoring results and one city violated the standards on total coliform. Alarmingly, most cities

have a pollution load two to eight times their surface water quality standards.

Monitoring health outcomes is equally important. However, of the 27 respondents, only 12 cities (44%) reported their health statistics. Nevertheless, data show that the incidence of reported cases of diarrhea increases as the share of the household solid and liquid wastes rises.

If better public health and environmental conditions were a government priority, then provision of sanitation infrastructure facilities, particularly wastewater treatment facilities, and efficient surface and groundwater quality monitoring are imperative. The cost of cleaning up polluted rivers and lakes would be more expensive than the cost of providing sanitation infrastructure facilities. However, managing water resources on a long-term sustainable basis calls for reliable and up-to-date data.

Which cities then appear to show the best results in terms of overall practices, environment, and health?

Overall best sanitation practices. Based on the data gathered and due to most cities' lack of available information in some parameters, it is difficult to choose the city with the best sanitation practices.

Environmental statistics. Most cities failed to meet nearly all of the standards (Table 2). In terms of total coliform, Gwalior (India), Phine (Lao PDR), and Xieng Ngeun (Lao PDR) have <1 #/ml, meeting the standard for this parameter. All the cities have biochemical oxygen demand (BOD) levels higher than four. Except for Jabalpur, India, and Sayabouly, Lao PDR, the surface water quality in the respondent cities indicated very high levels of total suspended solids.

Health statistics. Negombo, Sri Lanka, has the lowest cases of diarrhea at 0.64 per 10,000 population, followed by Colombo with 0.73. Negombo also has very low hepatitis and malaria cases, which both stand at 0.13 cases per 10,000 population. Calbayog City, Philippines, and Lekhnath, Nepal have no cases of hepatitis, trachoma, or malaria. However, Lekhnath has a high incidence of diarrhea at 194.11 cases per 10,000 population. Survey results show that Negombo has the best health indicators, followed by Colombo (Table 3).

b. Adequate Sanitation and Water Coverage

The survey results show that sanitation is not a government priority. Because of poverty, many cities still have open defecation areas. Half of the cities reported having open defecation areas, with 10 cities (almost 40%) indicating that about 10%–35% of their households still practice open defecation.

In contrast, provision of water supply is a priority for all respondent cities. All have a central water supply system and some have water treatment facilities—although with low coverage. All respondent cities have a central water supply system serving 4%–100% of households. In this central supply system type, all cities have in-house piped water supply connection and 15 cities use communal sources. The central water supply system served about 11.5% of the total city area, serving 71% of the total respondents' city population.

Of the 15 cities with communal water supply source, 6 cities have more than 11%–44% of their households relying on this water source.

Of the cities, 15 still use boreholes as water supply source. Of these, 10 cities have more than 20% of households relying on boreholes as their major water source.

Of the cities, 22 have water treatment plants with capacities ranging from 1.4 to 137 liters per capita per day (lpcd) and averaging 25 lpcd. Due to poor water quality, 25%–80% of the population in six cities indicated they buy bottled water.

Most cities still need to boost their investment in water supply to provide potable water to all their households. However, a large investment that requires partnerships between government, the private sector, and external support agencies is needed.

Increasing the coverage of water supply exacerbates the sanitation situation as more wastewater volumes are generated for disposal. However, the necessary wastewater facilities are not being provided. Investments in water supply could be undermined without investing in improved sanitation.

Which cities have high sanitation and water supply coverage?

Sanitation coverage. Among the 27 cities, Kunming, People's Republic of China, and Thap Cham, Viet Nam, both ranked first in providing improved sanitation facilities, with 100% of their population having individual toilets that are connected to centralized sewerage system with treatment facilities. Gwalior, India, ranked second, with 86% of the population having individual toilets connected to a sewerage system, and Colombo, Sri Lanka, third—with 80% of its population having individual toilets connected to a sewerage system. Both Gwalior and Colombo have no sewage treatment plants.

Water supply coverage. Among the 27 cities, Kathmandu, Nepal, ranked first in terms of water supply coverage, with 100% of the households connected to a central water supply system. Makati City, Philippines ranked second, with 100% of the city land area served by the central water supply system and 99.7% of its population connected. Makati City also has a water treatment facility with a capacity of 137.2 lpcd, the highest among the 27 cities. Ranking as second is Colombo's facility, with a capacity of 105.2 lpcd.

c. Adequate Sanitation Infrastructure

Without adequate private and public infrastructure, health and environmental outcomes will not materialize. Collection of waste is one important facet, but another is treatment, which is a neglected area. Household human waste in cities can be collected and treated in various ways but respondents in the survey showed overreliance on individual household's providing their own sanitation facilities. Twenty-two cities rely on individual toilet with a septic tank system, but only four cities (less than 20%) reported having a septage treatment plant.

Fifteen cities out of 26 respondents have a central sewerage system, yet 11 of the 15 sewered cities still need to cover 70% of their population. Of these,

eight cities (30%) have reported having a wastewater treatment plant (Table 4).

Thap Cham (Viet Nam) reported 98% of its area being served by a central sewerage system, with 100% connection and 99% of its wastewater is treated. However, no information is given on the quality of surface water. Another city, Kunming (People's Republic of China), also has 100% connection, but only 0.4% of its area is served by a central sewerage system.

Newer techniques for dealing with human waste, such as technologies involving no water, have been advocated in recent years. One such technology is the "eco-san" toilet that separates solid from liquid human wastes and requires no running water. Despite nongovernment organizations' strong advocacy of such technologies, only two cities have adopted the eco-san toilets.

Key messages that can be deduced here are (i) all cities need to boost their investment in sanitation, starting with toilets, followed by a sewage collection, treatment, and disposal system; (ii) regular desludging services and septage treatment facilities should

be provided for cities with a high proportion of households having septic tanks; and (iii) increasing water supply coverage should go hand-in-hand with a complementary investment plan to deal effectively with the additional wastewater to achieve the targeted health benefits.

d. Sufficient Capital and Operation and Maintenance Expenditure

Infrastructure needs to be renewed, expanded, and maintained. Survey results show only few cities know and could provide information on their annual investment requirement and/or the operation and maintenance (O&M) cost. Eight cities indicated their annual capital investment program. On average, the funding sources for the proposed capital investments were from local government (44%), national government (31%), loans (17%), and others—mostly grants (12%). Ten cities indicated their sources of capital investment, but not the amount. In this group, the funding sources were from local government (23%), loans (24%), and others (37%). No city has indicated tariff revenue as a source for capital investment.

Some responses showed that with proper design and planning, tariff revenues can cover the O&M costs. Eleven cities indicated their O&M expenditure requirement ranges from $0.08–$8.3 per capita, and about 75% of them have O&M costs below $1.0 per capita. On average, the funding sources for O&M costs were local government (70%), tariff revenues (20%), loans (9%), and national government (1%).

Only four cities (under 20%) reported having separate sanitation revenues. Three of the four cities that have sanitation revenues indicated their revenues can more than cover the sanitation O&M costs. Only 5 out of the 15 cities that have a central sewer system stated they have a sewer tariff rate.

Desludging services for septic tanks are carried out by both government (49%) and private firms (51%), indicating private sector involvement in sanitation. Desludging fees of the private firms ranged from $4–$133 per septic tank, with 70% of them charging below $35, whereas government agencies charged from $3.5 to $30 per septic tank, with 60% of them charging below $20.

The current financial situation of some cities prevents them from adequately funding their sanitation investment program. Furthermore, most cities need to review their O&M protocol, and compare this with other cities.

Which cities have developed financing mechanism for sanitation?

Capital investment. Colombo (Sri Lanka) ranked first in this category with an annual capital investment of $27.9 per capita, where 47% is subsidized by the national government and the remaining 53% sourced through loans. Coming close at second is Jabalpur (India) with an annual capital investment of $22.5 per capita, with funding sourced from national government (50%), local government (20%), and loans (30%).

O&M expenditures. Only 11 cities have data on O&M expenditures for sanitation facilities. Out of the 11, only 6 have sewered areas. O&M aggregate cost (2007 data) ranges from $7,200 to $6,250,000. Sanitation O&M cost per hectare (ha) of the six sewered cities ranges from $35.71/ha to $1,812.61/ha.

e. Adequate Enabling Laws, Plans, and Organization

Having the infrastructure is not a guarantee of excellent sanitation services and achievement of health and environmental outcomes. Accountable and properly staffed organizations, ably supported by appropriate laws and regulations, are also needed.

The survey shows that sanitation services involve more than just the city government. Other national and local government agencies are involved, and several laws on sanitation per city exist. On average, four organizations—mostly government agencies—were involved in sanitation. Four cities reported that both national and local government agencies were involved in sanitation in their cities. One city indicated that mainly national government agencies were involved in sanitation, while 21 cities indicated that mainly local government agencies—ranging from 1 to 4 local offices—were responsible for sanitation.

On the other hand, 11 cities reported that their sanitation facilities were being managed by government-controlled utilities, of which three cities had two government-owned utilities. Only one city indicated that a private water utility was involved in providing sanitation services.

Seventeen cities indicated very few personnel involved in sanitation. Only a quarter of the cities have more than 20 staff per 10,000 population engaged in sanitation, but personnel numbers may be understated since other agencies are often involved.

The cities operate, on average, under two national laws and one local law on sanitation. This mix of organizations and laws suggests that institutional arrangements and organizational structure should be simplified, with proper accountability and coordinating mechanisms. Governments should review the institutional setup for city sanitation and the corresponding laws that have to be enacted. Provision of sanitation facilities and services is generally the mandate of local governments. However, some cities need assistance in policy and legal and institutional reforms for more effective delivery of sanitation services.

Regarding planning, only 40% of respondents have a sanitation plan—reinforcing the belief that sanitation has a low priority in city governments' agenda. Nevertheless, having a plan is not enough. The comprehensiveness and quality of sanitation plans need to be improved. Eleven cities reported having a sanitation plan, but only one indicated the year the plan was made. That means more than half of all cities have no formal plans or the plans may be old and no longer appropriate. Eight cities reported that they will prepare a sanitation plan in 2008 or 2009. Almost all cities (20) were aware of their sanitation problems, but only two indicated a definite project to resolve them, complete with funding requirement and sources. Some local governments might require technical and financial assistance in developing their sanitation plans.

Cities preparing sanitation plans now or in the near term should be collecting, monitoring, and analyzing important sanitation benchmark data. Some parameters and indicators used in this data book have to be improved or changed. City governments should consider setting up a water and sanitation information management system, with regular data collection, and updating of the database. This would help them identify priority areas of concern; set targets; determine costs, funding, and capacity requirements; formulate policies and guidelines; monitor progress; and recognize good practices.

Table 1: Participating City Data Availability per Population Range

Population	Number	Urban Poor (%)	Availability of Environment Results (%)	Availability of Health Results (%)	Enabling Environment (%)
Over 10 million	1	36	100	0	67
Between 5 and 10 million	2	3	50	50	100
Between 2 and 5 million	1	16	100	0	100
Between 1 and 2 million	2	26	100	0	67
Between 0.5 and 1 million	4	0–46	75	75	84
Between 100–500 thousand	10	0–33	40	70	80
Under 100 thousand	7	3–42	43	14	76
Total	**27**				

Source: Results of survey conducted in 27 cities in 2008.

Table 2: Surface Water Quality of Respondent Cities

City/Country	Total Coliform	BOD* (mg/l)	COD (mg/l)	Total Suspended Solids (mg/l)	Heavy Metals (mg/l)
Ho Chi Minh, Viet Nam	22,000 MPN/100 ml	4.5	10.8	261.0	–
Jabalpur, India	<200 #/ml	4.5	50.0	1.0	0.25
Banda Aceh, Indonesia		4.7	17.5	61.0	0.30
Phine, Lao PDR	<1#/ml	5.0	50.0	–	–
Sayabouly, Lao PDR	10#/ml	5.0	50.0	1.8	–
Xieng Ngeun, Lao PDR	<1#/ml	5.0	50.0	–	–
Bhopal, India	30 #/ml	6.0	50.0	200.0	0.25
Gwalior, India	<1#/ml	6.0	50.0	200.0	0.25
Indore, India	30 #/ml	6.0	50.0	200.0	0.25
Negombo, Sri Lanka	10,200 MPN/100 ml	6.0	22.0	–	–
Kunming, PRC		10.7	67.4	–	–
Hue, Viet Nam	5,000 MPN/100 ml	15.0	7.1	60.0	0.03
Pokhara, Nepal	291 CFU/100 ml	22.5	95.0	61.0	–
Dhaka, Bangladesh	11,450 MPN/100 ml	30.0	80.0	30.0	–
Kathmandu, Nepal	2,400,000 #/ml	36.0	207.0	–	0.05
Colombo, Sri Lanka	5,000 MPN/100 ml	48.0	75.0	83.3	16.7
Calbayog, Philippines	–	168.0	973.0	75.0	–
Jinghong, PRC	40 #/ml	180.0	360.0	250.0	–

BOD = biochemical oxygen demand, COD = chemical oxygen demand, # = number, CFU = colony forming unit, Lao PDR = Lao People's Democratic Republic, mg/l = milligram per liter, ml = milliliter, MPN = most probable number, PRC = People's Republic of China.

Note: "–" means data not available.

* Table sorted per BOD in ascending order—only 18 cities out of 27 provided data. Based on 2007 data of the cities.

Source: Results of survey conducted in 27 cities in 2008; Part III of this Asian Sanitation Data Book 2008.

Water Quality Standards	Total Coliform	BOD	COD	Total Suspended Solids	Heavy Metals
WHO Guidelines for Drinking Water Quality[a]	0/100 ml of sample				Pb = 0.01 mg/l Hg = 0.006 mg/l
Viet Nam TCVN 5942 – 1995 Column A[b]	5,000 MPN/100 ml	<4 mg/l	<10 mg/l	20 mg/l	Pb = 0.05 mg/l Hg = 0.001 mg/l
PRC Standard for Water Quality – Category III[c]	10,000 #/l	4 mg/l	15 mg/l		Pb = 0.05 mg/l Hg = 0.05 mg/l
Philippines Water Quality Criteria – Class A[d]	1,000 MPN/100 ml	5 mg/l		50 mg/l	Pb = 0.05 mg/l Hg = 0.002 mg/l
(DAO 34, Series of 1990)	100 MPN/100 ml (fecal coliform)				
Philippines National Standards for Drinking Water[e]	0 #/100 ml (fecal coliform)				

DAO = DENR Administrative Order, DENR = Department of Environment and Natural Resources (Philippines), Hg = Mercury, mg/l = milligram per liter, ml = milliliter, MPN = most probable number, Pb = lead, PRC = People's Republic of China, TCVN = Viet Nam Standards, WHO = World Health Organization.

Source:

[a] World Health Organization. 2008. *Guidelines for Drinking Water Quality* incorporating 1st and 2nd addenda, Vol. 1, *Recommendations*. 3rd ed. Geneva: WHO.

[b] Viet Nam Surface Water Quality Standards (TCVN 5942-1995).

[c] PRC Environmental Quality Standards–Surface Water (GB 3838-2002).

[d] Philippine Department of Environment and Natural Resources Administrative Order (DAO) no. 34, Series of 1990.

[e] Philippine Department of Health.

Table 3: Health Statistics of Respondent Cities

City/Country	Reported Cases (per 10,000 population)		Death (Children under 5 years of age) (per 10,000 population)
	Diarrhea	Acute Lower Respiratory Infection	
Negombo, Sri Lanka	0.6	–	–
Colombo, Sri Lanka	0.7	0.4	–
Hue, Viet Nam	7.2	3.2	0.03
Ho Chi Minh, Viet Nam	10.1	507.8	–
Calbayog, Philippines	27.7	46.1	0.50
Makati, Philippines	55.3	87.3	0.10
San Fernando, Philippines	58.9	250.8	–
Kathmandu, Nepal	142.2	180.7	0.03
Banda Aceh, Indonesia	154.9	1,559.0	–
Pokhara, Nepal	179.5	409.6	–
Leknath, Nepal	194.1	496.5	–
Bharatpur, Nepal	594.1	1,084.0	–

Note:
- Table sorted per diarrhea incidence in ascending order—12 out of 27 cities.
- Based on 2007 data.
- "–" means data not available.

Source: Results of survey conducted in 27 cities; Part III of this Asian Sanitation Data Book 2008.

Table 4: Central Sewerage System Coverage and Wastewater Treatment Capacity

City/Country	Household Coverage (%)	Wastewater Treatment Capacity[a]	Averaged Water Consumption (lpcd)
Kunming, PRC	100	95	–
Thap Cham, Viet Nam	100	–	135
Gwalior, India	86	–	130
Colombo, Sri Lanka	80	–	120
Kathmandu, Nepal	67	34	90
Puer, PRC	57	132	–
Indore, India	55	75	80
Hue, Viet Nam	50	–	–
Bhopal, India	42	103	160
Xieng Ngeun, Lao PDR	27	–	80
Phine, Lao PDR	26	–	85
Makati, Philippines	23	353	–
Dhaka, Bangladesh	20	55	140
Sayabouly, Lao PDR	18	–	80
Jinghong, PRC	4	1,650	–

Lao PDR = Lao People's Democratic Republic, lpcd = liters per capita per day, PRC = People's Republic of China.

Note: [a] Based on served population.
- Table sorted per household coverage in descending order—15 out of 27 cities.
- Based on 2007 data of the cities.
- "–" means data not available.

Source: Results of survey conducted in 27 cities; Part III of this Asian Sanitation Data Book 2008

PART II

SANITATION COMPARISON

Table 2.1: Demographic Indicators

	City	Population Number (2007) ('000)	Growth Rate %	Number of Households ('000)	Average HH Size Number	Floating Pop'n %	Urban Poor %
1	Banda Aceh	217.9	2.87	43.59	5.0 (5.0)	4.6	–
2	Bharatpur*	134.8	7.10	19.92	4.5 (4.5)	0	9.46
3	Bhopal*	1,749.2	3.50	240.00	5.9 (5.9)	3.5	21.08
4	Calbayog	169.8	1.79	28.91	5.2 (5.0)	1.7	4.18
5	Cam Ranh*	94.2	1.80	18.26	5.0 (5.0)	0.0	15.12
6	Colombo	647.1	0.40	119.16	5.4 (6.0)	61.8	46.36
7	Dhaka	11,000.0	5.00	2,301.26	4.8 (4.8)	9.1	36.36
8	Gwalior*	959.1	2.50	175.00	4.7 (4.7)	48.4	7.26
9	Hetauda*	89.2	4.51	14.27	4.8 (4.8)	2.0	14.61
10	Ho Chi Minh	6,651.0	3.20	1,602.64	4.2 (4.1)	0	3.75
11	Hue	327.8	1.25	64.20	5.1 (5.1)	20.0	30.00
12	Indore*	2,171.4	4.80	330.00	5.0 (5.0)	6.1	15.86
13	Jabalpur*	1,100.0	2.80	151.03	6.2 (6.2)	4.8	31.12
14	Jinghong*	379.0	0.40	125.33	3.0 (3.0)	10.6	0
15	Kathmandu	876.4	4.53	152.16	4.4 (4.4)	7.4	–
16	Kunming*	6,155.6	0.62	1,531.94	4.0 (4.0)	18.1	1.34
17	Lekhnath Municipality*	50.1	3.23	9.36	4.4 (4.4)	0	2.81
18	Makati	510.4	1.91	113.42	4.5 (4.5)	724.9	0.34
19	Negombo	167.4	2.48	32.98	4.7 (5.0)	32.1	10.00
20	Phine District*	53.3	2.50	7.56	7.0 (7.0)	0	42.04
21	Pokhara	214.0	4.95	44.51	4.8 (4.8)	30.0	25.00
22	Puer*	265.6	0.60	78.90	3.2 (3.3)	5.7	2.69
23	San Fernando	114.8	1.63	24.85	4.6 (4.6)	25.0	32.84
24	Sayabouly District*	74.4	2.10	12.66	5.9 (5.9)	0	27.49
25	Song Cau*	21.1	4.67	4.22	4.8 (4.8)	0	31.66
26	Thap Cham*	162.9	1.25	32.59	5.0 (5.0)	0	–
27	Xieng Ngeun District*	33.6	2.90	5.52	6.1 (6.1)	0	30.01
	Top Value	11,000.0	7.10	2,301.30	7.0	724.9	46.36
	Top Quartile	959.1	4.51	152.20	5.1	30.0	31.12
	Range	21.1–11,000.0	0.40–7.10	4.22–2,301.26	3.0–7.0	0–724.9	0–46.36
	Average	1,273.7	2.80	269.80	4.9	53.5	18.40

pop'n = population, HH = households.

Note: Value in ( ) is the computed household size.
"–" means data not available.
* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.2: City Area

	City	City Area (ha) (000)	Urban Core %	Secondary Urban Core %	Urban Fringe %	Peri-Urban %	Slum Area %
1	Banda Aceh	6.1	23.8	76.2	0.0	0.0	–
2	Bharatpur*	7.7	11.0	22.0	3.2	58.2	5.56
3	Bhopal*	28.5	9.8	11.9	20.0	50.2	8.07
4	Calbayog	90.3	51.4	46.6	0.0	2.0	0.01
5	Cam Ranh*	68.8	–	–	–	–	–
6	Colombo	3.7	–	–	–	–	–
7	Dhaka	36.0	40.3	59.7	0.0	0.0	–
8	Gwalior*	17.7	10.2	11.3	19.8	50.8	7.91
9	Hetauda*	4.6	7.0	11.0	54.8	25.0	2.20
10	Ho Chi Minh	209.5	23.4	0.0	0.0	76.4	0.16
11	Hue	7.1	69.7	14.1	9.1	6.4	0.70
12	Indore*	13.4	10.4	11.9	20.1	49.3	8.21
13	Jabalpur*	12.9	10.1	11.8	20.1	50.3	7.74
14	Jinghong*	700.3	0.3	0.0	99.7	0.0	–
15	Kathmandu	5.1	5.4	14.2	43.7	36.7	–
16	Kunming*	2,101.2	0.5	1.0	0.0	98.5	–
17	Lekhnath Municipality*	7.9	40.6	23.4	0.0	0.0	35.96
18	Makati	2.7	16.6	20.6	62.5	0.0	0.33
19	Negombo	3.1	–	–	–	–	–
20	Phine District*	269.9	2.7	1.8	0.9	94.7	–
21	Pokhara	5.6	20.0	35.0	20.0	15.0	10.01
22	Puer*	22.7	16.7	17.7	44.4	21.1	–
23	San Fernando	10.5	21.5	0.0	0.0	78.5	–
24	Sayabouly District*	391.6	10.0	0.8	15.0	74.2	–
25	Song Cau*	1.5	–	–	–	–	–
26	Thap Cham*	7.9	–	–	–	–	–
27	Xieng Ngeun District*	121.0	6.6	4.1	2.5	86.8	–
	Top Value	2,101.2	69.7	76.2	99.7	98.5	35.96
	Top Quartile	90.3	23.4	22.0	20.1	74.2	7.74
	Range	1.5–2,101.2	0.3–69.7	0–76.2	0–99.7	0–98.5	0–35.96
	Average	154.0	18.5	18.0	19.8	39.7	4

Note: "–" means data not available.
* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.3: Population Density

	City	Ave.City Density #/ha	Urban Core #/ha	Secondary Urban Area #/ha	Urban Fringe #/ha	Peri–Urban #/ha	Slum Area #/ha
1	Banda Aceh	35.5	74.0	48.0	–	–	–
2	Bharatpur*	11.6	30.0	14.0	4.9	6.9	18.0
3	Bhopal*	49.9	153.0	75.0	55.0	20.0	62.0
4	Calbayog	1.7	11.2	6.0	–	1.2	627.0
5	Cam Ranh*	1.3	–	–	–	–	–
6	Colombo	173.9	174.0	–	–	–	–
7	Dhaka	305.6	–	–	–	–	–
8	Gwalior*	46.7	138.0	75.0	52.0	18.0	59.0
9	Hetauda*	15.0	72.3	36.0	3.8	7.0	100.0
10	Ho Chi Minh	31.7	108.0	–	–	7.0	732.0
11	Hue	46.1	60.0	50.0	20.0	30.0	40.0
12	Indore*	122.3	350.0	184.0	133.0	50.0	149.0
13	Jabalpur*	72.1	215.0	111.0	79.0	29.0	93.0
14	Jinghong*	0.5	76.7	–	–	0.3	–
15	Kathmandu	132.6	426.0	138.0	113.0	110.0	–
16	Kunming*	2.9	163.0	24.0	–	1.9	–
17	Lekhnath Municipality*	5.2	10.5	4.2	–	–	–
18	Makati	186.5	115.0	438.0	282.0	–	3,858.0
19	Negombo	50.4	3,166.0	–	–	–	–
20	Phine District*	0.2	6.0	4.0	3.0	20.0	–
21	Pokhara	38.5	67.0	33.0	29.0	26.0	39.0
22	Puer*	11.3	39.0	–	–	–	–
23	San Fernando	10.9	37.0	–	–	4.0	–
24	Sayabouly District*	0.2	6.0	4.0	3.0	2.0	–
25	Song Cau*	13.9	–	–	–	–	–
26	Thap Cham*	20.5	20.0	–	–	–	–
27	Xieng Ngeun District*	0.3	8.0	8.0	–	5.0	–
	Top Value	305.6	3,166.0	438.0	282.0	110.0	3,858.0
	Top Quartile	50.4	163	111.0	113.0	29.0	627.0
	Range	0.2–305.6	6.0–3,166.0	4.0–438.0	3.0–282.0	0.34–110.0	18.0–3,858.0
	Average	51.4	230.2	73.7	64.8	19.9	525.2

Ave. = average, ha = hectare, # = number.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.4: Environmental Statistics

		Surface Water				
		Total Coliform	BOD	COD	Total Suspended Solids	Heavy Metal
	City		mg/l	mg/l	mg/l	mg/l
1	Banda Aceh	–	4.7	17.5	61.0	0.30
2	Bharatpur*	–	–	–	–	–
3	Bhopal*	30 #/ml	6.0	50.0	200.0	0.25
4	Calbayog	–	168.0	973.0	75.0	–
5	Cam Ranh*	–	–	–	–	–
6	Colombo	5000 MPN/100ml	48.0	75.0	83.3	16.70
7	Dhaka	11450 MPN/100ml	30.0	80.0	30.0	–
8	Gwalior*	<1 #/ml	6.0	50.0	200.0	0.25
9	Hetauda*	–	–	–	–	–
10	Ho Chi Minh	22000MPN/100ml	4.5	10.8	261.0	–
11	Hue	5000MPN/100ml	15.0	7.1	60.0	0.03
12	Indore*	30 #/ml	6.0	50.0	200.0	0.25
13	Jabalpur*	<200 #/ml	4.5	50.0	1.0	0.25
14	Jinghong*	40 #/l	180.0	360.0	250.0	–
15	Kathmandu	2400000 #/ml	36.0	207.0	–	0.05
16	Kunming*	–	10.7	67.4	–	–
17	Lekhnath Municipality*	–	–	–	–	–
18	Makati	–	–	–	–	–
19	Negombo	10200 MPN/100ml	6.0	22.0	–	–
20	Phine District*	<1 #/ml	5.0	50.0	–	–
21	Pokhara	291 CFU/100ml	22.5	95.0	61.0	–
22	Puer*	–	–	–	–	–
23	San Fernando	–	–	–	–	–
24	Sayabouly District*	10 #/ml	5.0	50.0	1.8	
25	Song Cau*	–	–	–	–	–
26	Thap Cham*	–	–	–	–	–
27	Xieng Ngeun District*	<1 #/ml	5.0	50.0	–	
	Top Value		180.0	973.00	261.0	0.30
	Top Quartile		30.0	80.0	200.0	0.25
	Range		4.5–180.0	7.1–973.0	1.0–261.0	0.001–0.30
	Average		28.7	122.5	109.7	0.17
	Number of Respondents	15	18.0	18.0	13.0	8.00

BOD = biochemical oxygen demand, CFU = colony forming unit, COD = chemical oxygen demand, mg/l = milligram per liter, ml = milliliter, MPN = most probable number.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.5a: Health Statistics

		Reported Cases (number per 10,000 population)					
		Diarrhea	Hepatitis A & B	Trachoma	Acute Lower Respiratory Infection	Measles	Malaria
	City	#	#	#	#	#	#
1	Banda Aceh	154.86	–	–	1,559.01	2.29	28.91
2	Bharatpur*	594.14	–	294.55	1,084.04	–	–
3	Bhopal*	–	–	–	–	–	–
4	Calbayog	27.67	0	0	46.13	0	0
5	Cam Ranh*	–	–	–	–	–	–
6	Colombo	0.73	0.71	–	0.36	–	–
7	Dhaka	–	–	–	–	–	–
8	Gwalior*	–	–	–	–	–	–
9	Hetauda*	–	–	–	–	–	–
10	Ho Chi Minh	10.10	0.22	0.30	507.79	0	0.09
11	Hue	7.23	6.86	3.51	3.23	4.45	3.54
12	Indore*	–	–	–	–	–	–
13	Jabalpur*	–	–	–	–	–	–
14	Jinghong*	–	–	–	–	–	–
15	Kathmandu	142.23	23.79	0.01	180.66	0.60	7.56
16	Kunming*	–	–	–	–	–	–
17	Lekhnath Municipality*	194.11	0	0	496.51	0.48	0
18	Makati	55.33	0.16	0	87.33	0	9.07
19	Negombo	0.64	0.13	–	–	–	0.13
20	Phine District*	–	–	–	–	–	–
21	Pokhara	179.49	53.88	305.47	409.58	1.36	0.23
22	Puer*	–	–	–	–	–	–
23	San Fernando	58.88	2.35	0	250.84	0.61	0
24	Sayabouly District*	–	–	–	–	–	–
25	Song Cau*	–	–	–	–	–	–
26	Thap Cham*	–	–	–	–	–	–
27	Xieng Ngeun District*	–	–	–	–	–	–
	Top Value	594.10	53.88	305.47	1,559.01	4.45	28.91
	Top Quartile	179.49	6.86	294.55	507.79	2.29	9.07
	Range	0.60–594.10	0–53.88	0–305.47	0.36–1,559.01	0–4.45	0.09–28.91
	Average	118.80	8.80	67.10	420.50	1.10	5.00

= number.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.5b: Health Statistics

		Death (Children under five years of age) (number per 10,000 population)					
		Diarrhea	Hepatitis A & B	Trachoma	Acute Lower Respiratory Infection	Measles	Malaria
	City	#	#	#	#	#	#
1	Banda Aceh	–	–	–	–	–	–
2	Bharatpur*	–	–	–	–	–	–
3	Bhopal*	–	–	–	–	–	–
4	Calbayog	0.47	0	0	0.27	0	0
5	Cam Ranh*	–	–	–	–	–	–
6	Colombo	–	–	–	–	–	–
7	Dhaka	–	–	–	–	–	–
8	Gwalior*	–	–	–	–	–	–
9	Hetauda*	–	–	–	–	–	–
10	Ho Chi Minh	0	0	0	0.01	0	0
11	Hue	0.03	0	0	0	0.03	0
12	Indore*	–	–	–	–	–	–
13	Jabalpur*	–	–	–	–	–	–
14	Jinghong*	–	–	–	–	–	–
15	Kathmandu	0.03	1.18	0	0	0.01	0.07
16	Kunming*	–	–	–	–	–	–
17	Lekhnath Municipality*	0	0	0	0	0	0
18	Makati	0.10	0	0	0	0	0.04
19	Negombo	0	0	–	–	–	–
20	Phine District*	–	–	–	–	–	–
21	Pokhara	–	–	–	–	–	–
22	Puer*	–	–	–	–	–	–
23	San Fernando	–	–	–	–	–	–
24	Sayabouly District*	–	–	–	–	–	–
25	Song Cau*	–	–	–	–	–	–
26	Thap Cham*	–	–	–	–	–	–
27	Xieng Ngeun District*	–	–	–	–	–	–
	Top Value	0.47	1.18	0	0.27	0.03	0.07
	Top Quartile	0.10	0	0	0.01	0.03	0.04
	Range	0–0.47	0–1.18		0–0.27	0–0.03	0–0.07
	Average	0.10	1.20	0	0.20	0.001	0.10

= number.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.6: Sanitation Coverage and Water Coverage

	City	City Land Area	Central Sewerage System Area Coverage	Central Water Supply Sytem Area Coverage	City Population (as reported)	Central Sewerage System Service Coverage	Central Water Supply System Service Coverage
		ha	%	%	('000)	%	%
1	Banda Aceh	6.14	–	20.0	217.94	0	20.0
2	Bharatpur*	7.73	7.8	58.2	89.32	0	56.2
3	Bhopal*	28.50	2.1	70.0	1,423.00	41.7	45.3
4	Calbayog	90.30	–	0.5	150.00	0	72.6
5	Cam Ranh*	68.80	–	35.0	90.90	0	35.1
6	Colombo	3.72	80.0	100.0	647.10	80.0	100.0
7	Dhaka	36.00	30.6	97.2	11,000.00	20.0	80.0
8	Gwalior*	17.70	79.1	85.9	827.00	85.7	68.6
9	Hetauda*	4.55	4.4	11.00	68.43	0	35.2
10	Ho Chi Minh	209.50	31.0	45.6	6,651.00	–	37.5
11	Hue	7.11	100.0	84.3	327.80	49.8	98.0
12	Indore*	13.40	44.8	48.5	1,639.00	55.0	98.5
13	Jabalpur*	12.92	–	92.9	932.00	0	84.8
14	Jinghong*	700.31	0.3	0.3	376.00	3.6	3.6
15	Kathmandu	5.07	92.0	100.0	671.80	67.1	100.0
16	Kunming*	2,101.20	0.4	0.9	6,080.00	100.0	90.8
17	Lekhnath Municipality*	7.89	–	65.1	41.37	0	71.8
18	Makati	2.74	21.5	100.0	510.38	22.5	99.7
19	Negombo	3.09	–	30.0	155.58	0	30.0
20	Phine District*	269.94	11.6	27.8	53.28	26.0	5.4
21	Pokhara	5.56	–	70.0	214.00	0	62.4
22	Puer*	22.70	18.5	9.6	256.23	57.2	57.2
23	San Fernando	10.53	–	25.7	114.81	0	47.9
24	Sayabouly District*	391.60	10.0	30.0	74.41	17.8	18.8
25	Song Cau*	1.45	–	54.0	20.20	0	54.1
26	Thap Cham*	7.94	98.0	90.0	162.94	100.0	67.1
27	Xieng Ngeun District*	121.00	2.5	6.6	33.64	27.4	17.4
	Top Value	2,101.20	100.0	100.0	11,000.00	100.0	99.7
	Top Quartile	90.30	31.0	85.9	827.00	55.0	84.8
	Range	1.45–2,101.20	0–100.0	0.3–100.0	20.20–11,000.00	0–100.0	3.6–99.7
	Average	154.00	35.2	50.3	1,215.90	29.0	57.7

ha = hectare, # = number.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.7: Coverage by Sanitation System

	City	Central Sewerage System %	Individual Toilet with Septic Tank %	Communal Toilet with Septic Tank %	Pit Latrine %	EcoSan %	Open Defecation %
1	Banda Aceh	0	96.4	0	2.6	0	1
2	Bharatpur*	0	75.1	0.2	20.1	0	5
3	Bhopal*	42	31.3	2.1	2.1	0	23
4	Calbayog	0	38.9	0	0.1	0	61
5	Cam Ranh*	0	62.0	0	25.0	0	13
6	Colombo	80	0	18.0	2.0	0	0
7	Dhaka	20	45.0	0	20.0	0	15
8	Gwalior*	86	2.3	0.5	0.7	0	11
9	Hetauda*	0	79.9	1.4	0.7	0	18
10	Ho Chi Minh	0	0	0	0	0	0
11	Hue	50	37.6	0.1	0	0	12
12	Indore*	55	19.7	3.5	11.3	0	11
13	Jabalpur*	0	49.2	0.8	15.0	0	35
14	Jinghong*	4	0	0	0	0	0
15	Kathmandu	67	32.9	0	0	0	0
16	Kunming*	100	0	0	0	0	0
17	Lekhnath Municipality*	0	49.8	0.1	22.2	0	28
18	Makati	23	77.5	0	0	0	0
19	Negombo	0	60.0	20.0	20.0	0	0
20	Phine District*	26	16.2	0	43.6	0	0
21	Pokhara	0	100.0	0	0	0	0
22	Puer*	57	42.8	0.1	0	0	0
23	San Fernando	0	47.1	10.5	41.2	0.9	0
24	Sayabouly District*	18	13.3	0	29.6	0	0
25	Song Cau*	0	70.0	0	25.0	0	5
26	Thap Cham*	100	0	0	0	0	0
27	Xieng Ngeun District*	27	1.7	0.5	27.4	0.3	0
	Top Value	100	100.0	20.0	43.6	0.9	61
	Top Quartile	55	62.0	0.8	22.2	0	13
	Range	0–100	0–100.0	0–20.0	0–43.6	0.3–0.9	0–61
	Average		47.7	4.4	17.1	0.6	17

EcoSan = ecological sanitation.

Note: * Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.8a: Coverage by Toilet System

		Toilet System Type[a]					
		Individual Toilet with Sewered Line		Individual Toilet with Septic Tank		Communal Toilet with Septic Tank	
		Type I	Type Ia	Type II	Type IIa	Type III	Type IIIa
	City	%	%	%	%	%	%
1	Banda Aceh	–	–	95	5	–	–
2	Bharatpur*	–	–	0	100	0	100
3	Bhopal*	100	0	100	0	20	80
4	Calbayog	–	–	0	100	0	100
5	Cam Ranh*	–	–	0	100	–	–
6	Colombo	0	100	–	–	0	100
7	Dhaka	100	0	0	100	–	–
8	Gwalior*	0	100	50	50	62	38
9	Hetauda*	–	–	0	100	0	100
10	Ho Chi Minh	–	–	–	–	–	–
11	Hue	47	53	41	59	100	0
12	Indore*	100	0	100	0	43	57
13	Jabalpur*	–	–	0	100	0	100
14	Jinghong*	100	0	–	–	–	–
15	Kathmandu	0	100	100	0	–	–
16	Kunming*	100	0	–	–	–	–
17	Lekhnath Municipality*	–	–	0	100	0	100
18	Makati	51	49	100	0	–	–
19	Negombo	–	–	100	0	0	100
20	Phine District*	10	90	11	89	–	–
21	Pokhara	–	–	0	100	–	–
22	Puer*	100	0	100	0	100	0
23	San Fernando	–	–	0	100	0	100
24	Sayabouly District*	13	87	20	80	–	–
25	Song Cau*	–	–	0	100	–	–
26	Thap Cham*	99	1	–	–	–	–
27	Xieng Ngeun District*	1	99	16	84	20	80
	Top Value	100	100	100	100	100	100
	Top Quartile	99	87	100	100	83	100
	Range	0–100	0–100	0–100	0–100	0–100	0–100
	Average	68.4	75.5	69.5	85.4	57.7	87.8

Note: [a] See Appendix, Note 1: Range of Sanitation Type.
"–" means data not available.
* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.8b: Coverage by Toilet System

		Toilet System Type[a]					
		Pit Latrine		EcoSan		Open Defecation	
		Type IV	Type IVa	Type V	Type Va	Type VI & VIa	Type VIb
	City	%	%	%	%	%	%
1	Banda Aceh	100.0	0	–	–	100	0
2	Bharatpur*	100.0	0	–	–	100	0
3	Bhopal*	4.0	96.0	–	–	100	0
4	Calbayog	87.5	12.5	–	–	100	0
5	Cam Ranh*	0	100.0	–	–	0	100
6	Colombo	0	100.0	–	–	–	–
7	Dhaka	100.0	0	–	–	100	0
8	Gwalior*	16.7	83.3	–	–	100	0
9	Hetauda*	0	100.0	–	–	100	0
10	Ho Chi Minh	–	–	–	–	–	–
11	Hue	–	–	–	–	0	100
12	Indore*	0.5	99.5	–	–	100	0
13	Jabalpur*	0	100.0	–	–	43	57
14	Jinghong*	–	–	–	–	–	–
15	Kathmandu	–	–	–	–	–	–
16	Kunming*	–	–	–	–	–	–
17	Lekhnath Municipality*	0	100.0	–	–	100	0
18	Makati	–	–	–	–	–	–
19	Negombo	50.0	50.0	–	–	–	–
20	Phine District*	86.5	13.5	–	–	–	–
21	Pokhara	–	–	–	–	–	–
22	Puer*	–	–	–	–	–	–
23	San Fernando	81.2	18.8	100	0	81	19
24	Sayabouly District*	91.6	8.4	–	–	–	–
25	Song Cau*	0	100.0	–	–	0	100
26	Thap Cham*	–	–	–	–	–	–
27	Xieng Ngeun District*	79.2	20.8	33	67	–	–
	Top Value	100	100	100	67	100	100
	Top Quartile	86	99	0	0	100	0
	Range	0–100	0–100	33–100	0–67	0–100	0–100
	Average	66.4	66.9	66.7	67	100	13.9

EcoSan = ecological sanitation.

Note: [a] See Appendix, Note 1: Range of Sanitation Type.
"–" means data not available.
* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.9: Wastewater and Septage Treatment Facility

		Treatment Facilities			Treatment Facility Provider		
		Wastewater	Septage	Desluding Frequency	Local Gov't.	National Gov't.	Private
	City	m^3/day/10,000	m^3/day	Year	%	%	%
1	Banda Aceh	–	110	–	100	–	–
2	Bharatpur*	–	–	–	–	–	–
3	Bhopal*	534.1	–	–	100	–	–
4	Calbayog	–	90	10	100	–	–
5	Cam Ranh*	–	–	–	–	–	–
6	Colombo	–	–	–	–	–	–
7	Dhaka	109.1	–	–	–	100	–
8	Gwalior*	–	–	–	–	–	–
9	Hetauda*	9.3	–	–	–	100	–
10	Ho Chi Minh	212	–	–	100	–	–
11	Hue	–	–	–	–	–	–
12	Indore*	549.1	–	–	100	–	–
13	Jabalpur*	–	–	–	–	–	–
14	Jinghong*	664.9	–	–	100	–	–
15	Kathmandu	297.7	50	–	–	100	–
16	Kunming*	962.2	–	–	100	–	–
17	Lekhnath Municipality*	–	–	–	–	–	–
18	Makati	812.2	814	5	–	–	99
19	Negombo	–	–	–	–	–	–
20	Phine District*	–	–	–	–	–	–
21	Pokhara	2.1	75	–	100	–	–
22	Puer*	780.5	–	12	100	–	–
23	San Fernando	17.4	–	–	100	–	–
24	Sayabouly District*	–	–	–	–	–	–
25	Song Cau*	–	–	–	–	–	–
26	Thap Cham*	–	–	2	–	–	100
27	Xieng Ngeun District*	–	–	–	–	–	–
	Top Value	962.2	814	12	100	100	100
	Top Quartile	664.9	110	10	100	0	0
	Range	2.1–962.2	50–814	2–12	0–100	0–100	0–100
	Average	65.0	227.8	7.3	66.7	20	13.3

Gov't. = government, m^3 = cubic meter.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.10a: Water Supply Facility

		Household Water Supply Source					
		Central Water Supply System			Protected		Water
		In-house	Communal	Borehole	Spring/Well	Rainwater	Vendor
	City	%	%	%	%	%	%
1	Banda Aceh	20	0	45	0	0	35
2	Bharatpur*	35.1	21.1	0	43.8	0	0
3	Bhopal*	43.3	1.9	54.5	0.2	0	0
4	Calbayog	25.9	46.7	30.6	0	0	0
5	Cam Ranh*	27.1	8	12.9	5.9	45.5	0.5
6	Colombo	83.7	16.3	0	0	0	0
7	Dhaka	80	0	0	20	0	0
8	Gwalior*	57.1	11.4	28.6	2.9	0	0
9	Hetauda*	35	0.2	1.6	63.2	0	0
10	Ho Chi Minh	37.5	–	–	–	–	–
11	Hue	91.9	6.1	2	0	0	0
12	Indore*	54	44.5	0	1.5	0	0
13	Jabalpur*	65	19.9	11.9	3.3	0	0
14	Jinghong*	3.6	0	0	96.4	0	0
15	Kathmandu	100	0	0	0	0	0
16	Kunming*	90.8	0	0	9.2	0	0
17	Lekhnath Municipality*	65.5	6.4	0.7	27.5	0	0
18	Makati	97.7	2.1	0	0.3	0	0
19	Negombo	27	3	60	4.9	0.1	5
20	Phine District*	5.4	–	8.5	–	20	9.9
21	Pokhara	54.6	7.8	37.6	0	0	0
22	Puer*	57.2	0	42.8	0	0	0
23	San Fernando	47.9	0	49.2	3	0	0
24	Sayabouly District*	18.8	0	26.9	12.5	30.3	11.5
25	Song Cau*	54.1	0	20.7	0	25.2	0
26	Thap Cham*	67.1	0	2.3	16.3	14.2	0
27	Xieng Ngeun District*	17.2	0.1	0	52.6	20	10
	Top Value	100	46.65	60	96.41	45.52	35
	Top Quartile	67.1	11.43	37.61	20	0.1	0.02
	Range	3.59–100.00	0–46.65	0.04–60.00	0–96.41	0–45.52	0–35.00
	Average	50.5	7.8	16.8	14.5	5.98	2.8

Note: "–" means data not available.
* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.10b: Water Supply Facility

	City	Population Buying Bottled Water	Average Water Consumption	Water Treatment Facilities	Water Treatment Provider		
					Local Gov't.	National Gov't.	Private Concessionaire
		%	lpcd	lpcd	%	%	%
1	Banda Aceh	36	90	17	100	0	0
2	Bharatpur*	–	50	1.8	0	100	0
3	Bhopal*	–	160	17.1	100	0	0
4	Calbayog	10	75	1.5	95	0	5
5	Cam Ranh*	–	122	6.6	0	100	0
6	Colombo	1	120	105.2	0	100	0
7	Dhaka	5	140	16.4	0	100	0
8	Gwalior*	–	130	17.5	100	0	0
9	Hetauda*	–	40	1.4	0	100	0
10	Ho Chi Minh	–	150	18.6	–	–	–
11	Hue	15	–	45.8	–	–	–
12	Indore*	–	80	11.7	100	0	0
13	Jabalpur*	1	64	4.5	100	0	0
14	Jinghong*	–	–	13.3	100	0	0
15	Kathmandu	40	90	27.1	0	100	0
16	Kunming*	–	–	19.7	100	0	0
17	Lekhnath Municipality*	–	40	12.1	0	100	0
18	Makati	10	–	137.2	0	0	100
19	Negombo	25	–	13.1	0	100	0
20	Phine District*	80	85	–	–	–	–
21	Pokhara	–	90	–	–	–	–
22	Puer*	–	–	13.7	100	0	0
23	San Fernando	–	–	–	–	–	–
24	Sayabouly District*	80	80	–	–	–	–
25	Song Cau*	–	120	14.9	0	100	0
26	Thap Cham*	–	135	31.9	100	0	0
27	Xieng Ngeun District*	70	80	–	–	–	–
	Top Value	80	160	137.2	100	100	100
	Top Quartile	40	130	19.7	100	100	0
	Range	0–80	40–160	1.4–137.2	0–100	0–100	0–100
	Average	20.7	97.1	24.9	49.8	45	5.3

Gov't. = government, lpcd = liters per capita per day.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.11: Capital Investment

	City	Annual Amount	Source of Funds				
			National Government	Local Government	Loans	Tariff Revenues	Others
		$/capita	%	%	%	%	%
1	Banda Aceh	–	0	0	0	0	100
2	Bharatpur*	–	8	62	30	0	0
3	Bhopal*	1.9	70	12	18	0	0
4	Calbayog	–	–	–	–	–	–
5	Cam Ranh*	–	–	–	–	–	–
6	Colombo	7.2	0	100	0	0	0
7	Dhaka	–	20	0	80	0	0
8	Gwalior*	–	–	–	–	–	–
9	Hetauda*	–	8	62	30	0	0
10	Ho Chi Minh	–	0	0	0	0	100
11	Hue	3.7	0	0	0	0	100
12	Indore*	–	50	10	40	0	0
13	Jabalpur*	22.5	50	20	30	0	0
14	Jinghong*	–	–	–	60	–	–
15	Kathmandu	–	–	–	–	–	–
16	Kunming*	–	0	30	0	0	70
17	Lekhnath Municipality*	1.0	80	20	0	0	0
18	Makati	–	0	0	0	0	100
19	Negombo	–	–	–	–	–	–
20	Phine District*	–	–	–	–	–	–
21	Pokhara	0.5	0	100	0	0	0
22	Puer*	27.9	47	0	53	0	0
23	San Fernando	1.2	0	100	0	0	0
24	Sayabouly District*	–	–	–	–	–	–
25	Song Cau*	–	–	–	–	–	–
26	Thap Cham*	–	–	–	–	–	–
27	Xieng Ngeun District*	–	70	30	0	0	0
	Top Value	27.9	80	100	80	0	100
	Top Quartile	22.5	70	0	0		100
	Range	0.5–27.9	0–80	0–100	0–80		0–100
	Average	8.2	24	32	19	0	28

Note: "–" means data not available.
* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.12: Operations and Maintenance Expenditures

			Source of Funds				
		Annual Amount	National Government	Local Government	Loans	Tariff Revenues	Others
	City	$/capita	%	%	%	%	%
1	Banda Aceh	0.2	0	0	50	50	0
2	Bharatpur*	0.7	0	50	0	50	0
3	Bhopal*	–	0	100	0	0	0
4	Calbayog	–	–	–	–	–	–
5	Cam Ranh*	–	–	–	–	–	–
6	Colombo	8.3	0	100	0	0	0
7	Dhaka	–	0	0	0	100	0
8	Gwalior*	0.6	0	100	0	0	0
9	Hetauda*	0.9	0	50	0	50	0
10	Ho Chi Minh	0.9	0	100	0	0	0
11	Hue	3.7	10	10	50	30	0
12	Indore*	–	0	100	0	0	0
13	Jabalpur*	5.4	0	100	0	0	0
14	Jinghong*	–	–	–	–	–	–
15	Kathmandu	–	–	–	–	–	–
16	Kunming*	–	0	10	0	90	0
17	Lekhnath Municipality*	0.2	0	60	0	40	0
18	Makati	–	0	0	0	0	100
19	Negombo	–	–	–	–	–	–
20	Phine District*	–	–	–	–	–	–
21	Pokhara	0.1	0	100	0	0	0
22	Puer*	–	47	0	53	0	0
23	San Fernando	0.1	0	100	0	0	0
24	Sayabouly District*	–	–	–	–	–	–
25	Song Cau*	–	–	–	–	–	–
26	Thap Cham*	–	–	–	–	–	–
27	Xieng Ngeun District*	–	–	–	–	–	–
	Top Value	8.3	47	100	53	100	100
	Top Quartile	3.7	0	100	0	50	0
	Range	0.1–8.3	0–47	0–100	0–53	0–100	0–100
	Average	1.9	3	58	9	24	6

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.13: Revenues and Fees for Services

			Sewered Area		Desludging Fee Septic Tanks			
		Total Revenue	Connection Charges	Tariff Rate	Private		Government	
	City	$/capita	$/Connection	$/m³	$	% share	$	% share
1	Banda Aceh	0.1	–	–	10.0	50	10	50
2	Bharatpur*	–	80.0	1	–	–	–	–
3	Bhopal*	–	50.0	30–90	–	–	–	–
4	Calbayog	–	–	–	–	–	–	–
5	Cam Ranh*	–	–	–	–	90	22	10
6	Colombo	–	–	–	–	–	–	–
7	Dhaka	–	18.3	6	–	–	–	–
8	Gwalior*	–	–	–	–	–	–	–
9	Hetauda*	–	80.0	1	–	–	–	–
10	Ho Chi Minh	–	–	–	–	–	–	–
11	Hue	9.2	–	–	4.0	1	3.5	99
12	Indore*	–	50.0	30–90***	–	–	–	–
13	Jabalpur*	15.0	–	–	0	0	30	100
14	Jinghong*	–	–	–	0	–	–	100
15	Kathmandu	–	–	–	30.0	70	20	30
16	Kunming*	–	–	–	–	0	–	100
17	Lekhnath Municipality*	–	–	–	33.0	100	–	0
18	Makati	–	–	–	–	100	–	0
19	Negombo	–	–	–	0.0	0	10	100
20	Phine District*	–	–	–	–	–	–	–
21	Pokhara	–	–	–	32.0	–	23	–
22	Puer*	3.2	–	–	0.0	0	–	0
23	San Fernando	–	–	–	133.0	100	0	–
24	Sayabouly District*	–	–	–	18.0	–	–	–
25	Song Cau*	–	–	–	85.0	–	20	–
26	Thap Cham*	–	–	0**	90.0	–	22	0
27	Xieng Ngeun District*	–	–	–	30.0	100	18	30
	Top Value	15.0	80.0	90	133		30	
	Top Quartile	15.0	80.0	90	30		22	
	Range	0.1–15.0	18.3–80.0	0–90	4–133		3.5–30	
	Average	6.9	55.7	38	47		18	
	No. of Respondents	6.9	5	5	13		13	

Note: "–" means data not available, m^3 = cubic meter.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

** Environmental charge added to water tariff.

*** Proposed tariff.

Table 2.14a: Environmental Situation

	City	Monitoring Water Quality	Source of Water Pollution				
			Household Solid Waste	Household Liquid Waste	Industrial Waste	Commercial Waste	Hospital Waste
		Y/N	%	%	%	%	%
1	Banda Aceh	Y	5	50	10	35	0
2	Bharatpur*	N	50	50	0	0	0
3	Bhopal*	Y	10	60	10	15	5
4	Calbayog	N	45	35	2	15	3
5	Cam Ranh*	Y	0	100	0	0	0
6	Colombo	Y	10	20	38	15	17
7	Dhaka	Y	15	40	30	10	5
8	Gwalior*	Y	10	60	10	15	5
9	Hetauda*	Y	30	60	10	0	0
10	Ho Chi Minh	Y	5	60	25	5	5
11	Hue	Y	50	36	5	5	4
12	Indore*	Y	10	60	10	15	5
13	Jabalpur*	Y	10	70	0	18	2
14	Jinghong*	Y	12	38	34	11	5
15	Kathmandu	N	20	80	0	0	0
16	Kunming*	Y	0	50	10	0	0
17	Lekhnath Municipality*	Y	50	50	0	0	0
18	Makati	Y	10	70	5	10	5
19	Negombo	Y	67	0	8	25	0
20	Phine District*	N	10	15	–	–	–
21	Pokhara	N	–	–	–	–	–
22	Puer*	Y	–	–	–	–	–
23	San Fernando	Y	–	–	–	–	–
24	Sayabouly District*	N	10	15	–	–	–
25	Song Cau*	Y	20	80	0	0	0
26	Thap Cham*	Y	0	100	0	0	0
27	Xieng Ngeun District*	–	50	20	0	0	10
	Top Value		67	100	38	35	17
	Top Quartile		45	60	10	15	5
	Range		0–67	0–100	0–38	0–35	0–17
	Average		20.8	51	9	9	3

Y = yes, N = no.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.14b: Environmental Situation

	City	Required to Treat Own Wastewater	Wastewater Treatment				
			Own Treatment Plant	Central Sewer System	No Treatment	Others	
		Y/N	%	%	%	%	Description
1	Banda Aceh	Y	2	0	98	0	–
2	Bharatpur*	Y	0	0	100	0	–
3	Bhopal*	Y	0	30	30	40	through septic tank
4	Calbayog	–	0	0	99	1	anaerobic baffled reactor
5	Cam Ranh*	N	0	0	100	0	–
6	Colombo	Y	–	–	–	–	–
7	Dhaka	Y	–	–	–	–	–
8	Gwalior*	Y	0	0	50	50	through septic tank
9	Hetauda*	Y	0	0	95	5	Hetauda Industrial Area has a small wastewater treatment plant
10	Ho Chi Minh	Y	80	0	20	0	–
11	Hue	Y	7	23	60	10	–
12	Indore*	Y	0	30	30	40	through septic tank
13	Jabalpur*	Y	0	0	50	50	through septic tank
14	Jinghong*	Y	–	–	–	–	–
15	Kathmandu	N	0	0	100	0	–
16	Kunming*	Y	100	0	0	0	–
17	Lekhnath Municipality*	Y	0	0	100	0	–
18	Makati	Y	88	11	1	0	–
19	Negombo	–	–	–	–	–	–
20	Phine District*	N	–	–	–	–	–
21	Pokhara	Y	0	0	100	0	–
22	Puer*	Y	0	29	71	0	–
23	San Fernando	Y	–	–	–	–	–
24	Sayabouly District*	–	–	–	–	–	–
25	Song Cau*	N	0	0	100	0	–
26	Thap Cham*	N	0	0	100	0	–
27	Xieng Ngeun District*	–	–	–	–	–	–
	Top Value		100	30	100	50	
	Top Quartile		2	11	100	50	
	Range		0–100	0–30	0–100	0–50	
	Average		14.6	6.5	68.6	10.3	

Y = yes, N = no.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.14c: Environmental Situation

	City	Located in River Basin Y/N	River Basin			Adjoining Town	
			River/Basin Name	Basin Area		Pollution	Sanitation
			Name	Ha	City Location	Load	Work/Plan
1	Banda Aceh	Y	Aceh River, Daroy River	–	Downstream	Medium	Individual
2	Bharatpur*	Y	Narayani	–	Midstream	–	–
3	Bhopal*	Y	Kolans	36,500	Downstream	–	–
4	Calbayog	N	–	–		Medium	–
5	Cam Ranh*	N	–	–		–	–
6	Colombo	N	–	–		Heavy	Cooperative
7	Dhaka	Y	Sitalakhay,Buriganga, Turag, Tha Balu	–	Midstream	Medium	Cooperative
8	Gwalior*	Y	Swama Rekha	2,000	Midstream	–	–
9	Hetauda*	Y	Rapti and Karra	–	Downstream	–	–
10	Ho Chi Minh	Y	Sai Gon-Dong Nai	4,826,800	Downstream	Heavy	Individual
11	Hue	Y	Perfume River	5,000	Midstream	–	–
12	Indore*	Y	Khan and Saraswati	–	Midstream	–	–
13	Jabalpur*	Y	Narmada	4,939,800	Midstream	–	–
14	Jinghong*	Y	Lancang River, Liusha River	709,300	Downstream	Medium	–
15	Kathmandu	Y	Bagmati, Bishnumati, Dhobikhola	–	Midstream	Heavy	Individual
16	Kunming*	Y	Jinsha River	292,000	Upstream	Medium	–
17	Lekhnath Municipality*	Y	Seti Gandakii	–	Upstream	Heavy	Individual
18	Makati	Y	Pasig River	–	Midstream	Medium	Cooperative
19	Negombo	Y	Maha Oya	–	Downstream	Medium	–
20	Phine District*	Y	Sedon River	–	–	Medium	–
21	Pokhara	Y	Seti Gandakii	–		Very Low	–
22	Puer*	Y	Langcang River	5,000	Midstream	Medium	Individual
23	San Fernando	N	–	–	–	Medium	Individual
24	Sayabouly District*	–	–	–	–	–	–
25	Song Cau*	N	–	–	–	–	–
26	Thap Cham*	N	–	–	–	–	–
27	Xieng Ngeun District*	–	–	–	–	Medium	Individual
	Top Value			4,939,800			
	Top Quartile			4,826,800			
	Range			2,000–4,939,800			
	Average			1,352,050			

Y = yes, N = no.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.15a: Sanitation Planning

		Existing Sanitation Plan		Planned Sanitation Strategy			
		With Sanitation Plan	Year Made	Planned Year	Total Amount	Amount per Capita	Source of Fund
	City	Y/N	Year	Year	$(M)	$/capita	Name
1	Banda Aceh	N	–	–	–	–	–
2	Bharatpur*	N	–	–	–	–	–
3	Bhopal*	N	–	2008	13.60	9.6	Other agency
4	Calbayog	N	–	2009	0.11	0.7	General Fund, City Government
5	Cam Ranh*	N	–	–	–	–	–
6	Colombo	Y	–	–	–	–	–
7	Dhaka	N	–	2008	–	–	World Bank
8	Gwalior*	N	–	2008	395.00	477.6	Other agency
9	Hetauda*	N	–	–	–	–	–
10	Ho Chi Minh	Y	–	–	–	–	–
11	Hue	N	–	2008	250.00	762.7	JBIC
12	Indore*	Y	2006	2008	13.00	7.9	Other agency
13	Jabalpur*	N	–	2008	37.00	39.7	Other agency
14	Jinghong*	Y	–	–	–	–	–
15	Kathmandu	N	–	–	–	–	–
16	Kunming*	Y	–	–	–	–	–
17	Lekhnath Municipality*	N	–	2008	0.03	0.6	Pokhara Valley Town Dev Com and Lekhnath Municipality
18	Makati	Y	–	–	–	–	–
19	Negombo	N	–	–	–	–	–
20	Phine District*	N	–	–	–	–	–
21	Pokhara	N	–	–	–	–	–
22	Puer*	Y	–	–	–	–	–
23	San Fernando	Y	–	–	–	–	–
24	Sayabouly District*	N	–	–	–	–	–
25	Song Cau*	Y	–	–	–	–	–
26	Thap Cham*	Y	–	–	–	–	–
27	Xieng Ngeun District*	Y	2007	–	–	–	–
	Top Value	11	2007	2009	395.00	762.7	
	Top Quartile		2006	2008	250.00	477.6	
	Range	16–11	2006–2007	2008–2009	0.03–395.00	0.6–762.7	
	Average				101.25	185.5	

JBIC = Japan Bank for International Cooperation, Y = yes, N = no.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.15b: Sanitation Planning

	City	Major Sanitation Problem	Future Programs/ Projects List	Indicator	Funding Amount $(M)	Source of Fund
1	Banda Aceh	–	–	–	–	–
2	Negombo	No septage/sewage treatment facility	Construction of septage/sewage treatment plants	–	–	–
3	Dhaka	Unprecedented increase in population	Expansion and rehabilitation	–	–	World Bank
4	Dhaka	Upland urbanization	North Dhaka East Sewerage treatment plant and associated works	–	–	World Bank/People's Republic of China
5	Colombo	100-year-old sewer system needs rehabilitation	Rehabilitation of main sewer lines	–	–	–
6	Makati	Lack of understanding and appreciation of local pollution laws.	Capacity building of deputized barangay officials	–	–	–
7	Ho Chi Minh	Wastewater discharged into canals and rivers	–	–	–	–
8	Hue	Rivers/lakes water pollution	–	–	–	–
9	Kathmandu	Wastewater directly discharged into the river.	–	–	–	–
10	Pokhara			–	–	–
11	San Fernando	Contamination of ground, surface, and coastal water	Provision of sanitary toilets and sanitation promotion	Reduced water-borne diseases	0.96	City government and loan
12	Gwalior*	Missing sewer links, insufficient community toilet	Make the city open defecation free	open defecation	–	–
13	Jabalpur*	Absence of sewer system	Slum improvement and sewerage system	open defecation	–	GOI, ADB Municipal Corporation, Jabalpur
14	Indore*	Missing sewer links, insufficient community toilet	Open defecation free and totally sewered	open defecation	–	–
15	Bharatpur*	Lack of sanitary urban facilities	Open defecation free by 2009	open defecation	–	–
16	Hetauda*	Poor cannot afford basic sanitation services	Make municipality open defecation free by year 2010	open defecation	–	–
17	Lekhnath Municipality*	No sewer and waste water treatment facilities	Open defecation-free city by 2009	open defecation	–	–

continued next page

Table 2.15b: Sanitation Planning (*continued*)

	City	Major Sanitation Problem	Future Programs/ Projects List	Indicator	Funding Amount $(M)	Source of Fund
18	Jinghong*	Increase in pollution due to increased development	–	–	–	–
19	Kunming*	Rate of wastewater treatment cannot meet the requirements	Improvement of water supply, sanitation, and treatment	–	1.79	Kunming Government, UN-HABITAT
20	Puer*	–	–	–	–	–
21	Phine District*	–	–	–	–	–
22	Sayabouly District*	–	–	–	–	–
23	Xieng Ngeun District*	–	–	–	–	–
24	Cam Ranh*	–	–	–	–	–
25	Song Cau*	No wastewater system in the town	–	–	–	–
26	Thap Cham*	Flooding during the rainy season	–	–	–	–
27	Bhopal*	There are still open defecation	Making the city "open defecation free."	open defecation	–	–
28	Calbayog	Pollution of bodies of water (e.g., rivers, sea, swamps) of wastewater	–	–	–	–
	Top Value				1.79	
	Top Quartile				1.79	
	Range				0.96–1.79	
	Average				1.37	

ADB = Asian Development Bank, GOI = Government of India.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.16: Organizational Arrangement

		Number of Institutions Involved in Sanitation					
		Government			Private		
	City	National	Local	Utility	Water Utility	Enterprise	NGO
1	Banda Aceh	1	1	–	–	–	–
2	Bharatpur*	–	1	2	–	–	–
3	Bhopal*	–	2	–	–	–	–
4	Calbayog	–	3	–	–	–	–
5	Cam Ranh*	–	–	1	–	–	–
6	Colombo	–	1	–	–	–	–
7	Dhaka	–	1	1	–	–	–
8	Gwalior*	–	2	–	–	–	–
9	Hetauda*	–	–	1	–	–	–
10	Ho Chi Minh	6	1	–	–	–	–
11	Hue	–	1	1	–	–	–
12	Indore*	–	2	–	–	–	–
13	Jabalpur*	–	2	–	–	–	–
14	Jinghong*	–	1	2	–	–	–
15	Kathmandu	2	2	–	–	–	–
16	Kunming*	–	3	1	–	–	–
17	Lekhnath Municipality*	–	–	1	–	–	–
18	Makati	3	2	–	2	–	–
19	Negombo	2	–	–	–	–	–
20	Phine District*	–	1	–	–	–	–
21	Pokhara	–	1	–	–	–	–
22	Puer*	–	2	2	–	–	–
23	San Fernando	–	4	–	–	–	–
24	Sayabouly District*	–	1	–	–	–	–
25	Song Cau*	–	–	1	–	–	–
26	Thap Cham*	–	–	1	–	–	–
27	Xieng Ngeun District*	–	2	–	–	–	–
	Top Value	6	4	2	2		
	Top Quartile	2	2	1	2		
	Range	1–6	1–4	1–2	–		
	Average	2.8	1.7	1.3	2		

NGO = nongovernment organization.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

Table 2.17: Personnel Complement

		Government				Private	
		Total Personnel	Planning & Monitoring	Construction	Operations & Maintenance	Total Personnel	Operations & Maintenance
	City	#/10,000 pop'n	%	%	%	#/10,000 pop'n	%
1	Banda Aceh	0.46	–	–	100	–	–
2	Bharatpur*	5.15	–	–	–	–	–
3	Bhopal*	11.95	–	–	–	–	–
4	Calbayog	9.8	–	–	–	–	–
5	Cam Ranh*	–	–	–	–	–	–
6	Colombo	–	–	–	–	–	–
7	Dhaka	0.73	–	–	–	–	–
8	Gwalior*	20.56	–	–	–	–	–
9	Hetauda*	–	–	–	–	–	–
10	Ho Chi Minh	–	–	–	–	–	–
11	Hue	36.3	43.7	–	–	–	–
12	Indore*	14.03	–	–	–	–	–
13	Jabalpur*	21.67	–	–	–	–	–
14	Jinghong*	9.76	23.4	–	76.6	–	–
15	Kathmandu	0.46	–	–	–	–	–
16	Kunming*	–	–	–	–	–	–
17	Lekhnath Municipality*	3.14	–	–	–	–	–
18	Makati	–	–	–	–	30.96	–
19	Negombo	–	–	–	–	–	–
20	Phine District*	–	–	–	–	–	–
21	Pokhara	6.26	–	–	–	–	–
22	Puer*	10.15	12.7	–	87.3	–	–
23	San Fernando	2.09	–	–	–	–	–
24	Sayabouly District*	0.4	–	–	–	–	–
25	Song Cau*	–	–	–	–	–	–
26	Thap Cham*	–	–	–	–	–	–
27	Xieng Ngeun District*	100.77	15.6	–	84.4	–	–
	Top Value	100.77	43.7		100.0	30.96	
	Top Quartile	20.56	43.7		100.0	30.96	
	Range	0.46–100.77	12.7–43.7		76.6–100.0	–	–
	Average	14.9	23.9		87.1	30.96	

Pop'n = population.

Note: "–" means data not available.

* Indicates areas whose survey responses were facilitated by UN-HABITAT.

Table 2.18: Legal Framework

	City	Number of Laws on Sanitation		Year Enacted		Law on Collecting Fees for Sanitation Service	
						With Law?	
		National	Local	Oldest	Latest	Y/N	Year Enacted
1	Negombo	–	–	–	–	N	–
2	Dhaka	3	1	1983	1998	Y	1996
3	Calbayog	2	–	2000	2002	N	–
4	Colombo	1	1	1947	1980	–	–
5	Makati	4	–	1974	2004	Y	1997
6	Ho Chi Minh	1	3	2006	2007	Y	2003
7	Hue	1	–	2005	2005	Y	2007
8	Kathmandu	4	–	1987	1999	Y	1990
9	Pokhara	–	–	–	–	–	–
10	San Fernando	4	2	1972	2006	N	–
11	Bhopal*	–	1	1956	1956	Y	1956
12	Gwalior*	–	1	1956	1956	Y	1956
13	Jabalpur*	–	1	1956	1956	Y	1956
14	Indore*	–	1	1956	1956	Y	1956
15	Bharatpur*	1	–	1996	1996	Y	1999
16	Hetauda*	1	–	1993	1993	Y	1999
17	Lekhnath Municipality*	1	–	1993	1993	Y	1999
18	Kunming*	3	1	1984	2002	Y	2002
19	Puer*	1	1	1994	2002	N	–
20	Phine District*	–	–	–	–	–	–
21	Xieng Ngeun District*	–	–	–	–	N	–
22	Cam Ranh*	2	1	2003	2007	Y	2003
23	Song Cau*	2	1	2003	2007	Y	2003
24	Thap Cham*	2	1	2003	2007	Y	2003
25	Banda Aceh	1	–	1995	1995	Y	2003
26	Jinghong*	1	1	1993	2002	N	–
27	Sayabouly District*	–	1	2007	2007	N	–
	Top Value	4	3	2007	2007	17	2007
	Top Quartile	3	1	2000	2005	–	2003
	Range	1–4	1–3	1947–2007	1956–2007	7–17	1956–2007
	Average	1.9	1.2				

Y = yes, N = no.

Note: "–" means data not available.

* Indicates areas where survey responses were facilitated by UN-HABITAT.

PART III

CITY SANITATION PROFILE

Dhaka, Bangladesh				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Md. Golam Mostofa, Secretary						
Office	Dhaka City Corporation						
Address	5, Hafezi Huzur Road, Fulbaria, Dhaka, Bangladesh						
Fax	88029565979						
Telephone	88029563507						
E–mail address	mayordhaka@yahoo.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	11,000.00	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	5.00	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	2,301.26	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.78	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	9.10	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	36.36	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	36.00	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	59.72	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	0	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	0	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	305.60	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	–	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	–	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	–	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	30.6	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	97.2	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	20.0	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	80.0	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	20	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	45	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	20	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	15	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	100	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	0	100.0	87.0	0–100 (15)	75.5
	Type II	%	0	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	100	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	100	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	0	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	100	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	0	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	109.1	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	0	100.0	100.0	0–100 (20)	49.8
	National Government	%	100	100.0	100.0	0–100 (20)	45.0
	Private	%	0	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Dhaka, Bangladesh					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	80.0	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	0	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	20.0	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	5	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	140.0	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	163.6	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	0	100.00	100.00	100.0 (22)	49.80
		National Government	%	100.0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	1	4	2	1–4 (21)	1.7
		State-Owned Utility	#	1	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	0.73	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
Private Sector								
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	3	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1983	2007	2000	1947–2007 (23)	1985
		Latest	year	1998	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	1996	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	2008	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	World Bank				
	Sanitation Problem	Major Sanitation Problem	list	increase in population				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Dhaka, Bangladesh				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	20	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	0	100.0	0	0.0–100.0 (17)	32.10
Loans	%	80	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	0	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	100	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	0	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	6	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	15	67	45	0–67 (24)	20.8
Household Liquid Waste	%	40	100	60	0–100 (24)	50.8
Industrial Waste	%	30	38	10	0–38 (22)	9.4
Commercial Waste	%	10	35	15	0–35 (22)	8.8
Hospital Waste	%	5	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	–	100	2	0–100 (19)	14.6
Central Sewer System	%	–	30	11	0–30 (19)	6.5
No Treatment	%	–	100	100	0–100 (19)	68.6
Others	%	–	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Sitalakhay,Buriganga, Turag, Tha Balu				
Basin Area	ha	–				
City Location	u,m,d	Midstream				
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c	Cooperative				
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	MPN/100ml	11,450				
BOD	mg/l	30	180	30	2.4–180	28.7
COD	mg/l	80	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	30	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; ml = milliliter; mg/l = milligram per liter; MPN = most probable number; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Bhopal, India				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Mr. Rajesh Bisaria, Project Manager						
Office	Project Implementation Unit UWSEIP, Municipal Corp						
Address	Harshvardhan, Block–II, Matamandir, Bhopal, India						
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Telephone	917552701411						
E–mail address	pmpiubbhopal@yahoo.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	1,423.00	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	3.50	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	240.00	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	5.93	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	3.50	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	21.08	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	28.50	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	11.93	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	20.00	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	50.20	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	8.07	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	49.90	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	153.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	75.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	55.00	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	20.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	62.00	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	2.1	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	70.0	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	41.7	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	45.3	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	42	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	31	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	2.1	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	2.1	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	23	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	100	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	0	100.0	87.0	0–100 (15)	75.5
	Type II	%	100	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	0	100.0	100.0	0–100 (21)	85.4
	Type III	%	20	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	80	100.0	100.0	0–100 (14)	87.8
	Type IV	%	4	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	96	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	100	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	0	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	76000	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (20)	49.8
	National Government	%	0	100.0	100.0	0–100 (20)	45.0
	Private	%	0	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Bhopal, India					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	43.33	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	1.92	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	54.53	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	0.21	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	160.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	170.70	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	100.00	100.00	100.00	100.0 (22)	49.80
		National Government	%	0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	2	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop/n)	#	11.95	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop/n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	–	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1956	2007	2000	1947–2007 (23)	1985
		Latest	year	1956	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	1956	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	2008	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	13.6	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	9.6	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	Other agency				
	Sanitation Problem	Major Sanitation Problem	list	There are still open defecation				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Bhopal, India				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	1.9	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	70	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	12	100.0	0	0.0–100.0 (17)	32.10
Loans	%	18	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	100	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	0	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	4618	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	90	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	133	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N				
Sources of Water Pollution						
Household Solid Waste	%	10	67	45	0–67 (24)	20.8
Household Liquid Waste	%	60	100	60	0–100 (24)	50.8
Industrial Waste	%	10	38	10	0–38 (22)	9.4
Commercial Waste	%	15	35	15	0–35 (22)	8.8
Hospital Waste	%	5	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	30	30	11	0–30 (19)	6.5
No Treatment	%	30	100	100	0–100 (19)	68.6
Others	%	40	50	1	0–50 (19)	10.3
Description	list	through septic tank				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Kolans				
Basin Area	ha	36,500				
City Location	u,m,d	Downstream				
Adjoining Town						
Pollution Load	vh–vl					
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	30				
BOD	mg/l	6	180	30	2.4–180	28.7
COD	mg/l	50	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	200	261	200	1–261	109.7
Heavy Metals	mg/l	0.25	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Gwalior, India				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Mr. K.K. Shrivastav, Project Manager						
Office	Project Implementation Unit, Municipal Corporation						
Address	Galav Rest House, Capt. Roop Singh Stadium, Gwalior, India						
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Telephone	+917512438357						
E–mail address	piugwalior@yahoo.com.in						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	827	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	2.5	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	175	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.73	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	48.4	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	7.26	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	17.7	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	11.3	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	19.77	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	50.8	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	7.91	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	46.7	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	138	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	75	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	52	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	18	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	59	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	79.1	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	85.9	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	85.7	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	68.6	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	86	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	2	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0.5	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0.7	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	11	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	0	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	100	100.0	87.0	0–100 (15)	75.5
	Type II	%	50	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	50	100.0	100.0	0–100 (21)	85.4
	Type III	%	62	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	38	100.0	100.0	0–100 (14)	87.8
	Type IV	%	17	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	83	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	100	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	0	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Gwalior, India					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	57.14	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	11.43	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	28.57	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	2.86	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	130.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	175.30	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	100.00	100.00	100.00	100.0 (22)	49.80
		National Government	%	0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	2	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	20.56	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop,n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	–	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1956	2007	2000	1947–2007 (23)	1985
		Latest	year	1956	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	1956	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	2008	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	395.0	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	477.6	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	Other agency				
	Sanitation Problem	Major Sanitation Problem	list	Missing sewer links, insufficient community toilet				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Gwalior, India				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	–	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	–	100.0	0	0.0–100.0 (17)	32.10
Loans	%	–	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	–	0	0	0–0 (17)	0
Others	%	–	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	0.6	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	100	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	0	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	20,000	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m³	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	10	67	45	0–67 (24)	20.8
Household Liquid Waste	%	60	100	60	0–100 (24)	50.8
Industrial Waste	%	10	38	10	0–38 (22)	9.4
Commercial Waste	%	15	35	15	0–35 (22)	8.8
Hospital Waste	%	5	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	50	100	100	0–100 (19)	68.6
Others	%	50	50	1	0–50 (19)	10.3
Description	list	through septic tank				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Swama Rekha				
Basin Area	ha	2,000				
City Location	u,m,d	Midstream				
Adjoining Town						
Pollution Load	vh–vl					
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	1				
BOD	mg/l	6	180	30	2.4–180	28.7
COD	mg/l	50	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	200	261	200	1–261	109.7
Heavy Metals	mg/l	0.25	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m³ = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Indore, India				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Mr. Prabhas Sankhla, Project Manager						
Office	Project Implementation Unit UWSEIP, Municipal Corp						
Address	Narmda Project, Musakhedi, Indore, India						
Fax	917312710708						
Telephone	917312710695						
E–mail address	piuindore@hotmail.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	1,639.00	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	4.80	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	330.00	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.97	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	6.10	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	15.86	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	13.40	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	11.94	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	20.15	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	49.30	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	8.21	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	122.30	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	350.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	184.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	133.00	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	50.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	149.00	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	44.8	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	48.5	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	55.0	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	98.5	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	55	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	20	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	3.5	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	11.3	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	11	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	100	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	0	100.0	87.0	0–100 (15)	75.5
	Type II	%	100	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	0	100.0	100.0	0–100 (21)	85.4
	Type III	%	43	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	57	100.0	100.0	0–100 (14)	87.8
	Type IV	%	1	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	99	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	100	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	0	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	90000	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (20)	49.8
	National Government	%	0	100.0	100.0	0–100 (20)	45.0
	Private	%	0	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Indore, India					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	54.00	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	44.48	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	0	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	1.52	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	80.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	117.10	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	100.00	100.00	100.00	100.0 (22)	49.80
		National Government	%	0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	2	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	14.03	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	–	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1956	2007	2000	1947–2007 (23)	1985
		Latest	year	1956	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	1956	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	2006	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	2006				
		Preparation Year	year	2008	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	13.0	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	7.9	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	Other agency				
	Sanitation Problem	Major Sanitation Problem	list	Missing sewer links, insufficient community toilet				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Indore, India				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	50	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	10	100.0	0	0.0–100.0 (17)	32.10
Loans	%	40	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	100	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	0	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	146,800	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	90	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	10	67	45	0–67 (24)	20.8
Household Liquid Waste	%	60	100	60	0–100 (24)	50.8
Industrial Waste	%	10	38	10	0–38 (22)	9.4
Commercial Waste	%	15	35	15	0–35 (22)	8.8
Hospital Waste	%	5	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	30	30	11	0–30 (19)	6.5
No Treatment	%	30	100	100	0–100 (19)	68.6
Others	%	40	50	1	0–50 (19)	10.3
Description	list	through septic tank				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Khan & Saraswati				
Basin Area	ha	–				
City Location	u,m,d	Midstream				
Adjoining Town						
Pollution Load	vh–vl					
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	30				
BOD	mg/l	6	180	30	2.4–180	28.7
COD	mg/l	50	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	200	261	200	1–261	109.7
Heavy Metals	mg/l	0.25	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Jabalpur, India				For All Surveyed Cities and Municipalities			
Participating City							
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E–mail address	piuadb_jbp@yahoo.co.in						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	932.00	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	2.80	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	151.03	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	6.17	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	4.80	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	31.12	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	12.90	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	11.76	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	20.12	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	50.30	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	7.74	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	72.10	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	215.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	111.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	79.00	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	29.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	93.00	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	92.9	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	84.8	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	49	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0.8	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	15	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	35	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	0	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	100	100.0	100.0	0–100 (21)	85.4
	Type III	%	0	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	100	100.0	100.0	0–100 (14)	87.8
	Type IV	%	0	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	100	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	43	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	57	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	100	100.0	50.0	0–100 (13)	53.0
	Private	%	0	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Jabalpur, India					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	64.97	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	19.86	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	11.86	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	3.31	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	1.00	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	64.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	45.10	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	100.00	100.00	100.00	100.0 (22)	49.80
		National Government	%	0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	2	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	21.67	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	–	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1956	2007	2000	1947–2007 (23)	1985
		Latest	year	1956	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	1956	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	2008	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	37.0	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	39.7	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	Other agency				
	Sanitation Problem	Major Sanitation Problem	list	Absence of sewer system				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Jabalpur, India				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	22.5	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	50	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	20	100.0	0	0.0–100.0 (17)	32.10
Loans	%	30	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	5.4	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	100	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	0	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	15	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	30000	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	10	67	45	0–67 (24)	20.8
Household Liquid Waste	%	70	100	60	0–100 (24)	50.8
Industrial Waste	%	0	38	10	0–38 (22)	9.4
Commercial Waste	%	18	35	15	0–35 (22)	8.8
Hospital Waste	%	2	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	50	100	100	0–100 (19)	68.6
Others	%	50	50	1	0–50 (19)	10.3
Description	list	through septic tank				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Narmada				
Basin Area	ha	4939800				
City Location	u,m,d	Midstream				
Adjoining Town						
Pollution Load	vh–vl					
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	<200				
BOD	mg/l	4.5	180	30	2.4–180	28.7
COD	mg/l	50	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	1	261	200	1–261	109.7
Heavy Metals	mg/l	0.25	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Banda Aceh, Indonesia				For All Surveyed Cities and Municipalities			
Participating City							
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Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	217.94	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	2.87	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	43.59	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	5.00	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	4.60	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	–	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	6.10	2,101.20	90.30	1.5–2,101.2 (27)	154.0
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	76.23	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	0	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	0	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	35.50	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	74.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	48.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	–	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	20	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	20	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	96	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	2.6	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	1	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	95	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	5	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	100	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	0	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	100	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	0	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	110	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (15)	66.7
	National Government	%	0	100.0	0	0–100 (15)	20.0
	Private	%	0	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	50	100.0	50.0	0–100 (13)	53.0
	Private	%	50	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Banda Aceh, Indonesia					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	20	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	45	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	0	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	35	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	36	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	90	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	170.5	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	100	100.00	100.00	100.0 (22)	49.80
		National Government	%	0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	1	6	2	1–6 (5)	2.8
		Local Government	#	1	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	0.46	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	100	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	1	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1995	2007	2000	1947–2007 (23)	1985
		Latest	year	1995	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	2003	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	–				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Banda Aceh, Indonesia				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	0	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	0	100.0	0	0.0–100.0 (17)	32.10
Loans	%	0	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	100	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	0.2	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	0	100.0	100.00	0–100 (17)	57.6
Loans	%	50	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	50	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	0.1	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	0	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	10 (50%)	133	30	4–133 (13)	47.0
Government	$/ST	10 (50%)	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	5	67	45	0–67 (24)	20.8
Household Liquid Waste	%	50	100	60	0–100 (24)	50.8
Industrial Waste	%	10	38	10	0–38 (22)	9.4
Commercial Waste	%	35	35	15	0–35 (22)	8.8
Hospital Waste	%	0	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	2	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	98	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Aceh River, Daroy River				
Basin Area	ha	–				
City Location	u,m,d	Downstream				
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c	Individual				
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	–				
BOD	mg/l	4.72	180	30	2.4–180	28.7
COD	mg/l	17.46	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	61	261	200	1–261	109.7
Heavy Metals	mg/l	0.3	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	154.86	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	1587.71	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	3.07	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	28.91	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Phine District, Lao People's Democratic Republic				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Dr. Ounhuan Suthchalern, Head of Public Health, Head of Sanitation and Environment						
Office	Public Health Office						
Address	Phine District, Savannakhet Province, Lao People's Democratic Republic						
Fax							
Telephone	8560205642497						
E–mail address	cvijaya.k@gmail.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	53.28	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	2.50	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	7.56	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	7.04	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%		724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	42.04	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	269.90	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	1.78	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	0.85	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	94.70	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	0.20	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	6.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	4.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	3.00	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	20.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	11.6	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	27.8	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	26.0	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	5.4	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	26	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	16	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	43.6	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	10	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	90	100.0	87.0	0–100 (15)	75.5
	Type II	%	11	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	89	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	86	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	14	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Phine District, Lao People's Democratic Republic					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	5.45	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	–	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	8.52	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	–	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	19.99	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	9.92	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	80.00	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	85.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	–	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	–	100.00	100.00	100.0 (22)	49.80
		National Government	%	–	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	–	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	1	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	–	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	–	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	–	2007	2000	1947–2007 (23)	1985
		Latest	year	–	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N		17		17 (25)	
		Year Enacted	year	–	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list					
		Future Programs/Projects	list	–				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Phine District, Lao People's Democratic Republic				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	–	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	–	100.0	0	0.0–100.0 (17)	32.10
Loans	%	–	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	–	0	0	0–0 (17)	0
Others	%	–	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	–	47.0	0	0–47 (17)	3.4
Local Government	%	–	100.0	100.00	0–100 (17)	57.6
Loans	%	–	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	–	100.0	50.00	0–100 (17)	24.1
Others	%	–	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	–	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	Y				
Sources of Water Pollution						
Household Solid Waste	%	10	67	45	0–67 (24)	20.8
Household Liquid Waste	%	15	100	60	0–100 (24)	50.8
Industrial Waste	%	–	38	10	0–38 (22)	9.4
Commercial Waste	%	–	35	15	0–35 (22)	8.8
Hospital Waste	%	–	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	Y				
Current Wastewater Disposal						
Own Treatment Plant	%	–	100	2	0–100 (19)	14.6
Central Sewer System	%	–	30	11	0–30 (19)	6.5
No Treatment	%	–	100	100	0–100 (19)	68.6
Others	%	–	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Sedon River				
Basin Area	ha	–				
City Location	u,m,d	–				
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	<1				
BOD	mg/l	5	180	30	2.4–180	28.7
COD	mg/l	50	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.

"–" means data not available.

Sayabouly District, Lao People's Democratic Republic				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Mr. Laksana Keosenghoth, Office Manager						
Office	Water Supply						
Address	Sayabouly Water Supply State Enterprise						
Fax	74211056						
Telephone	74211056						
E–mail address	cvijaya.k@gmail.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	74.41	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	2.10	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	12.66	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	5.88	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	–	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	27.49	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	391.60	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%	10.00	69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	0.79	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	14.99	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	74.20	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	0.20	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	6.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	4.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	3.00	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	2.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	10	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	30	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	17.8	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	18.8	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	17.8	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	13.3	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	–	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	29.6	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	–	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	–	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	13	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	87	100.0	87.0	0–100 (15)	75.5
	Type II	%	20	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	80	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	92	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	8	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Sayabouly District, Lao People's Democratic Republic					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	18.83	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0.02	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	26.89	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	12.47	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	30.34	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	11.46	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	80.00	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	80.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	–	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	–	100.00	100.00	100.0 (22)	49.80
		National Government	%	–	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	–	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	1	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	0.4	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	–	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	2007	2007	2000	1947–2007 (23)	1985
		Latest	year	2007	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	N	17		17 (25)	
		Year Enacted	year	–	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list					
		Future Programs/Projects	list	–				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Sayabouly District, Lao People's Democratic Republic					For All Surveyed Cities and Municipalities			
Capital Investment		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment							
	Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund							
	National Government	%	–	80.0	0	0.0–80.0 (17)	23.70
	Local Government	%	–	100.0	0	0.0–100.0 (17)	32.10
	Loans	%	–	80.0	0	0.0–80.0 (18)	18.90
	Tariff Revenue	%	–	0	0	0–0 (17)	0
	Others	%	–	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost							
	Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund							
	National Government	%	–	47.0	0	0–47 (17)	3.4
	Local Government	%	–	100.0	100.00	0–100 (17)	57.6
	Loans	%	–	53.0	50.00	0–53 (17)	9.0
	Tariff Revenue	%	–	100.0	50.00	0–100 (17)	24.1
	Others	%	–	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees							
Total Revenue		$/cap	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges							
	Connection Charge	$/connection	2	80	18.3	18.25–80 (5)	55.7
	Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee							
	Private	$/ST	18	133	30	4–133 (13)	47.0
	Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees		$					
Environmental Situation		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution							
	Water Quality Monitored	Y/N	Y	20			
Sources of Water Pollution							
	Household Solid Waste	%	10	67	45	0–67 (24)	20.8
	Household Liquid Waste	%	15	100	60	0–100 (24)	50.8
	Industrial Waste	%	–	38	10	0–38 (22)	9.4
	Commercial Waste	%	–	35	15	0–35 (22)	8.8
	Hospital Waste	%	–	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater		Y/N					
Current Wastewater Disposal							
	Own Treatment Plant	%	–	100	2	0–100 (19)	14.6
	Central Sewer System	%	–	30	11	0–30 (19)	6.5
	No Treatment	%	–	100	100	0–100 (19)	68.6
	Others	%	–	50	1	0–50 (19)	10.3
	Description	list	–				
Within River Basin		Y/N					
	River Basin/Major River Name	name	–				
	Basin Area	ha	–				
	City Location	u,m,d	–				
Adjoining Town							
	Pollution Load	vh–vl					
	Sanitation Work/Plan	i/c					
Environmental Statistics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality							
Surface Water							
	Total Coliform	#/ml	10				
	BOD	mg/l	5	180	30	2.4–180	28.7
	COD	mg/l	50	973	80	7.1–973	122.5
	Total Suspended Solids	mg/l	1.8	261	200	1–261	109.7
	Heavy Metals	mg/l	0	0.3	0.25	0.001–0.3	0.17
Health Statistics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases							
Reported Cases (per 10,000 population)							
	Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
	Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
	Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
	Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
	Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
	Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)							
	Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
	Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
	Trachoma	#	–	0		0–0 (6)	0
	Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
	Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
	Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Xieng Ngeun District, Lao People's Democratic Republic				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Mr. Kongsine Soulith, Toilet and Water Provider						
Office	District Public Health						
Address	Xieng Ngeun District, Lao People's Democratic Republic						
Fax							
Telephone	+856071253589						
E–mail address	cvijaya.k@gmail.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	33.64	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	2.90	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	5.52	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	6.09	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%		724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	30.01	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	121.00	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	4.13	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	2.48	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	86.80	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	0.30	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	8.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	8.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	5.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	2.5	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	6.6	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	27.4	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	17.4	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	27	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	2	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0.5	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	27.4	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0.3	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	1	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	99	100.0	87.0	0–100 (15)	75.5
	Type II	%	16	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	84	100.0	100.0	0–100 (21)	85.4
	Type III	%	20	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	80	100.0	100.0	0–100 (14)	87.8
	Type IV	%	79	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	21	100.0	99.0	0–100 (18)	66.9
	Type V	%	33	100.0	82.0	33–100 (2)	66.7
	Type Va	%	67	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	100	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Xieng Ngeun District, Lao People's Democratic Republic					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	17.21	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0.14	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	0.04	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	52.62	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	20.00	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	10.00	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	70.00	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	80.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	–	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	–	100.00	100.00	100.0 (22)	49.80
		National Government	%	–	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	–	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	2	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	100.77	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	15.6	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	84.4	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	–	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	–	2007	2000	1947–2007 (23)	1985
		Latest	year	–	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	N	17		17 (25)	
		Year Enacted	year	–	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	2007	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	2007				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list					
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Xieng Ngeun District, Lao People's Democratic Republic				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	70	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	30	100.0	0	0.0–100.0 (17)	32.10
Loans	%	0	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	–	47.0	0	0–47 (17)	3.4
Local Government	%	–	100.0	100.00	0–100 (17)	57.6
Loans	%	–	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	–	100.0	50.00	0–100 (17)	24.1
Others	%	–	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	8	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	30 (100%)	133	30	4–133 (13)	47.0
Government	$/ST	18 (0%)	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N		20			
Sources of Water Pollution						
Household Solid Waste	%	50	67	45	0–67 (24)	20.8
Household Liquid Waste	%	20	100	60	0–100 (24)	50.8
Industrial Waste	%	0	38	10	0–38 (22)	9.4
Commercial Waste	%	0	35	15	0–35 (22)	8.8
Hospital Waste	%	10	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N					
Current Wastewater Disposal						
Own Treatment Plant	%	–	100	2	0–100 (19)	14.6
Central Sewer System	%	–	30	11	0–30 (19)	6.5
No Treatment	%	–	100	100	0–100 (19)	68.6
Others	%	–	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N					
River Basin/Major River Name	name	–				
Basin Area	ha	–				
City Location	u,m,d					
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c	Individual				
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	1				
BOD	mg/l	5	180	30	2.4–180	28.7
COD	mg/l	50	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.

"–" means data not available.

Bharatpur, Nepal				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Narayan Prasad Laudari, Section Head						
Office	Social Welfare Section/Bharatpur Municipality Office						
Address	Bharatpur–10, Chitwan, Nepal						
Fax	97756520014						
Telephone	97756520167						
E–mail address	bmc@ntc.net.np						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	89.32	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	7.10	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	19.92	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.48	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%		724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	9.46	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	7.70	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	21.99	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	3.23	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	58.20	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	5.56	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	11.60	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	30.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	14.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	4.90	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	6.90	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	18.00	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	7.8	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	58.2	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	56.2	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	75	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0.2	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	20.1	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	5	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	0	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	100	100.0	100.0	0–100 (21)	85.4
	Type III	%	0	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	100	100.0	100.0	0–100 (14)	87.8
	Type IV	%	100	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	0	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	100	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	0	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Bharatpur, Nepal					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	35.14	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	21.08	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	0	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	43.78	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	50.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	17.60	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	0	100.00	100.00	100.0 (22)	49.80
		National Government	%	100.00	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	1	4	2	1–4 (21)	1.7
		State-Owned Utility	#	2	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	5.15	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	1	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1996	2007	2000	1947–2007 (23)	1985
		Latest	year	1996	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	1999	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	Lack of sanitary urban facilities				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Bharatpur, Nepal				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	8	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	62	100.0	0	0.0–100.0 (17)	32.10
Loans	%	30	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	0.7	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	50	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	50	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	4,200	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	1	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	Y	20			
Sources of Water Pollution						
Household Solid Waste	%	50	67	45	0–67 (24)	20.8
Household Liquid Waste	%	50	100	60	0–100 (24)	50.8
Industrial Waste	%	0	38	10	0–38 (22)	9.4
Commercial Waste	%	0	35	15	0–35 (22)	8.8
Hospital Waste	%	0	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	100	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Narayani				
Basin Area	ha	–				
City Location	u,m,d	Midstream				
Adjoining Town						
Pollution Load	vh–vl					
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	–				
BOD	mg/l	–	180	30	2.4–180	28.7
COD	mg/l	–	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	594.14	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	39.16	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	452.48	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Hetauda, Nepal				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Mr. Dhurba Bahadur Bhujel, Section Officer						
Office	Social Welfare Hetauda Municipality						
Address	Hetauda Municipality, Hetauda Makawanpur, Nepal						
Fax	57520044						
Telephone	57520433						
E–mail address	Drb–bhu62@yahoo.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	68.43	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	4.51	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	14.27	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.80	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	2.00	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	14.61	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	4.60	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	10.99	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	54.84	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	25.00	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	2.20	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	15.00	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	72.30	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	36.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	3.80	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	7.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	100.00	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	4.4	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	11	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	35.2	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	80	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	1.4	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0.7	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	18	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	0	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	100	100.0	100.0	0–100 (21)	85.4
	Type III	%	0	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	100	100.0	100.0	0–100 (14)	87.8
	Type IV	%	0	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	100	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	100	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	0	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	63.86	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	0	100.0	100.0	0–100 (20)	49.8
	National Government	%	100	100.0	100.0	0–100 (20)	45.0
	Private	%	0	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Hetauda, Nepal					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	35.04	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0.15	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	1.60	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	63.21	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	40.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	14.00	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	0	100.00	100.00	100.0 (22)	49.80
		National Government	%	100.00	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	–	4	2	1–4 (21)	1.7
		State-Owned Utility	#	1	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	–	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	1	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1993	2007	2000	1947–2007 (23)	1985
		Latest	year	1993	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	1999	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	Poor cannot afford basic sanitation services				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Hetauda, Nepal				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	8	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	62	100.0	0	0.0–100.0 (17)	32.10
Loans	%	30	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	0.9	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	50	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	50	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	22	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	1	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	30	67	45	0–67 (24)	20.8
Household Liquid Waste	%	60	100	60	0–100 (24)	50.8
Industrial Waste	%	10	38	10	0–38 (22)	9.4
Commercial Waste	%	0	35	15	0–35 (22)	8.8
Hospital Waste	%	0	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	95	100	100	0–100 (19)	68.6
Others	%	5	50	1	0–50 (19)	10.3
Description	list	Hetauda Industrial Area has a small wastewater tre				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Rapti and Karra				
Basin Area	ha	–				
City Location	u,m,d	Downstream				
Adjoining Town						
Pollution Load	vh–vl					
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Ground Water						
Total Coliform	CFU/ml	65				
Mercury	mg/l	0.001				
Lead	mg/l	0.01				
Copper	mg/l	0.02				
Arsenic	mg/l	0.005				
Others	%	–				
Surface Water						
Total Coliform	#/ml	–				
BOD	mg/l	–	180	30	2.4–180	28.7
COD	mg/l	–	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Kathmandu, Nepal				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Rabin Man Shresta, Chief						
Office	Environment Management Department						
Address	Kha 1–916, Old Baneswor, Kathmandu, Nepal						
Fax	97714268509						
Telephone	97714242148						
E–mail address	rms916@hotmail.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	671.80	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	4.53	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	152.16	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.42	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	7.40	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	–	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	5.10	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	14.19	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	43.69	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	36.70	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	132.60	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	426.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	138.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	113.00	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	110.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	92	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	100	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	67.1	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	100	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	67	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	33	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	0	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	100	100.0	87.0	0–100 (15)	75.5
	Type II	%	100	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	0	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	–	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	–	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	20000	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	0	100.0	100.0	0–100 (20)	49.8
	National Government	%	100	100.0	100.0	0–100 (20)	45.0
	Private	%	0	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	50	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	0	100.0	100.0	0–100 (15)	66.7
	National Government	%	100	100.0	0	0–100 (15)	20.0
	Private	%	0	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	30	100.0	50.0	0–100 (13)	53.0
	Private	%	70	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Kathmandu, Nepal					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	100	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	0	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	0	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	40	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	90	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	270.9	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	0	100.00	100.00	100.0 (22)	49.80
		National Government	%	100	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	2	6	2	1–6 (5)	2.8
		Local Government	#	2	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	0.46	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	4	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1987	2007	2000	1947–2007 (23)	1985
		Latest	year	1999	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	1990	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	Wastewater directly discharged into the river.				
		Future Programs/Projects	list	–				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Kathmandu, Nepal				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	–	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	–	100.0	0	0.0–100.0 (17)	32.10
Loans	%	–	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	–	0	0	0–0 (17)	0
Others	%	–	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	–	47.0	0	0–47 (17)	3.4
Local Government	%	–	100.0	100.00	0–100 (17)	57.6
Loans	%	–	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	–	100.0	50.00	0–100 (17)	24.1
Others	%	–	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	0	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	30 (70%)	133	30	4–133 (13)	47.0
Government	$/ST	20 (30%)	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	Y	20			
Sources of Water Pollution						
Household Solid Waste	%	20	67	45	0–67 (24)	20.8
Household Liquid Waste	%	80	100	60	0–100 (24)	50.8
Industrial Waste	%	0	38	10	0–38 (22)	9.4
Commercial Waste	%	0	35	15	0–35 (22)	8.8
Hospital Waste	%	0	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	Y				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	100	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Bagmati, Bishnumati, Dhobikhola				
Basin Area	ha	–				
City Location	u,m,d	Midstream				
Adjoining Town						
Pollution Load	vh–vl	Heavy				
Sanitation Work/Plan	i/c	Individual				
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	2400000				
BOD	mg/l	36	180	30	2.4–180	28.7
COD	mg/l	207	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	0.05	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	142.23	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	23.79	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	0.01	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	567.15	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	2.45	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	7.56	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	2	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	1598	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	0	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	0	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	1	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	5	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Lekhnath Municipality, Nepal				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Shaligram Paudel, Chairperson						
Office	Lekhnath Water Supply & Sanitation Users Committee						
Address	Lekhnath Chowk 3, Kashki, Nepal						
Fax							
Telephone	9779856022177						
E–mail address	lekhnathws@fewanet.com.np						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	41.37	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	3.23	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	9.36	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.42	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	0	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	2.81	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	7.90	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	23.43	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	0	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	0	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	35.96	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	5.20	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	10.50	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	4.20	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	–	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	65.1	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	71.8	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	50	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0.1	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	22.2	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	28	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	0	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	100	100.0	100.0	0–100 (21)	85.4
	Type III	%	0	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	100	100.0	100.0	0–100 (14)	87.8
	Type IV	%	0	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	100	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	100	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	0	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	100	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Lekhnath Municipality, Nepal					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	65.47	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	6.36	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	0.72	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	27.46	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	40.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	120.90	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	0	100.00	100.00	100.0 (22)	49.80
		National Government	%	100.00	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	–	4	2	1–4 (21)	1.7
		State-Owned Utility	#	1	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	3.14	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	1	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1993	2007	2000	1947–2007 (23)	1985
		Latest	year	1993	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	1999	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	2008	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	0.0	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	0.6	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	Pokhara Valley Town Dev Com and Lekhnath Municipal				
	Sanitation Problem	Major Sanitation Problem	list	No sewer and waste water treatment facilities				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Lekhnath Municipality, Nepal				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	1	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	80	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	20	100.0	0	0.0–100.0 (17)	32.10
Loans	%	0	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	0.2	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	60	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	40	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	595	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	33 (100%)	133	30	4–133 (13)	47.0
Government	$/ST	0	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	50	67	45	0–67 (24)	20.8
Household Liquid Waste	%	50	100	60	0–100 (24)	50.8
Industrial Waste	%	0	38	10	0–38 (22)	9.4
Commercial Waste	%	0	35	15	0–35 (22)	8.8
Hospital Waste	%	0	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	100	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Seti Gandakii				
Basin Area	ha	–				
City Location	u,m,d	Upstream				
Adjoining Town						
Pollution Load	vh–vl	Heavy				
Sanitation Work/Plan	i/c	Individual				
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	–				
BOD	mg/l	–	180	30	2.4–180	28.7
COD	mg/l	–	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	194.11	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	0	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	0	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	95.98	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	0.12	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	0	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	0	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	0	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	0	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	0	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	0	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	0	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Pokhara, Nepal				For All Surveyed Cities and Municipalities			
Participating City							
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E–mail address	destinies25@yahoo.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	214.00	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	4.95	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	44.51	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.81	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	30.00	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	25.00	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	5.60	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	35.01	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	20.00	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	15.00	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	10.01	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	38.50	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	67.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	33.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	29.00	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	26.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	39.00	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	70	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	62.4	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	100	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	0	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	100	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	–	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	–	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	45	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	75	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (15)	66.7
	National Government	%	0	100.0	0	0–100 (15)	20.0
	Private	%	0	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Pokhara, Nepal					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	54.57	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	7.82	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	37.61	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	0	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	90.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	–	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	–	100.00	100.00	100.0 (22)	49.80
		National Government	%	–	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	–	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	1	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	6.26	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	–	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	–	2007	2000	1947–2007 (23)	1985
		Latest	year	–	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N		17		17 (25)	
		Year Enacted	year	–	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list					
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Pokhara, Nepal				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	0.5	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	0	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	100	100.0	0	0.0–100.0 (17)	32.10
Loans	%	0	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	0.1	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	100	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	0	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	3,480	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m³	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	32	133	30	4–133 (13)	47.0
Government	$/ST	23	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	Y	20			
Sources of Water Pollution						
Household Solid Waste	%	–	67	45	0–67 (24)	20.8
Household Liquid Waste	%	–	100	60	0–100 (24)	50.8
Industrial Waste	%	–	38	10	0–38 (22)	9.4
Commercial Waste	%	–	35	15	0–35 (22)	8.8
Hospital Waste	%	–	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	100	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Seti Gandakii				
Basin Area	ha	–				
City Location	u,m,d					
Adjoining Town						
Pollution Load	vh–vl	Very Low				
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	CFU/100ml	291				
BOD	mg/l	22.5	180	30	2.4–180	28.7
COD	mg/l	95	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	61	261	200	1–261	109.7
Heavy Metals		–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	179.49	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	53.88	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	97.31	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	409.58	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	1.78	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	0.23	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	1153	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; CFU = colony forming unit; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m³ = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Calbayog, Philippines				For All Surveyed Cities and Municipalities			
Participating City							
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Telephone	63552094478						
E–mail address	omhugo_linaw@yahoo.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	150.00	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	1.79	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	28.91	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	5.01	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	1.70	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	4.18	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	90.30	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	46.63	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	0	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	2.00	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0.01	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	1.70	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	11.20	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	6.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	1.20	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	627.00	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	0.5	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	72.6	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	39	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0.1	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	61	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	0	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	100	100.0	100.0	0–100 (21)	85.4
	Type III	%	0	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	100	100.0	100.0	0–100 (14)	87.8
	Type IV	%	88	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	13	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	100	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	0	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	90	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (15)	66.7
	National Government	%	0	100.0	0	0–100 (15)	20.0
	Private	%	0	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	10	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Calbayog, Philippines					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	25.95	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	46.65	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	30.55	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	0.03	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0.02	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	10.00	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	75.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	14.70	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	95.00	100.00	100.00	100.0 (22)	49.80
		National Government	%	0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	5.00	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	3	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	9.8	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	2	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	2000	2007	2000	1947–2007 (23)	1985
		Latest	year	2002	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	N	17		17 (25)	
		Year Enacted	year	–	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	2009	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	0.1	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	0.7	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	General Fund, City Government				
	Sanitation Problem	Major Sanitation Problem	list	Pollution of bodies of water (e.g. rivers, sea, swamps) of wastewater				
		Future Programs/Projects	list	–				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Calbayog, Philippines				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	–	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	–	100.0	0	0.0–100.0 (17)	32.10
Loans	%	–	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	–	0	0	0–0 (17)	0
Others	%	–	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	–	47.0	0	0–47 (17)	3.4
Local Government	%	–	100.0	100.00	0–100 (17)	57.6
Loans	%	–	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	–	100.0	50.00	0–100 (17)	24.1
Others	%	–	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	13,488	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	Y	20			
Sources of Water Pollution						
Household Solid Waste	%	45	67	45	0–67 (24)	20.8
Household Liquid Waste	%	35	100	60	0–100 (24)	50.8
Industrial Waste	%	2	38	10	0–38 (22)	9.4
Commercial Waste	%	15	35	15	0–35 (22)	8.8
Hospital Waste	%	3	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N					
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	99	100	100	0–100 (19)	68.6
Others	%	1	50	1	0–50 (19)	10.3
Description	list	Anaerobic baffled reactor				
Within River Basin	Y/N	N				
River Basin/Major River Name	name	–				
Basin Area	ha	–				
City Location	u,m,d					
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform		–				
BOD	mg/l	168	180	30	2.4–180	28.7
COD	mg/l	973	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	75	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	27.67	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	0	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	0	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	32.34	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	0	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	0	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	7	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	0	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	0	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	4	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	0	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	0	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Makati, Philippines				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Ma. Lourdes B. Salud, MD, MPH , City Health Officer						
Office	Makati Health Department						
Address	7/F Makati City Hall, New Bldg, JP Rizal St., Makati City, Philippines						
Fax	6328958916						
Telephone	6328958962						
E–mail address	health@makati.gov						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	510.38	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	1.91	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	113.42	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.50	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	724.90	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	0.34	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	2.70	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	20.58	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	62.50	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	0	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0.33	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	186.50	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	115.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	438.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	282.00	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	–	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	3,858.00	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	21.5	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	100	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	22.5	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	99.7	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	23	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	77	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	51	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	49	100.0	87.0	0–100 (15)	75.5
	Type II	%	100	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	0	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	–	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	–	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	41451	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	0	100.0	100.0	0–100 (20)	49.8
	National Government	%	0	100.0	100.0	0–100 (20)	45.0
	Private	%	100	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	814	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	0	100.0	100.0	0–100 (15)	66.7
	National Government	%	0	100.0	0	0–100 (15)	20.0
	Private	%	99	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	5	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	100	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Makati, Philippines					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	97.65	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	2.06	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	0	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	0.29	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	10.00	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	–	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	1,371.50	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	0	100.00	100.00	100.0 (22)	49.80
		National Government	%	0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	100.00	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	3	6	2	1–6 (5)	2.8
		Local Government	#	2	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	2	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	–	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	30.96	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	4	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1974	2007	2000	1947–2007 (23)	1985
		Latest	year	2004	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	1997	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	Lack of understanding and appreciation of local pollution laws.				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Makati, Philippines				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	0	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	0	100.0	0	0.0–100.0 (17)	32.10
Loans	%	0	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	100	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	0	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	0	100.0	50.00	0–100 (17)	24.1
Others	%	100	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	2336	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	(100%)	133	30	4–133 (13)	47.0
Government	$/ST	0	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	10	67	45	0–67 (24)	20.8
Household Liquid Waste	%	70	100	60	0–100 (24)	50.8
Industrial Waste	%	5	38	10	0–38 (22)	9.4
Commercial Waste	%	10	35	15	0–35 (22)	8.8
Hospital Waste	%	5	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	88	100	2	0–100 (19)	14.6
Central Sewer System	%	11	30	11	0–30 (19)	6.5
No Treatment	%	1	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Pasig River				
Basin Area	ha	–				
City Location	u,m,d	Midstream				
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c	Cooperative				
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	–				
BOD	mg/l	–	180	30	2.4–180	28.7
COD	mg/l	–	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	55.33	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	0.16	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	0	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	208.27	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	0	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	9.07	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	5	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	8	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	0	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	0	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	0	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	2	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

San Fernando, La Union, Philippines				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Valmar M. Valdez / Dr. Eduardo Posadas, City Environment and Natural Resources Officer						
Office	City Environment and Natural Resources Office						
Address	1st Flr, Marcos Building, City of San Fernando, La Union, Philippines						
Fax	630728886907						
Telephone	630728886901						
E–mail address	valmar_valdez@yahoo.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	114.81	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	1.63	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	24.85	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.62	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	25.00	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	32.84	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	10.50	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	0	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	0	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	78.50	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	10.90	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	37.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	–	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	4.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	25.7	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	47.9	99.7	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	47	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	10.5	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	41.2	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0.9	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	0	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	100	100.0	100.0	0–100 (21)	85.4
	Type III	%	0	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	100	100.0	100.0	0–100 (14)	87.8
	Type IV	%	81	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	19	100.0	99.0	0–100 (18)	66.9
	Type V	%	100	100.0	82.0	33–100 (2)	66.7
	Type Va	%	0	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	81	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	19	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	200	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (20)	49.8
	National Government	%		100.0	100.0	0–100 (20)	45.0
	Private	%		100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	100	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

San Fernando, La Union, Philippines					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	47.89	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	49.16	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	2.96	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	–	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	–	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	–	100.00	100.00	100.0 (22)	49.80
		National Government	%	–	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	–	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	4	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	2.09	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	4	4	3	1–4 (18)	1.9
		Local	#	2	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1972	2007	2000	1947–2007 (23)	1985
		Latest	year	2006	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	N	17		17 (25)	
		Year Enacted	year	–	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	Contamination of ground, surface, and coastal water				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

San Fernando, La Union, Philippines				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	1.2	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	0	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	100	100.0	0	0.0–100.0 (17)	32.10
Loans	%	0	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	0.1	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	100	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	0	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	0	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	133 (100%)	133	30	4–133 (13)	47.0
Government	$/ST	–0	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	–	67	45	0–67 (24)	20.8
Household Liquid Waste	%	–	100	60	0–100 (24)	50.8
Industrial Waste	%	–	38	10	0–38 (22)	9.4
Commercial Waste	%	–	35	15	0–35 (22)	8.8
Hospital Waste	%	–	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	–	100	2	0–100 (19)	14.6
Central Sewer System	%	–	30	11	0–30 (19)	6.5
No Treatment	%	–	100	100	0–100 (19)	68.6
Others	%	–	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	N				
River Basin/Major River Name	name	–				
Basin Area	ha	–				
City Location	u,m,d	–				
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c	Individual				
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	–				
BOD	mg/l	–	180	30	2.4–180	28.7
COD	mg/l	–	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	58.88	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	2.35	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	0	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	134.58	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	0.43	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	0	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	27	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.

"–" means data not available.

Jinghong, People's Republic of China				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Jinghong Urban Investment Company						
Office							
Address	No. 35 North Gaolan Road, Jinghong City, Yunnan, People's Republic of China						
Fax	866912123563						
Telephone	866912145072						
E–mail address	bnzls@yahoo.com.cn						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	376.00	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	0.40	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	125.33	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	3.00	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	10.60	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	–	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	700.30	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	0	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	99.75	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	0	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	0.50	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	76.70	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	–	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	0.30	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0.3	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	0.3	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	3.6	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	3.6	99.7	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	4	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	0	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	100	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	0	100.0	87.0	0–100 (15)	75.5
	Type II	%	–	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	–	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	–	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	–	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	25000	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (20)	49.8
	National Government	%	0	100.0	100.0	0–100 (20)	45.0
	Private	%	0	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	100	100.0	50.0	0–100 (13)	53.0
	Private	%	0	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Jinghong, People's Republic of China					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	3.59	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	0	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	96.41	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	–	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	133.00	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	100	100.00	100.00	100.0 (22)	49.80
		National Government	%	0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	1	4	2	1–4 (21)	1.7
		State-Owned Utility	#	2	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	9.76	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	23.4	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	76.6	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	1	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1993	2007	2000	1947–2007 (23)	1985
		Latest	year	2002	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	N	17		17 (25)	
		Year Enacted	year	–	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	Increase in pollution due to increased development				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Jinghong, People's Republic of China				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	–	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	–	100.0	0	0.0–100.0 (17)	32.10
Loans	%	60	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	–	0	0	0–0 (17)	0
Others	%	–	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	–	47.0	0	0–47 (17)	3.4
Local Government	%	–	100.0	100.00	0–100 (17)	57.6
Loans	%	–	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	–	100.0	50.00	0–100 (17)	24.1
Others	%	–	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	0	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m³	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	0	133	30	4–133 (13)	47.0
Government	$/ST	(100%)	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	12	67	45	0–67 (24)	20.8
Household Liquid Waste	%	38	100	60	0–100 (24)	50.8
Industrial Waste	%	34	38	10	0–38 (22)	9.4
Commercial Waste	%	11	35	15	0–35 (22)	8.8
Hospital Waste	%	5	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	–	100	2	0–100 (19)	14.6
Central Sewer System	%	–	30	11	0–30 (19)	6.5
No Treatment	%	–	100	100	0–100 (19)	68.6
Others	%	–	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Lancang River, Liusha River				
Basin Area	ha	709300				
City Location	u,m,d	Downstream				
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/l	40				
BOD	mg/l	180	180	30	2.4–180	28.7
COD	mg/l	360	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	250	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m³ = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Kunming, People's Republic of China				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	He Xingmin, Director General						
Office	Kunming Municipal Environment Protection Bureau						
Address	No 52 North of Xiyuan Road, Kunming City, Yunnan, People's Republic of China						
Fax	8.68714E+11						
Telephone	8.68714E+11						
E–mail address	cvijaya.k@gmail.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	6,155.60	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	0.62	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	1,531.94	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	3.97	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	18.10	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	1.34	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	2,101.20	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%	0.50	69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	1.01	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	0	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	98.50	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	2.90	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	163.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	24.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	1.90	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0.4	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	0.9	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	100.0	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	90.8	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	100	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	0	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	100	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	0	100.0	87.0	0–100 (15)	75.5
	Type II	%	–	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	–	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	–	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	–	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	962.2	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (20)	49.8
	National Government	%	0	100.0	100.0	0–100 (20)	45.0
	Private	%	0	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	100	100.0	50.0	0–100 (13)	53.0
	Private	%	0	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Kunming, People's Republic of China					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	90.80	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	0	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	9.20	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80.00 (18)	20.70
		Average Water Consumption	lpcd	–	160.00	135.00	40–160.00 (20)	97.10
		Water Treatment Facilities	lpcd	19.74	1,371.50	197.40	14.0–1,371.50(22)	11.80
		Local Government	%	100.00	100.00	100.00	100.00 (22)	49.80
		National Government	%	0	100.00	100.00	0–100.00 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100.00 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	3	4	2	1–4 (21)	1.7
		State-Owned Utility	#	1	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	–	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance			100	100	76.60–100.00 (4)	87.1
	Private Sector		#	–				
		Total Personnel (per 10,000 pop'n)			30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	#	3		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	3	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1984	2007	2000	1947–2007 (23)	1985
		Latest	year	2002	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	2002	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.70 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	Wastewater treatment can't meet requirements.				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Kunming, People's Republic of China				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	0	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	30	100.0	0	0.0–100.0 (17)	32.10
Loans	%	0	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	70	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	10	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	90	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	0	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	– (0)	133	30	4–133 (13)	47.0
Government	$/ST	– (100)	30	22	3.5–30 (13)	18.0
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	Y	20			
Sources of Water Pollution						
Household Solid Waste	%	0	67	45	0–67 (24)	20.8
Household Liquid Waste	%	50	100	60	0–100 (24)	50.8
Industrial Waste	%	10	38	10	0–38 (22)	9.4
Commercial Waste	%	0	35	15	0–35 (22)	8.8
Hospital Waste	%	40	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	Y				
Current Wastewater Disposal						
Own Treatment Plant	%	100	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	0	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Jinsha River				
Basin Area	ha	292000				
City Location	u,m,d	Upstream				
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/l	–				
BOD	mg/l	10.68	180	30	2.4–180	28.7
COD	mg/l	67.38	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Puer, People's Republic of China				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Yin Lu						
Office	Pure Water Supply Plant						
Address							
Fax	8.68792E+11						
Telephone	8.68792E+11						
E–mail address	Liren.6666@yahoo.com.cn						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	256.23	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	0.60	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	78.90	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	3.25	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	5.70	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	2.69	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	22.70	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	17.67	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	44.45	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	21.10	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	11.30	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	39.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	–	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	–	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	18.5	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	9.6	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	57.2	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	57.2	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	57	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	43	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0.1	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	100	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	0	100.0	87.0	0–100 (15)	75.5
	Type II	%	100	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	0	100.0	100.0	0–100 (21)	85.4
	Type III	%	100	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	0	100.0	100.0	0–100 (14)	87.8
	Type IV	%	–	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	–	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m^3/d	20000	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (20)	49.8
	National Government	%	0	100.0	100.0	0–100 (20)	45.0
	Private	%	0	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m^3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	12	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	100	100.0	50.0	0–100 (13)	53.0
	Private	%	0	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Puer, People's Republic of China					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	57.17	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	42.83	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	0	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	–	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	136.60	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	100.00	100.00	100.00	100.0 (22)	49.80
		National Government	%	0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	2	4	2	1–4 (21)	1.7
		State-Owned Utility	#	2	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	10.15	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	12.70	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	87.30	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	1	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1994	2007	2000	1947–2007 (23)	1985
		Latest	year	2002	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	N	17		17 (25)	
		Year Enacted	year	–	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list					
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Puer, People's Republic of China				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	27.9	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	47	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	0	100.0	0	0.0–100.0 (17)	32.10
Loans	%	53	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	47	47.0	0	0–47 (17)	3.4
Local Government	%	0	100.0	100.00	0–100 (17)	57.6
Loans	%	53	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	0	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	3.2	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	0	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m^3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	0	133	30	4–133 (13)	47.0
Government	$/ST	(100%)	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	–	67	45	0–67 (24)	20.8
Household Liquid Waste	%	–	100	60	0–100 (24)	50.8
Industrial Waste	%	–	38	10	0–38 (22)	9.4
Commercial Waste	%	–	35	15	0–35 (22)	8.8
Hospital Waste	%	–	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	29	30	11	0–30 (19)	6.5
No Treatment	%	71	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Langcang River				
Basin Area	ha	5,000				
City Location	u,m,d	Midstream				
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c	Individual				
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	MPN/100 ml	–				
BOD	mg/l	–	180	30	2.4–180	28.7
COD	mg/l	–	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Colombo, Sri Lanka				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Engr. SGVDH Gunasekera, Director Engineering (Water Supply and Drainage Division)						
Office	Water Supply and Drainage Division / Municipal Engineering						
Address	Colombo Municipal Council, Town Hall, Colombo–07, Sri Lanka						
Fax	94112692696						
Telephone	94112674809						
E–mail address	munici@slt.lk						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	647.10	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	0.40	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	119.16	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	6.00	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	61.80	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	46.36	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	3.70	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%		76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	–	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	–	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	–	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	173.90	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	174.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	–	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	–	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	80	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	100	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	80.0	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	100	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	80	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	0	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	18	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	2	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	0	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	100	100.0	87.0	0–100 (15)	75.5
	Type II	%	–	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	–	100.0	100.0	0–100 (21)	85.4
	Type III	%	0	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	100	100.0	100.0	0–100 (14)	87.8
	Type IV	%	0	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	100	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Colombo, Sri Lanka					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	83.71	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	16.29	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	0	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	0	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	1	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	120.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	1,052.40	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	0	100.00	100.00	100.0 (22)	49.80
		National Government	%	100	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	1	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	–	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	1	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	1947	2007	2000	1947–2007 (23)	1985
		Latest	year	1980	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N		17		17 (25)	
		Year Enacted	year	–	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	100-year old sewer system needs rehabilitation.				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Colombo, Sri Lanka				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	7.2	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	0	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	100	100.0	0	0.0–100.0 (17)	32.10
Loans	%	0	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	0	100.0	100.0	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	8.3	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	100	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	0	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	19409	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	10	67	45	0–67 (24)	20.8
Household Liquid Waste	%	20	100	60	0–100 (24)	50.8
Industrial Waste	%	38	38	10	0–38 (22)	9.4
Commercial Waste	%	15	35	15	0–35 (22)	8.8
Hospital Waste	%	17	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	–	100	2	0–100 (19)	14.6
Central Sewer System	%	–	30	11	0–30 (19)	6.5
No Treatment	%	–	100	100	0–100 (19)	68.6
Others	%	–	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	N				
River Basin/Major River Name	name	–				
Basin Area	ha	–				
City Location	u,m,d					
Adjoining Town						
Pollution Load	vh–vl	Heavy				
Sanitation Work/Plan	i/c	Cooperative				
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	MPN/100ml	–				
BOD	mg/l	48	180	30	2.4–180	28.7
COD	mg/l	75	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	83.3	261	200	1–261	109.7
Heavy Metals	mg/l	16.7	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	0.73	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	0.71	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	1.07	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	46	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Negombo, Sri Lanka				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Dr. Charles Lakshman Wijesooriya, MOH						
Office	Health						
Address	Municipal Council Negombo, Sri Lanka						
Fax	312222420						
Telephone	312224467						
E–mail address	negmayor@sltnet.lk						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	167.44	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	2.48	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	32.98	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	5.00	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	32.10	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	10.00	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	3.10	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%	–	69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	–	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	–	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	–	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	–	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	50.40	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	3,166.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	–	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	–	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	30	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	30	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	60	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	20	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	20	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	100	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	0	100.0	100.0	0–100 (21)	85.4
	Type III	%	0	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	100	100.0	100.0	0–100 (14)	87.8
	Type IV	%	50	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	50	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	100	100.0	50.0	0–100 (13)	53.0
	Private	%	0	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Negombo, Sri Lanka					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	27.00	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	3.00	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	60.00	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	4.95	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0.10	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	4.95	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	25.00	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	–	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	131.50	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	0	100.00	100.00	100.0 (22)	49.80
		National Government	%	100.00	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	2	6	2	1–6 (5)	2.8
		Local Government	#	–	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	–	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	–	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	–	2007	2000	1947–2007 (23)	1985
		Latest	year	–	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	N	17		17 (25)	
		Year Enacted	year	–	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	No septage/sewage treatment facility.				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Negombo, Sri Lanka				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	–	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	–	100.0	0	0.0–100.0 (17)	32.10
Loans	%	–	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	–	0	0	0–0 (17)	0
Others	%	–	100.0	100.0	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	–	47.0	0	0–47 (17)	3.4
Local Government	%	–	100.0	100.00	0–100 (17)	57.6
Loans	%	–	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	–	100.0	50.00	0–100 (17)	24.1
Others	%	–	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	989	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	0	133	30	4–133 (13)	47.0
Government	$/ST	10 (100%)	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	67	67	45	0–67 (24)	20.8
Household Liquid Waste	%	0	100	60	0–100 (24)	50.8
Industrial Waste	%	8	38	10	0–38 (22)	9.4
Commercial Waste	%	25	35	15	0–35 (22)	8.8
Hospital Waste	%	0	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N					
Current Wastewater Disposal						
Own Treatment Plant	%	–	100	2	0–100 (19)	14.6
Central Sewer System	%	–	30	11	0–30 (19)	6.5
No Treatment	%	–	100	100	0–100 (19)	68.6
Others	%	–	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Maha Oya				
Basin Area	ha	–				
City Location	u,m,d	Downstream				
Adjoining Town						
Pollution Load	vh–vl	Medium				
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	MPN/100ML	10,200				
BOD	mg/l	6	180	30	2.4–180	28.7
COD	mg/l	22	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	0.64	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	0.13	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	0.13	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	0	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	2	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Cam Ranh, Viet Nam				For All Surveyed Cities and Municipalities			
Participating City							
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E–mail address	cadoco@gmail.com						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	90.90	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	1.80	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	18.26	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.97	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%		724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	15.12	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	68.80	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%		76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	–	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	–	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	–	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	1.30	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	–	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	–	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	–	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	35	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	35.1	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	62	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	25	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	13	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	0	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	100	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	0	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	100	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	0	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	100	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	10	100.0	50.0	0–100 (13)	53.0
	Private	%	90	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Cam Ranh, Viet Nam					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	27.14	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	8.00	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	12.91	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	5.94	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	45.52	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0.49	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	122.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	66.0	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	0	100.00	100.00	100.0 (22)	49.80
		National Government	%	100.00	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	–	4	2	1–4 (21)	1.7
		State-Owned Utility	#	1	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	–	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	2	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	2003	2007	2000	1947–2007 (23)	1985
		Latest	year	2007	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	2003	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list					
		Future Programs/Projects	list	–				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Cam Ranh, Viet Nam				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	–	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	–	100.0	0	0.0–100.0 (17)	32.10
Loans	%	–	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	–	0	0	0–0 (17)	0
Others	%	–	100.0	100.0	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	–	47.0	0	0–47 (17)	3.4
Local Government	%	–	100.0	100.00	0–100 (17)	57.6
Loans	%	–	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	–	100.0	50.00	0–100 (17)	24.1
Others	%	–	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	1460	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	(90%)	133	30	4–133 (13)	47.0
Government	$/ST	22 (10%)	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	0	67	45	0–67 (24)	20.8
Household Liquid Waste	%	100	100	60	0–100 (24)	50.8
Industrial Waste	%	0	38	10	0–38 (22)	9.4
Commercial Waste	%	0	35	15	0–35 (22)	8.8
Hospital Waste	%	0	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	Y				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	100	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	N				
River Basin/Major River Name	name	–				
Basin Area	ha	–				
City Location	u,m,d					
Adjoining Town						
Pollution Load	vh–vl					
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	–				
BOD	mg/l	–	180	30	2.4–180	28.7
COD	mg/l	–	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Ho Chi Minh, Viet Nam				For All Surveyed Cities and Municipalities			
Participating City							
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E–mail address	piuvie1702@hcm.vnn.vn						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	6,651.00	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	3.2	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	1,602.64	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.12	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	–	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	3.75	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	209.50	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%	–	69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	0	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	0	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	76.40	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0.16	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	31.70	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	108.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	–	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	7.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	732.00	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	31	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	45.6	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	37.5	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	0	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	–	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	–	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	–	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	–	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m3/d	141,000	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	100	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Ho Chi Minh, Viet Nam					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	37.48	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	–	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	–	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	–	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	–	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	–	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	150.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	185.80	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	–	100.00	100.00	100.0 (22)	49.80
		National Government	%	–	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	–	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	6	6	2	1–6 (5)	2.8
		Local Government	#	1	4	2	1–4 (21)	1.7
		State-Owned Utility	#	–	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	–	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	1	4	3	1–4 (18)	1.9
		Local	#	3	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	2006	2007	2000	1947–2007 (23)	1985
		Latest	year	2007	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	2003	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	Wastewater discharged into canals and rivers.				
		Future Programs/Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Ho Chi Minh, Viet Nam				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	0	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	0	100.0	0	0.0–100.0 (17)	32.10
Loans	%	0	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	100	100.0	100.0	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	0.9	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	0	47.0	0	0–47 (17)	3.4
Local Government	%	100	100.0	100.00	0–100 (17)	57.6
Loans	%	0	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	0	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	–	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST		133	30	4–133 (13)	47.0
Government	$/ST	–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	5	67	45	0–67 (24)	20.8
Household Liquid Waste	%	60	100	60	0–100 (24)	50.8
Industrial Waste	%	25	38	10	0–38 (22)	9.4
Commercial Waste	%	5	35	15	0–35 (22)	8.8
Hospital Waste	%	5	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	80	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	20	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Sai Gon–Dong Nai				
Basin Area	ha	4,826,800				
City Location	u,m,d	Downstream				
Adjoining Town						
Pollution Load	vh–vl	Heavy				
Sanitation Work/Plan	i/c	Individual				
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	MPN/100ml	22,000				
BOD	mg/l	4.5	180	30	2.4–180	28.7
COD	mg/l	10.83	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	261.00	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	10.1	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	0.22	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	2.96	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	15,781.92	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	0.18	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	0.09	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	1	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	149	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	0	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	8	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	0	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	0	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Hue, Viet Nam				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Nguyen Nhien, Director of BOFA						
Office	BOFA						
Address	01 Le Hong Phong						
Fax	8454220445						
Telephone	8454220444						
E–mail address	info@doingoal.org						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	327.80	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	1.25	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	64.20	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	5.10	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%	20.00	724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	30.00	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	7.10	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%	14.06	76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	9.14	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	6.40	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	0.70	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	46.10	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	60.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	50.00	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	20.00	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	30.00	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	40.00	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	100	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	84.3	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	49.8	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	98	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	50	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	38	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0.1	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	12	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	47	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	53	100.0	87.0	0–100 (15)	75.5
	Type II	%	41	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	59	100.0	100.0	0–100 (21)	85.4
	Type III	%	100	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	0	100.0	100.0	0–100 (14)	87.8
	Type IV	%	–	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	–	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	0	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	100	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	99	100.0	50.0	0–100 (13)	53.0
	Private	%	1	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Hue, Viet Nam					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	91.90	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	6.07	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	2.02	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	0	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	0	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	15.00	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	–	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	457.60	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	–	100.00	100.00	100.0 (22)	49.80
		National Government	%	–	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	–	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	1	4	2	1–4 (21)	1.7
		State-Owned Utility	#	1	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	36.3	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	43.7	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	1	4	3	1–4 (18)	1.9
		Local	#	–	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	2005	2007	2000	1947–2007 (23)	1985
		Latest	year	2005	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	2007	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	N	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	2008	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	250.0	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	762.7	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	JBIC				
	Sanitation Problem	Major Sanitation Problem	list	Rivers/lakes water pollution				
		Future Programs and/or Projects	list	null				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Hue, Viet Nam				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	3.7	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	0	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	0	100.0	0	0.0–100.0 (17)	32.10
Loans	%	0	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	0	0	0	0–0 (17)	0
Others	%	100	100.0	100.0	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	3.7	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	10	47.0	0	0–47 (17)	3.4
Local Government	%	10	100.0	100.00	0–100 (17)	57.6
Loans	%	50	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	30	100.0	50.00	0–100 (17)	24.1
Others	%	0	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	9.2	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	3898	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	4.0 (1%)	133	30	4–133 (13)	47.0
Government	$/ST	3.5 (99%)	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	50	67	45	0–67 (24)	20.8
Household Liquid Waste	%	36	100	60	0–100 (24)	50.8
Industrial Waste	%	5	38	10	0–38 (22)	9.4
Commercial Waste	%	5	35	15	0–35 (22)	8.8
Hospital Waste	%	4	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	N				
Current Wastewater Disposal						
Own Treatment Plant	%	7	100	2	0–100 (19)	14.6
Central Sewer System	%	23	30	11	0–30 (19)	6.5
No Treatment	%	60	100	100	0–100 (19)	68.6
Others	%	10	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	Y				
River Basin/Major River Name	name	Perfume river				
Basin Area	ha	5,000				
City Location	u,m,d	Midstream				
Adjoining Town						
Pollution Load	vh–vl					
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	MPN/100ml	5,000				
BOD	mg/l	15	180	30	2.4–180	28.7
COD	mg/l	7.1	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	60	261	200	1–261	109.7
Heavy Metals	mg/l	0.03	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	7.23	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	6.86	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	1.71	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	4.95	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	8.96	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	3.54	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	1	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	225	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	0	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	0	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	1	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	0	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Song Cau, Viet Nam				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Mr. Nguyen Phu, Director						
Office	Water Supply and Drainage One Member Limited Liabi						
Address	National Road No. 25, Ngoc Binh Commune, Tuy Hoa C						
Fax	8457828388						
Telephone	8457827030						
E–mail address	bqlpy@vnn.vn						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	20.20	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	4.67	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	4.22	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	4.79	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%		724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	31.66	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	1.50	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%		76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	–	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	–	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	–	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	13.90	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	–	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	–	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	–	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	0	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	54	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	–	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	54.1	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	0	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	70	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	25	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	5	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	–	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	–	100.0	87.0	0–100 (15)	75.5
	Type II	%	0	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	100	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	0	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	100	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	0	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	100	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	–	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Song Cau, Viet Nam					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	54.08	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	20.68	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	0	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	25.24	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	120.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	148.50	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	0	100.00	100.00	100.0 (22)	49.80
		National Government	%	100.00	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	–	4	2	1–4 (21)	1.7
		State-Owned Utility	#	1	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	–	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	2	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	2003	2007	2000	1947–2007 (23)	1985
		Latest	year	2007	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	2003	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	No wastewater system in the town.				
		Future Programs/Projects	list	–				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Song Cau, Viet Nam				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	–	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	–	100.0	0	0.0–100.0 (17)	32.10
Loans	%	–	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	–	0	0	0–0 (17)	0
Others	%	–	100.0	100.0	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	–	47.0	0	0–47 (17)	3.4
Local Government	%	–	100.0	100.00	0–100 (17)	57.6
Loans	%	–	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	–	100.0	50.00	0–100 (17)	24.1
Others	%	–	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	0	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	85	133	30	4–133 (13)	47.0
Government	$/ST	20–	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	20	67	45	0–67 (24)	20.8
Household Liquid Waste	%	80	100	60	0–100 (24)	50.8
Industrial Waste	%	0	38	10	0–38 (22)	9.4
Commercial Waste	%	0	35	15	0–35 (22)	8.8
Hospital Waste	%	0	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	Y				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	100	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	N				
River Basin/Major River Name	name	–				
Basin Area	ha	–				
City Location	u,m,d					
Adjoining Town						
Pollution Load	vh–vl					
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	–				
BOD	mg/l	–	180	30	2.4–180	28.7
COD	mg/l	–	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Thap Cham, Viet Nam				For All Surveyed Cities and Municipalities			
Participating City							
Coordinator	Mr. Nguyen The Duong, Director						
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Address	23 Nguyen Trai Street, Phan Rang–Thap Cham City, N, Viet Nam						
Fax	8468820350						
Telephone	8468824732						
E–mail address	bqldant@hcm.vnn.vn						
Demographics		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Population (2007)	#(000)	162.94	11,000.00	959.10	21.14–11,000.00 (27)	1,273.7
	Growth Rate	%	1.25	7.10	4.50	0.4–7.1 (27)	2.8
	Number of Household	#(000)	32.59	2,301.30	152.00	4.2–2,301.3 (27)	269.8
	Average Household Size	#	5.00	7.04	5.10	3–7.04 (27)	4.9
	Floating Population	%		724.90	30.00	1.7–724.9 (19)	53.5
	Urban Poor	%	–	46.36	31.12	0.00–46.36 (24)	18.4
	City Area	ha (000)	7.90	2,101.20	90.30	1.5–2,101.2 (27)	154
	Urban Core	%		69.69	23.77	0.25–69.69 (22)	18.5
	Secondary Urban Core	%		76.23	21.99	0.79–76.23 (22)	18.0
	Urban Fringe	%	–	99.75	20.15	0.00–99.75 (22)	19.8
	Peri–Urban	%	–	98.52	74.23	0.00–98.52 (22)	39.7
	Slum Area	%	–	35.96	7.74	0.00–35.96 (22)	4.0
	Average City Density	#/ha	20.50	305.60	50.40	0.2–305.6 (0)	51.4
	Urban Core	#/ha	20.00	3,166.00	163.00	6.0–3,166.0 (24)	230.2
	Secondary Urban Core	#/ha	–	438.00	21.99	4.0–438.0 (17)	73.7
	Urban Fringe	#/ha	–	282.00	113.00	3–282.0 (12)	64.8
	Peri–Urban	#/ha	–	110.00	29.00	0.34–110.0 (17)	19.9
	Slum Area	#/ha	–	3,858.00	627.00	18–3,858.0 (11)	525.2
Sanitation Coverage		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Area Coverage						
	Central Sewerage System	%	98	100.0	31.00	0.0–100.0	35.2
	Central Water Supply System	%	90	100.0	85.88	0.3–100 (25)	50.3
	Population Coverage						
	Central Sewerage System	%	100.0	100.0	55.00	0–100.0 (1)	29.0
	Central Water Supply System	%	67.1	99.7.0	84.80	3.6–99.7 (26)	57.7
Sanitation Facility	**Sanitation System Type**	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	I. Central Sewerage System	%	100	100.0	55.0	0.0–100.0 (27)	50.3
	II. Individual with Septic Tank	%	0	100.0	62.0	0.0–100.0 (27)	47.7
	III. Communal with Septic Tank	%	0	20.0	0.8	0.0–20.0 (13)	4.4
	IV. Pit Latrine	%	0	43.6	22.2	0.0–43.6 (18)	17.1
	V. Eco Sanitation	%	0	0.9	0	0.3–0.9 (2)	0.6
	VI. Open Defecation	%	0	61.0	13.0	0.0–61.0 (14)	17.0
	Toilet System						
	Type I	%	99	100.0	99.0	0–100 (15)	68.4
	Type Ia	%	1	100.0	87.0	0–100 (15)	75.5
	Type II	%	–	100.0	100.0	0–100 (21)	69.5
	Type IIa	%	–	100.0	100.0	0–100 (21)	85.4
	Type III	%	–	100.0	83.0	0–100 (14)	57.7
	Type IIIa	%	–	100.0	100.0	0–100 (14)	87.8
	Type IV	%	–	100.0	86.0	0–100 (18)	66.4
	Type IVa	%	–	100.0	99.0	0–100 (18)	66.9
	Type V	%	–	100.0	82.0	33–100 (2)	66.7
	Type Va	%	–	67.0	80.0	0–67 (23)	66.7
	Type VI & VIa	%	–	100.0	100.0	0–100 (14)	100.0
	Type VIb	%	–	100.0	0	0–100 (14)	13.9
Treatment Facility		**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Waste Water Treatment Plant						
	Capacity (10,000 population)	m3/d	–	962.2	664.9	2.1–962.2 (22)	65.0
	Provider						
	Local Government	%	0	100.0	100.0	0–100 (20)	49.8
	National Government	%	–	100.0	100.0	0–100 (20)	45.0
	Private	%	–	100.0	0	0–100 (20)	5.3
	Septage Treatment Plant						
	Capacity	m3/d	–	814.0	110.0	50–814 (5)	227.8
	Provider						
	Local Government	%	–	100.0	100.0	0–100 (15)	66.7
	National Government	%	–	100.0	0	0–100 (15)	20.0
	Private	%	–	100.0	0	0–100 (15)	13.3
	Desludging Services						
	Frequency	year	2	12.0	10.0	2–12 (4)	7.3
	Provider						
	Government	%	–	100.0	50.0	0–100 (13)	53.0
	Private	%	–	100.0	50.0	0–100 (13)	47.0

= number, ha = hectare, m^3/d = cubic meter per day.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Thap Cham, Viet Nam					For All Surveyed Cities and Municipalities			
Water Supply Facility			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
	Household Water Supply Source							
		Central Water Supply–Individual	%	67.10	100.00	67.10	3.59–100.00 (27)	50.50
		Central Water Supply–Communal	%	0	46.65	11.43	0.00–46.65 (25)	7.80
		Borehole	%	2.32	60.00	37.61	0.04–60.00 (26)	16.80
		Protected Spring/Well	%	16.33	96.41	20.00	0.00–96.41 (25)	14.50
		Rainwater	%	14.25	45.52	0.10	0.00–45.52 (26)	5.98
		Water Vendor	%	0	35.00	0.02	0.00–35.00 (26)	2.80
		Population Buying Bottled Water	%	–	80.00	40.00	0–80 (18)	20.70
		Average Water Consumption	lpcd	135.00	160.00	135.00	40–160 (20)	97.10
		Water Treatment Facilities	lpcd	319.10	1,371.50	197.40	14.0–1,371.5(22)	11.80
		Local Government	%	100.00	100.00	100.00	100.0 (22)	49.80
		National Government	%	0	100.00	100.00	0–100 (22)	45.00
		Private Concessionaire	%	0	100.00	0	0–100 (22)	5.30
Organizational Arrangement			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Institutions Involved in Sanitation								
	Public Sector							
		National Government	#	–	6	2	1–6 (5)	2.8
		Local Government	#	–	4	2	1–4 (21)	1.7
		State-Owned Utility	#	1	2	1	1–2 (11)	1.3
	Private Sector							
		Water Utility	#	–	2	2	2–2 (1)	2.0
		Enterprise	#	–		–	– (0)	
		Nongovernment Organization	#	–	–	–	– (0)	–
Number of Personnel								
	Public Sector							
		Total Personnel (per 10,000 pop'n)	#	–	100.77	20.56	0.46–100.77 (17)	14.9
		Planning and Monitoring	%	–	43.70	43.7	12.7–43.70 (4)	23.9
		Construction	%	–		–	0	0
		Operations and Maintenance	%	–	100	100	76.60–100.00 (4)	87.1
	Private Sector							
		Total Personnel (per 10,000 pop'n)	#	–	30.96	30.96	30.96 (1)	30.96
		Operations and Maintenance	%	–		–	– (0)	–
Legal Framework			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Legal Mandate of Sanitation								
	Number of Laws on Sanitation							
		National	#	2	4	3	1–4 (18)	1.9
		Local	#	1	3	1	1–3 (15)	1.2
	Year Enacted							
		Oldest	year	2003	2007	2000	1947–2007 (23)	1985
		Latest	year	2007	2007	2005	1956–2007 (23)	1993
	Sanitation Service Charges							
		Law on Collecting Fees	Y/N	Y	17		17 (25)	
		Year Enacted	year	2003	2007	2003	1956–2007 (17)	1990
Planning			**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Strategic Sanitation Plan								
	Existing Sanitation Plan							
		With Sanitation Plan	Y/N	Y	11		11–27	
		When Prepared	year	–	2007	2006	2006–2007 (2)	2006
	New Sanitation Plan							
		Will Prepare Sanitation Plan	Y/N	–				
		Preparation Year	year	–	2009	2008	2008–2009 (8)	2008
		Estimated Cost	$	–	395	250	0.03–395.00 (7)	101.25
		Amount per Capita	$/capita	–	762.7	477.6	0.6–762.7 (7)	185.50
		Source of Fund	list	–				
	Sanitation Problem	Major Sanitation Problem	list	Flooding during the rainy season.				
		Future Programs/Projects	list	–				
		Funding Amount	$/capita	–	1.79	1.79	0.96–1.79 (2)	1.37
		Funding Source	list	–				

Y = yes, N = no, lcpd = liters per capita per day, pop'n = population.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

Thap Cham, Viet Nam				For All Surveyed Cities and Municipalities			
Capital Investment	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Capital Investment						
Annual Amount	$/capita	–	27.9	22.5	0.5–27.9 (27)	8.20
Source of Fund						
National Government	%	–	80.0	0	0.0–80.0 (17)	23.70
Local Government	%	–	100.0	0	0.0–100.0 (17)	32.10
Loans	%	–	80.0	0	0.0–80.0 (18)	18.90
Tariff Revenue	%	–	0	0	0–0 (17)	0
Others	%	–	100.0	100.0	0.0–100.0 (17)	27.65
Operations and Maintenance Expenditures	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual O&M Cost						
Annual Amount	$/capita	–	8.3	3.66	0.08–8.34 (11)	1.9
Source of Fund						
National Government	%	–	47.0	0	0–47 (17)	3.4
Local Government	%	–	100.0	100.00	0–100 (17)	57.6
Loans	%	–	53.0	50.00	0–53 (17)	9.0
Tariff Revenue	%	–	100.0	50.00	0–100 (17)	24.1
Others	%	–	100.0	0	0–100 (17)	5.9
Revenues and Fees for Services	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Annual Revenues and Fees						
Total Revenue	$/capita	–	15	0.1	0.1–15.0 (4)	6.9
Sewered Area Charges						
Connection Charge	$/connection	0	80	18.3	18.25–80 (5)	55.7
Tariff Rate	$/m3	–	90	6.0	1–90 (5)	37.6
Septic Tank Desludging Fee						
Private	$/ST	90	133	30	4–133 (13)	47.0
Government	$/ST	22	30	22	3.5–30 (13)	18.0
Other Fees	$					
Environmental Situation	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality and Pollution						
Water Quality Monitored	Y/N	N	20			
Sources of Water Pollution						
Household Solid Waste	%	0	67	45	0–67 (24)	20.8
Household Liquid Waste	%	100	100	60	0–100 (24)	50.8
Industrial Waste	%	0	38	10	0–38 (22)	9.4
Commercial Waste	%	0	35	15	0–35 (22)	8.8
Hospital Waste	%	0	17	5	0–17 (22)	3.2
Polluter to Treat Own Wastewater	Y/N	Y				
Current Wastewater Disposal						
Own Treatment Plant	%	0	100	2	0–100 (19)	14.6
Central Sewer System	%	0	30	11	0–30 (19)	6.5
No Treatment	%	100	100	100	0–100 (19)	68.6
Others	%	0	50	1	0–50 (19)	10.3
Description	list	–				
Within River Basin	Y/N	N				
River Basin/Major River Name	name	–				
Basin Area	ha	–				
City Location	u,m,d					
Adjoining Town						
Pollution Load	vh–vl					
Sanitation Work/Plan	i/c					
Environmental Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Water Quality						
Surface Water						
Total Coliform	#/ml	–				
BOD	mg/l	–	180	30	2.4–180	28.7
COD	mg/l	–	973	80	7.1–973	122.5
Total Suspended Solids	mg/l	–	261	200	1–261	109.7
Heavy Metals	mg/l	–	0.3	0.25	0.001–0.3	0.17
Health Statistics	**Unit**	**City Value**	**Top Value**	**Top Quartile**	**Range**	**Average**
Sanitation-Related Diseases						
Reported Cases (per 10,000 population)						
Diarrhea	#	–	594.1	179.49	0.6–594.1 (12)	118.8
Hepatitis A & E	#	–	53.88	6.86	0.00–53.88 (10)	8.8
Trachoma	#	–	305.47	294.55	0.00–305.47 (9)	67.1
Acute Lower Respiratory Infection	#	–	1,559.01	507.79	0.36–1,559.01 (11)	420.5
Measles	#	–	4.45	2.29	0.00–4.45 (9)	1.1
Malaria	#	–	–	9.07	0.09–28.91 (10)	5.0
Death (children under 5 years) (per 10,000 population)						
Diarrhea	#	–	0.47	0.1	0.0–0.5 (7)	0.1
Hepatitis A & E	#	–	1.18	0	0.0–1.2 (10)	1.2
Trachoma	#	–	0		0–0 (6)	0
Acute Lower Respiratory Infection	#	–	0.27	0.01	0.00–0.27 (6)	0.2
Measles	#	–	0.03	0.03	0.00–0.03 (6)	0.007
Malaria	#	–	0.07	0.04	0.00–0.07 (6)	0.1

Y = yes; N = no; BOD = biochemical oxygen demand; COD = chemical oxygen demand; ha = hectare; i/c = individually/cooperatively; m^3 = cubic meter; mg/l = milligram per liter; ml = milliliter; ST = septic tank; u,m,d = upstream, midstream, downstream; vh–vl = very high to very low.

Note: Value in ( ) is the number of cities and municipalities with data.
"–" means data not available.

APPENDIX

SANITATION DATA BOOK FOR ASIAN CITIES

QUESTIONNAIRE

Name of City_____ **Country:** _____

DEMOGRAPHICS

City Demographics

Land Area (ha)	**Population Year** _____	**Population Density (#/ha)**
Total city area _____	Total population (000) _____	Urban core _____
	Growth rate (%) _____	Secondary urban
City Area Breakdown:		Core _____
Urban core _____	No. of households _____	Urban fringe _____
Secondary urban	Average HH Size _____	Peri-urban _____
Core _____		Slum area _____
Urban fringe _____	Floating population _____	
Peri-urban _____		
Slum area _____	No. of urban poor _____	
Note: • The objective of the area break-up is to determine the population density and possible technology option for each area. • Total of breakdown should equal total city area. • It is not necessary to fill up all classes	Note: • Urban poor are those earning less than $1 per day. • Floating population – transient, day-time people visiting or working in the city and living in another city or town	Note: • Urban core – heavily built-up area, central business district • Secondary urban core – suburbs, subdivisions • Urban fringe – less built-up area around the core • Peri-urban – semi-rural areas • Slum area – total area even though scattered throughout the city.

= number, ha = hectare, HH = households.

SANITATION COVERAGE AND FACILITY

Water and Sanitation Facilities	
Sanitation Services	**Water Supply Services**
Service Area (ha) Served area (central sewerage system) _____ Unserved area _____ Note: Total should equal to total city area.	**Service Area** (ha) Served area (central water supply system) _____ Unserved area _____ Note: Total should equal to total city area.
Household Sanitation *See Note 1 (last page) for Range of Sanitation Type* No. of households with **Individual toilet with sewered line** • Type I with treatment _____ • Type Ia without treatment _____	**Household Water Supply** No. of households with • In-house connection (central WSS) _____ • Community tap (central WSS) _____ • Borehole (individual or communal) _____
Household Sanitation **Individual toilet with septic tank** • Type II regular desludging and treated _____ • Type IIa desludged if full, not treated _____ **Communal toilet with septic tank** • Type III regular desludging and treated _____ • Type IIIa desludged if full, not treated _____ **Pit latrine** • Type IV ventilated improved pit _____ • Type IVa ordinary _____ **Eco sanitation** • Type V off-site treatment _____ • Type Va on-site treatment _____ **Open defecation** • Type VI open field _____ • Type VIa body of water (hanging toilet) _____ • Type VIb use of bucket _____	**Household Water Supply** • Protected spring and/or well _____ • Collected rainwater _____ • Vendor-provided _____ **Population buying bottled water (%)** _____ **Average consumption (lpcd)** _____ **Water provider** • Local government (%) _____ • National government (%) _____ • Private concessionaire (%) _____ • Individual households (%) _____ (Total should add to 100%)
Note: Total should equal to No. of Households in Demographics.	Note: Total should equal to No. of Households in Demographics.

lcpd = liters per capita per day, WSS = Water Supply Services.

SANITATION COVERAGE AND FACILITY	**Water and Sanitation Facilities**	
	Treatment Facilities Capacity • Wastewater treatment plant (m^3/day) _____ • Frequency of desludging (years) _____ • Septage treatment plant (m^3/day) _____ • Eco Sanitation facility (m^3/day) _____ **Treatment Facility Provider** • Local government (%) _____ • National government (%) _____ • Private concessionaire (%) _____ • Individual households (%) _____ (Total should add to 100%)	**Treatment Facilities Capacity** • Water treatment plant (m^3/day) _____ **Treatment Facility Provider** • Local government (%) _____ • National government (%) _____ • Private concessionaire (%) _____ • Individual households (%) _____ (Total should add to 100%)
	Please indicate treatment technology:	**Please indicate treatment technology:**

ORGANIZATION

Institutional Mandate and Set-up

Agencies and/or Organizations Involved in Sanitation

Name	Type*	Task**	Legal Mandate (year enacted)	No. of personnel***

Note: * For Type, indicate numbers as defined: 1=Government line ministry or department; 2=Government special agency or organization; 3=Government-owned utility; 4=Private water utility; 5=Public–private utility; 6=Others (Please specify)_____

** Example of tasks: planning, construction, collection, and treatment, etc._____

*** Indicates total number of personnel involved in sanitation in 2007.

Current Laws on Sanitation

Name of Law	Year Enacted	Implementing Agency

FINANCIALS

Current Sanitation Status (Note: All figures are for liquid waste only, excluding solid waste.)

Does the city have a Sanitation Plan prepared? NO_____ YES _____(year) Please send a copy. If NO, year planned to prepare one, estimated amount and source of fund. Year _____ Amount (US$)_____ Source of fund_____

Does the city have an ongoing Sanitation Information and Education Campaign? NO_____ YES____. If Yes, please send sample copies. What is the estimated annual budget? (US$) 2006 _____ 2007 _____

Source of sanitation infrastructure construction funds: National government budget (%)____, Local government budget (%)____, Loans (%)____, Tariff revenues (%)____ , Other (please specify)_____ _____What is the estimated annual amount? (US$) 2006 _____ _____ 2007 _____

Source of sanitation O&M funds: National government budget (%)____, Local government budget (%)____, Loans (%)____, Tariff revenues (%)____ , Other (please specify)_____ What is the estimated annual amount? (US$) 2006 _____2007 _____

For sewered areas: What is the sewerage connection charge? (US$/connection). _____ What is the tariff rate? Please specify unit. (US$/unit) (Ex. $/m^3 of water consumption) _____ _____

For areas with septic tank (ST): Entity providing desludging services? Indicate estimated % share.

Private (%) _____ Desludging fee (US$/ST)_____ Government (%) ____ Desludging fee (US$/ST)_____

FINANCIAL

Current Sanitation Status (Note: All figures are for liquid waste only, excluding solid waste.)

What is the estimated total revenue for providing sanitation services? (US$/year)

2006 _____ 2007 _____

Legal mandate for collecting fees? Name of law and year enacted. Year _____

Name of law _____

Future Plans

What are the target sanitation indicators? Are there sufficient funds to meet targets?

Please give a brief description of future programs and projects, including training, procurement of equipment, formulation of own standards, etc., and sources of funds.

What are the cities' major sanitation problems?

ENVIRONMENTAL SITUATIONER

Extent of Water Pollution

Is the city monitoring water quality? YES ____ NO _____ If NO, is the city planning to monitor in the future? NO _____ YES _____(year) _____

What are the major sources of water pollution? Please check types.

- Household solid waste (%) _____
- Household liquid waste (%) _____
- Industrial waste (%) ____ Type of industry: ___paper mill, ____textile, ___tannery, ___others (Please specify). _____.
- Commercial (%) _____ Type of establishment: ___office building, ____restaurants, ____dormitories, ____others (Please specify) _____.
- Hospital (%) _____ Other sources of hazardous waste: _____

Are the industries, commercial establishments, hospitals, institutions required by law to treat their wastewater? YES_____ NO _____

How are the wastewater treated now?

- Polluter's own treatment plant (%) _____
- Central sewer system (%) _____
- No treatment, body of water (%) _____
- Others (%) _____ Please describe: _____

Is the city located in a river basin? YES _____ NO _____ If YES:

- Name of river basin or major river _____
- Basin area (hectare:) _____
- City location (Please check): Upstream_____ Downstream _____ Midstream _____

Are there adjoining towns or cities around your city? YES _____ NO _____

If YES:

- Pollution load: Very Heavy _____ Heavy _____ Medium _____ Low _____ Very Low _____
- Sanitation work with adjoining areas: Individually _____ Cooperatively _____ How? Please describe:

Give a brief description of the city water quality and extent of pollution.

ENVIRONMENTAL STATISTICS	Water Quality						
	Parameters	**Water Sources**					**National Standard**
		Ground	**River 1**	**River 2**	**River n**	**Lake**	
	Biochemical oxygen demand (BOD)						
	Chemical oxygen demand (COD)						
	Suspended solids						
	Coliform bacteria (#/ml)						
	Polychlorinated biphenyl (PCB)						
	Pesticides						
	Heavy metals (specify)						
	Others (specify)						
	Note: Provide average readings for summer and rainy months. (# summer – low flow & # rainy – heavy flow)						

HEALTH STATISTICS	Sanitation and Hygiene-Related Diseases		
	Year _____	**Reported Cases**	**Deaths (children under five years of age)**
	Diseases directly related to poor water and sanitation		
	Diarrheal diseases		
	Hepatitis A & E		
	Skin diseases		
	Trachoma		
	Diseases indirectly related to poor water and sanitation, via malnutrition (children under five years of age)		
	Acute lower respiratory infection		
	Measles		
	Malaria		
	Indicate source:		

Contact Details	
Name of city (country)	
Name of project coordinator	
Title/designation	
Department/office	
Address	
Fax	
Telephone	
Email address	

For inquiries please contact: **Francisco "Kit" Roble, Jr**.

Consultant, Asian Development Bank

froble@adb.org

Please send completed forms, copies of Annual and/or Financial Report (if any) and Sanitation Plan (if available) to:

Name_____ **Title**_____

CITYNET Secretariat, 5F, International Organizational Center, Pacifico-Yokohama

1-1-1 Minato Mirai, Nishi-ku, Yokohama, Japan

Email: info@citynet-ap.org

Note 1: Range of Sanitation Type

Sanitation Type	Toilet System	On-Site Treatment	On-Site Disposal/ Reuse	Collection System	Off-Site Treatment	Off-Site Disposal/ Reuse
I	Individual toilet (pour flush or tank flush)	none	none	Sewer line combined or conventional	Wastewater treatment	Agricultural use
Ia	Individual toilet (pour flush or tank flush)	none	none	Sewer line combined or conventional	none	Discharge to a receiving body of water
II	Individual toilet (pour flush or tank flush)	Septic tank	Overflow to drainage pipe/canal	Desludging by vacuum trucks regularly	Septage treatment	Agricultural use
IIa	Individual toilet (pour flush or tank flush)	Septic tank	Overflow to drainage pipe/canal	Desludging by vacuum trucks when full	none	Body of water or burying/ dumping vacant field
III	Public/communal toilet (pour flush or tank flush)	Septic tank	Overflow to drainage pipe/canal	Desludging by vacuum trucks regularly	Septage treatment	Agricultural use
IIIa	Public/communal toilet (pour flush or tank flush)	Septic tank	Overflow to drainage pipe/canal	Desludging by vacuum trucks when full	none	Body of water or burying/ dumping vacant field
IV	Ventilated improved pit latrine	na	Open another pit upon filling of pit			
IVa	Pit latrine	na	Open another pit upon filling of pit			
V	EcoSanitation	Storage		Cartage	Drying/ composting/ heating	Agricultural use/biogas
Va	EcoSanitation	Hygienization by drying	Applied to garden/plants			
VI	Open defecation	na	Open field			
VIa	Hanging toilet	na	Body of water			
VIb	Use of bucket	na		Cartage		Open field or body of water

na = not applicable.

Access to sanitation may have increased significantly in Asian cities between 1990 and 2006, but roughly 2 billion people in the region still do not have basic latrines, let alone more sophisticated sanitation and sewage treatment facilities. While sanitation is a complex issue that involves many factors–including awareness, policies, and financing–the lack of complete, reliable, and grounded data aggravates the situation, hindering planners, managers, and policy makers from formulating feasible targets, prioritizing investments, and designing doable projects.

This publication is the first ever data book focusing on Asia's sanitation situation. It provides comparative sanitation statistics from 27 Asian cities and an in-depth analysis of these data. It also offers decision makers some tools and methods for processing data that they can use for their own knowledge development, advocacy, and planning.

This databook is a joint undertaking of the Asian Development Bank, CITYNET, UN-Habitat, and Veolia Environnement.

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WATER for ALL

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