



**CITYNET** 

# ASIAN SANITATION DATA BOOK 2013

**ACHIEVING SANITATION FOR ALL** 

December 2013





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# **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
I liter

lpcd liters per capita per day

mg milligrams
ml milliliter
m3 cubic meter

m3/d cubic meter per day
mg/l milligram per liter
MPN most probable number

Pb lead

## **NOTE**

In this report, "\$" refers to US dollars (USD)

# LIST OF PARTICIPATING CITIES AND/ OR MUNICIPALITIES

South Asia	South East Asia
Bangladesh	Indonesia
1. Dhaka*	16. Banda Aceh*
India	Lao People's Democratic Republic
2. Bhopal	17. Phine
3. Dewas	18. Sayabouly
4. Gwalior	19. Xieng Ngeun
5. Indore	Philippines
6. Jabalpur	20. Calbayog*
7. Mangalore	21. Makati*
8. Nasrullahganj	22. San Fernando*
Nepal	Viet Nam
9. Bharatpur	23. Cam Ranh
10. Hetauda	24. Ho Chi Minh*
11. Kathmandu	25. Hue*
12. Lekhnath	26. Song Cau
13. Pokhara	27. Thap Cham
Sri Lanka	East Asia
14. Colombo*	People's Republic of China
15. Negombo*	28. Jinghong
	29. Kunming
	30. Puer

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET

# PART I: SUMMARY OF FINDINGS

#### Introduction

The information presented in this publication, Asian Sanitation Data Book 2013 – Achieving Sanitation for All, comes from a fresh survey of 30 cities that are members of CITYNET and participants in the Water for Asian Cities Programme of the United Nations Human Settlements Programme (UN-Habitat) and Asian Development Bank (ADB) as the programme partner. Gathering of survey data was facilitated by UN-Habitat and CITYNET. 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 30 cities, 1 is in Bangladesh, 3 are in the People's Republic of China, 7 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-I).

What does good sanitation mean? For UN-Habitat, 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-II.

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 for their cities, 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 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 revenuegenerating 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 one out of 30 participating cities monitored their groundwater and surface water quality and about 40% 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, three cities' rivers pollution load was high, 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 30 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.

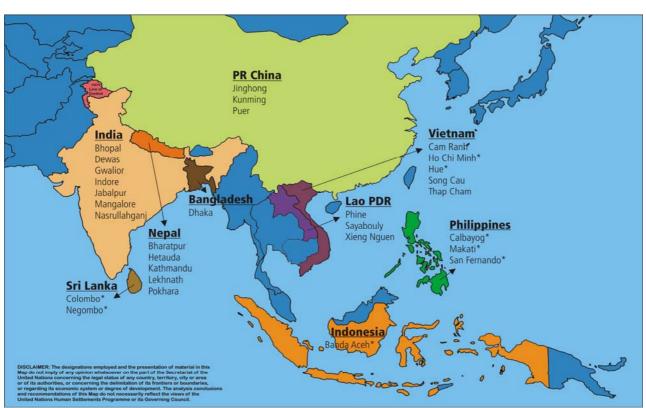


Figure I: Location of Participating Cities/ Countries

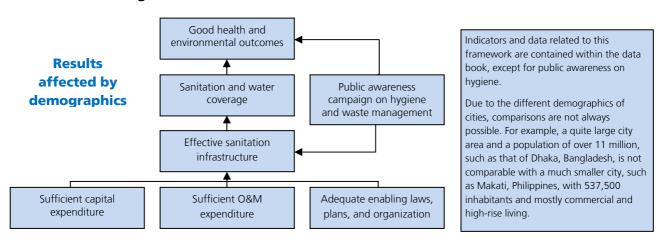


Figure II: Indicators of Health and Environmental Outcomes

Monitoring health outcomes is equally important. However, of the 30 respondents, only 9 cities (30%) 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 except Phine 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: Colombo, Sri Lanka, has the lowest cases of diarrhea at 0.75 per 10,000 population, followed by Negombo with 3.30. Ho Chi Minh, Vietnam has very low hepatitis and malaria cases, which stand at 0.22 and 0.09 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. Of 30 cities, as many as 19 cities reported open defecation with six cities (almost 20%) indicating that between 10% - 61% 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 30 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 30 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 30 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 30 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 grant (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 government (49%) and private firms (51%), indicating private sector involvement in sanitation. Desludging fees of the private firms range 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. 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 I: 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	1-4	50	50	100
Between 2 and 5 million	1	16	100	0	100
Between 1 and 2 million	3	26	100	0	67
Between 0.5 and 1 million	3	0–40	75	75	84
Between 100–500 thousand	13	0–48	40	70	80
Under 100 thousand	7	2–42	43	14	76
Total	30	Average14.6		•	

**Table II: 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.

<sup>\*</sup> Table sorted per BOD in ascending order—only 18 cities out of 30 provided data

Water Quality Standards	Total Coliform	BOD	COD	Total Suspended Solids	Heavy Metals
WHO Guidelines for Drinking Water Qualitya	0/100 ml of sample				Pb = 0.01 mg/l Hg = 0.006 mg/l
Viet Nam TCVN 5942 -1995 Column Ab	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 IIIc	10,000 #/l	4 mg/l	15 mg/l		Pb = 0.05  mg/l Hg = 0.05  mg/l
Philippines Water Quality Criteria - Class Ad (DAO 34, Series of 1990)	1,000 MPN/100 ml 100 MPN/100 ml (fecal coliform)	5 mg/l		50 mg/l	Pb = 0.05 mg/l Hg = 0.002 mg/l
Philippines National Standards for Drinking Watere	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).

**Table III: Health Statistics of Respondent Cities** 

	Reported Case	es (per 10,000 population)	Death	
City/Country	Diarrhea	Acute Lower Respiratory Infection	(Children under 5 years of age) (per 10,000 population)	
Negombo, Sri Lanka	3.3	-		
Colombo, Sri Lanka	0.75	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	0.47	
Makati, Philippines	4.71	78.78	0.11	
San Fernando, Philippines	58.9	250.8	_	
Kathmandu, Nepal	142.2	180.7	0.03	
Banda Aceh, Indonesia	278.9	-	_	
Pokhara, Nepal	179.5	409.6		
Leknath, Nepal	194.1	496.5	_	
Bharatpur, Nepal	594.1	294.6	_	

Note: Table sorted per diarrhea incidence in ascending order—12 out of 30 cities.

Table IV: Central Sewerage System Coverage and Wastewater Treatment Capacity

City/Country	Household Coverage (%)	Wastewater Treatment Capacity	Averaged Water Consumption (lpcd)
Kunming, PRC	100	95	_
Thap Cham, Viet Nam	100	-	120
Gwalior, India	86	-	130
Colombo, Sri Lanka	30	-	160
Kathmandu, Nepal	70	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	60	_	86
Makati, Philippines	23	353	_
Dhaka, Bangladesh	20	55	140
Sayabouly, Lao PDR	60	_	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 30 cities.

Based on 2007 data of the cities.

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

e. Philippine Department of Health.

<sup>&</sup>quot;-" means data not available

<sup>&</sup>quot;–" means data not available.

# PART II: SANITATION COMPARISON

# 2.1. Demographic Indicators

S.No.	City (Year)	Population Number	Growth Rate	Number of Households	Average HH Size	Floating Pop'n	Urban Poor
	<b></b>	('000)	%	('000)	Number	%	%
1.	Banda Aceh* (2012)	238.0	4.47	58.50	4.0(4.0)	4.2	8.5
2.	Bharatpur (2011)	143.8	5.03	36.93	3.9 (4.5)	0	9.46
3.	Bhopal (2011)	1,883.3	3.50	258.58	5.9 (5.9)	3.5	22.68
4.	Calbayog* (2007)	169.8	1.79	28.91	5.2 (5.0)	1.7	4.18
5.	Cam Ranh (2010)	215.8	1.80	47.96	4.5(4.5)	0	15.03
6.	Colombo*(2012)	665.0	0.35	117.33	6.0 (6.0)	60.1	13.5
7.	Dewas (2011)	281.0	4.1	43.90	6.4	7.1	39.6
8.	Dhaka* (2007)	11,000.0	5.00	2,301.26	4.8 (4.8)	9.1	36.36
9.	Gwalior (2011)	1,053.0	2.70	175.97	5.9 (5.9)	0.5	10.40
10.	Hetauda (2012)	84.7	2.51	19.85	4.2 (4.2)	1.5	10.60
11.	Ho Chi Minh* (2007)	6,651.0	3.20	1,602.64	4.2 (4.1)	0	3.75
12.	Hue* (2007)	327.8	1.25	64.20	5.1 (5.1)	20.0	30.00
13.	Indore (2011)	2,171.4	4.80	330.00	5.0 (5.0)	6.1	15.86
14.	Jabalpur (2011)	1,267.0	2.80	173.65	6.2 (6.2)	4.8	31.12
15.	Jinghong (2007)	379.0	0.40	125.33	3.0 (3.0)	10.6	0
16.	Kathmandu (2011)	1,003.3	4.04	254.76	3.9(3.9)	_	_
17.	Kunming (2007)	6,155.6	0.62	1,531.94	4.0 (4.0)	18.1	1.34
18.	Lekhnath (2011)	58.8	2.90	14.93	3.9(3.9)	0	1.56
19.	Makati*(2011)	537.5	1.60	123.98	4.2 (4.2)	844.1	0.30
20.	Mangalore (2011)	463.3	1.05	92.66	5.0	_	1.8
21.	Nasrullahganj (2011)	21.7	2.64	2.86	7.6	2.0	48.0
22.	Negombo* (2013)	150.80	2.48	30.17	5.0 (5.0)	11.9	10.00
23.	Phine (2012)	54.9	2.90	8.32	6.6 (6.6)	0	23.0
24.	Pokhara (2011)	255.4	5.27	68.23	3.7 (3.7)	_	4.00
25.	Puer (2007)	265.6	0.60	78.90	3.2 (3.3)	5.7	2.69
26.	San Fernando* (2007)	114.8	1.63	24.85	4.6 (4.6)	25.0	32.84
27.	Sayabouly (2012)	75.2	2.80	12.53	6.0 (6.0)	0	22.40
28.	Song Cau (2011)	125.3	1.40	25.00	5.0 (5.0)	0	1.66
29.	Thap Cham (2011)	161.7	1.50	32.35	5.0 (5.0)	0	10.36
30.	Xieng Ngeun (2011)	35.8	2.80	5.97	6.0 (6.0)	0	28.17
	Top Value	11,000.0	7.10	2,301.30	7.6	844.1	48.0
	Range	21.7 – 11,000.0	0.35–7.10	2.86 – 2,301.26	3.2-7.6	0–844.1	0–48.0
	Average	1200.3	2.6	256.4	4.9	34.5	14.6

pop'n = population, HH = households.

Note: Value in ( ) is the computed household size.

<sup>&</sup>quot;-" means data not available

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET

#### City Area 2.2.

S.No.	City	City Area	Urban Core	Secondary Urban Core	Urban Fringe	Peri-Urban	Slum Area
		(ha) ('000)	%	%	%	%	%
1.	Banda Aceh*	6.1	0.03	0.3	47.7	48.5	_
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	31.6	30.0	_	_	70.0	_
6.	Colombo*	3.7	_	_	_	_	_
7.	Dewas	10.0	10.0	20.0	_	49.0	11.0
8.	Dhaka*	36.0	40.3	59.7	0.0	0.0	_
9.	Gwalior	17.7	10.3	11.3	19.7	50.8	7.91
10.	Hetauda	4.6	9.0	11.0	57.0	21.0	2.00
11.	Ho Chi Minh*	209.5	23.4	0.0	0.0	76.4	0.16
12.	Hue*	7.1	69.7	14.1	9.1	6.4	0.70
13.	Indore	13.4	10.4	11.9	20.1	49.3	8.21
14.	Jabalpur	12.9	10.1	11.8	20.1	50.3	7.74
15.	Jinghong	700.3	0.3	0.0	99.7	0.0	_
16.	Kathmandu	5.07	5.4	14.2	43.7	36.7	_
17.	Kunming	2,101.2	0.5	1.0	0.0	98.5	=
18.	Lekhnath	7.9	40.6	24.7	0.0	0.0	35.96
19.	Makati*	2.7	21.8	16.6	61.3	0.0	0.16
20.	Mangalore	13.2	3.0	23.3	72.7	_	0.13
21.	Nasrullahganj	0.8	60.0	10.0	_	_	30.0
22.	Negombo*	3.1	_	_	_	_	_
23.	Phine	26.9	20.0	36.0	10.0	39.0	_
24.	Pokhara	5.6	20.0	35.0	20.0	15.0	9.9
25.	Puer	22.7	16.7	17.7	44.4	21.1	_
26.	San Fernando*	10.5	21.5	0.0	0.0	78.5	_
27.	Sayabouly	3.91	10.0	0.8	15.0	74.2	_
28.	Song Cau	46.2	40.3	_	_	59.7	_
29.	Thap Cham	7.9	94.5	_	_	5.7	_
30.	Xieng Ngeun	1.21	6.6	4.1	2.5	86.8	_
	Top Value	2,101.2	94.5	59.7	99.7	98.5	35.96
	Range	2.7–2,101.2	0.3–94.5	0–59.7	0–99.7	0–98.5	0–35.96
	Average	114.6	21.6	13.5	18.9	34.9	4.3

Note: "-" means data not available.
\* Indicates areas where survey responses were facilitated by CITYNET

# 2.3. Population Density

S.No.	City (year)	Ave.City Density	Urban Core	Secondary Urban Area	Urban Fringe	Peri– Urban	Slum Area
		#/ha	#/ha	#/ha	#/ha	#/ha	#/ha
1.	Banda Aceh*	38.8	_	_	_	_	_
2.	Bharatpur	18.6	35.0	20.0	5.0	10.0	20.0
3.	Bhopal	66.0	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	6.8	13.2	_	_	4.0	_
6.	Colombo*	174.7	_	_	_	_	_
7.	Dewas	28.0	65.7	38.8	_	4.3	122.7
8.	Dhaka*	305.6	_	_	_	_	_
9.	Gwalior	47.6	138.0	75.0	52.0	18.0	59.0
10.	Hetauda	19.0	74.5	39.0	4.7	8.0	110.0
11.	Ho Chi Minh*	31.7	108.0	_	_	7.0	732.0
12.	Hue*	46.1	60.0	50.0	20.0	30.0	40.0
13.	Indore	122.3	350.0	184.0	133.0	50.0	149.0
14.	Jabalpur	72.1	215.0	111.0	79.0	29.0	93.0
15.	Jinghong	0.5	76.7	_	=	0.3	-
16.	Kathmandu	198.0	(426.0)	(138.0)	(113.0)	(110.0)	_
17.	Kunming	2.9	163.0	24.0	=	1.9	-
18.	Lekhnath	7.4	11.0	5.1	=	_	-
19.	Makati*	196.4	-	-	=	_	1,519.4
20.	Mangalore	39.5	134.3	73.6	25.9	=	47.7
21.	Nasrullahganj	26.9	-	-	=	_	-
22.	Negombo*	48.8	_	-	_	_	_
23.	Phine	2.0	6.0	4.0	3.0	2.0	_
24.	Pokhara	45.9	67.0	33.0	29.0	26.0	39.0
25.	Puer	11.3	39.0	_	_	_	_
26.	San Fernando*	10.9	37.0	_	=	4.0	-
27.	Sayabouly	19.2	_	-	_	_	_
28.	Song Cau	2.7	_	-	_	_	_
29.	Thap Cham	20.5	20.5			20.5	
30.	Xieng Ngeun	29.6					
	Top Value	305.6	426.0	184.0	133.0	110.0	1,519.4
	Range	0.5–305.6	6–426	4.0-184.0	3.0–133.0	0.3–110.0	20.0–1,519.4
	Average	54.7	73.5	29.2	17.3	11.5	120.7

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

Note:

<sup>&</sup>quot;-" means data not available.

<sup>&</sup>quot;(xxxx)" means data from 2007 year.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

# 2.4. Environmental Statistics

			S	urface Wate	r	
S.No.	City	Total Coli form	BOD	COD	Total Suspende Solids	Heavy Metal
			mg/l	mg/l	mg/l	mg/l
1.	Banda Aceh*	1575#/100ml	9.9	24.3	68.8	-
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	14/100ml	1.28	_	_	-
6.	Colombo*	(5000 / 100ml)	48.0	75.0	80.0	16.70
7.	Dewas	-	_	_	-	_
8.	Dhaka*	11450 MPN/100ml	30.0	80.0	30.0	_
9.	Gwalior	<1 #/ml	6.0	50.0	200.0	0.25
10.	Hetauda	_	_	_	_	_
11.	Ho Chi Minh*	22000 MPN/100ml	4.5	10.8	261.0	_
12.	Hue*	5000 MPN/100ml	15.0	7.1	60.0	0.03
13.	Indore	30 #/ml	6.0	50.0	200.0	0.25
14.	Jabalpur	<200 #/ml	4.5	50.0	1.0	0.25
15.	Jinghong	40 #/l	180.0	360.0	250.0	_
16.	Kathmandu	(2,400,000/ ml)	(36.0)	(207.0)	_	(0.05)
17.	Kunming	-	10.7	67.4	_	-
18.	Lekhnath	-	_	_	_	-
19.	Makati*	_	_	_	_	_
20.	Mangalore	-	_	_	_	-
21.	Nasrullahganj	-	_	_	_	-
22.	Negombo*	10200 MPN/100ml	6.0	22.0	_	-
23.	Phine	<1 #/ml	<3.0	<50.0	_	_
24.	Pokhara	(291CFU/ 100ml)	(22.5)	(95.0)	(61.0)	_
25.	Puer	-	_	_	_	-
26.	San Fernando*	_	_	_	-	=
27.	Sayabouly	5– 10 #/ml	<5.0	<50.0	1.8	_
28.	Song Cau	_	1.28	_	_	_
29.	Thap Cham	_	_	_	-	_
30.	Xieng Ngeun	<1 #/ml	5.0	50.0	_	_
	Top Value	22000#/100ml	180.0	973.00	261.0	16.7
	Range	<1- 22000	1.28–180.0	7.1–973.0	1.0–261.0	0.25–16.7
	Average	_	18.7	72.4	49.6	0.6

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

Note:

<sup>&</sup>quot;-" means data not available.

<sup>&</sup>quot;(xxxx)" means data from 2007 year.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

# 2.5a. Health Statistics – I

			Reported 0	Cases (number	per 10,000 popula	tion)	
S.No.	City	Diarrhea	Hepatitis A & B	Trachoma	Acute Lower Respiratory Infection	Measles	Malaria
		#	#	#	#	#	#
1.	Banda Aceh*	278.9	=	_	(1,559.01)	=	=
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*	0.75	0.60	_	(0.36)	-	_
7.	Dewas	_	=	_	_	-	_
8.	Dhaka*	_	_	_	_	-	_
9.	Gwalior	_	_	_	_	-	_
10.	Hetauda	_	-	_	_	-	_
11.	Ho Chi Minh*	10.10	0.22	0.30	507.79	0	0.09
12.	Hue*	7.23	6.86	3.51	3.23	4.45	3.54
13.	Indore	_	_	_	_	-	_
14.	Jabalpur	_	=	_	_	-	_
15.	Jinghong	_	=	_	-	-	-
16.	Kathmandu	(142.23)	(23.79)	(0.01)	(180.66)	(0.60)	(7.56)
17.	Kunming	-	=	-	-	-	-
18.	Lekhnath	(194.11)	0	0	(496.51)	(0.48)	0
19.	Makati*	4.71	0.13	-	78.78	-	(9.07)
20.	Mangalore	_	_	_	_	_	_
21.	Nasrullahganj	-	=	-	-	-	=
22.	Negombo*	3.30	0.66	_	_	_	(0.13)
23.	Phine	-	_	_	-	-	-
24.	Pokhara	(179.49)	(53.88)	(305.47)	(409.58)	(1.36)	(0.23)
25.	Puer	-	_	_	-	-	_
26.	San Fernando*	58.88	2.35	0	250.84	0.61	0
27.	Sayabouly	_	_	_	_	_	_
28.	Song Cau	_	-	_	_	-	-
29.	Thap Cham	_	0.25	_	_	-	0.12
30.	Xieng Ngeun					-	
	Top Value	594.14	6.86	294.55	507.79	4.45	3.54
	Range	0.75–594.14	0.13- 6.86	0–294.55	0.32-507.79	0–4.45	0–3.54
	Average	50.1	3.0	20.1	153.9	0.3	0.7

# = number.

Note:
"—" means data not available.
"(xxxx)" means data from 2007 year.
\* Indicates areas where survey responses were facilitated by CITYNET.

2.5b. Health Statistics - II

					nder five years of a 10,000 population)	ge)	
S.No.	City	Diarrhea	Hepatitis A & B	Trachoma	Acute Lower Respiratory Infection	Measles	Malaria
		#	#	#	#	#	#
1.	Banda Aceh*	_	_	_	6.3	_	1.0
2.	Bharatpur	_	-	_		-	-
3.	Bhopal	-	-	_	-	_	_
4.	Calbayog*	0.47	0	0	0.27	0	0
5.	Cam Ranh	-	-	-	_	_	14.2
6.	Colombo*	-	-	_	-	_	_
7.	Dewas	-	-	-	_	_	_
8.	Dhaka*	-	-	=	-	_	_
9.	Gwalior	_	_	_		_	_
10.	Hetauda	-	-	=	-	_	_
11.	Ho Chi Minh*	0	0	0	0.01	0	0
12.	Hue*	0.03	0	0	0	0.03	0
13.	Indore	-	-	_	_	_	_
14.	Jabalpur	-	-	-	_	_	_
15.	Jinghong	-	-	-	_	_	_
16.	Kathmandu	(0.03)	(1.18)	(0)	(0)	(0.01)	(0.07)
17.	Kunming	-	-	=	_	-	_
18.	Lekhnath	0	0	0	0	0	0
19.	Makati*	0.11	0	0	0.35	-	(0.04)
20.	Mangalore	-	-	=	-	=	_
21.	Nasrullahganj	-	-	=	-	=	-
22.	Negombo*	-	-	=	-	1.3	-
23.	Phine	-	-	=	-	=	-
24.	Pokhara	-	-	=	_	-	_
25.	Puer	-	-	=	-	-	-
26.	San Fernando*			=	-		
27.	Sayabouly	-	=	=	-	=	
28.	Song Cau	-	=	=	-	=	1.84
29.	Thap Cham	-	0.25	=	-	=	0.12
30.	Xieng Ngeun	-	-	=	-	=	
	Top Value	0.47	0.25	0	6.3	1.3	14.2
	Range	0-0.47	0–0.25	0	0–6.3	0–1.3	0–14.2
	Average	0.0	0.0	0.0	0.2	0.0	0.6

# = number.

Note:

<sup>&</sup>quot;-" means data not available.

<sup>&</sup>quot;(xxxx)" means data from 2007 year.
\* Indicates areas where survey responses were facilitated by CITYNET.

#### 2.6. **Sanitation Coverage and Water Coverage**

S.No.	City	City Land Area	Central Sewerage System Area Coverage	Central Water Supply System Area Coverage	City Population (as reported)	Central Sewerage System Service Coverage	Central Water Supply System Service Coverage
		('000) ha	%	%	(000)	%	%
1.	Banda Aceh*	6.14	0	100.0	238.00	0	69.0
2.	Bharatpur	7.73	7.8	58.2	143.83	4.5	61.2
3.	Bhopal	28.50	50.0	70.0	1883.30	42.0	45.3
4.	Calbayog*	90.30	_	0.5	150.00	0	72.6
5.	Cam Ranh	31.6	_	50.0	215.82	0	41.0
6.	Colombo*	3.72	80.0	95.0	665.00	29.7	99.4
7.	Dewas	10.0	10.0	50.0	281.0	20.0	50.0
8.	Dhaka*	36.00	30.6	97.2	11,000.00	20.0	80.0
9.	Gwalior	17.70	79.1	85.9	1,053.00	85.7	79.0
10.	Hetauda	4.55	11.2	11.0	84.67	5.3	61.9
11.	Ho Chi Minh*	209.50	31.0	45.6	6,651.00	_	37.5
12.	Hue*	7.11	100.0	84.3	327.80	49.8	98.0
13.	Indore	13.40	44.8	48.5	2171.40	55.0	98.5
14.	Jabalpur	12.92	_	92.9	1267.00	0	84.8
15.	Jinghong	700.31	0.3	0.3	376.00	3.6	3.6
16.	Kathmandu	5.07	92.0	100.0	1,003.28	69.9	100.0
17.	Kunming	2,101.20	0.4	0.9	6,080.00	100.0	90.8
18.	Lekhnath	7.89	_	65.1	58.81	0	99.6
19.	Makati*	2.74	21.7	99.9	537.50	22.5	99.7
20.	Mangalore	13.2	_	_	_	-	_
21.	Nasrullahganj	0.8	_	100.0	21.7	-	90.0
22.	Negombo*	3.09	_	89.9	150.84	88.9	88.8
23.	Phine	26.9	20.0	50.1	54.96	59.9	80.0
24.	Pokhara	5.56	_	89.9	255.46	0	95.5
25.	Puer	22.70	18.5	9.6	256.23	57.2	57.2
26.	San Fernando*	10.53	_	25.7	114.81	0	47.9
27.	Sayabouly	3.91	50.0	84.2	75.20	59.9	79.9
28.	Song Cau	46.25	61.9	50.0	125.31	70.0	65.8
29.	Thap Cham	7.89	(98.0)	(90.0)	161.78	(100.0)	69.9
30.	Xieng Ngeun	1.21	-	80.0	35.83	_	80.1
	Top Value	2,101.20	100.0	100.0	11,000.00	100.0	99.7
	Range	0.8–2,101.20	0–100.0	0.5–100.0	21.7–11,000.00	0–100.0	3.6–99.7
	Average	114.6	26.9	60.8	1,181.3	31.5	70.9

ha = hectare, # = number.

Note:

<sup>&</sup>quot;-" means data not available.

<sup>&</sup>quot;(xxxx)" means data from 2007 year.
\* Indicates areas where survey responses were facilitated by CITYNET.

# 2.7. Coverage by Sanitation System

S.No.	City	Central Sewerage System	Individual Toilet with Septic Tank	Communal Toilet with Septic Tank	Pit Latrine	EcoSan	Open Defecation
		%	%	%	%	%	%
1.	Banda Aceh*	0	97.0	0	2.0	0	1.0
2.	Bharatpur	4.5	40.6	_	52.4	0	2.5
3.	Bhopal	42.0	31.3	2.1	2.1	0	22.5
4.	Calbayog*	0	38.9	0	0.1	0	61.0
5.	Cam Ranh	0	62.0	0	25.0	0	13.0
6.	Colombo*	29.7	_	_	=	_	_
7.	Dewas	7.0	76.0	2.0	6.0	_	9.0
8.	Dhaka*	20	45.0	0	20.0	0	1.0
9.	Gwalior	56.4	5.5	2.0	29.1	0	7.0
10.	Hetauda	5.3	75.5	2.5	16.5	0	_
11.	Ho Chi Minh*	0	0	0	0	0	0
12.	Hue*	50	37.6	0.1	0	0	12.0
13.	Indore	55	20.7	3.5	12.2	0	8.6
14.	Jabalpur	0	49.2	0.8	17.0	0	33.0
15.	Jinghong	4	0	0	0	0	0
16.	Kathmandu	69.9	28.1	0	0	0	1.8
17.	Kunming	100	0	0	0	0	0
18.	Lekhnath	0	67.9	0.1	31.9	0	0
19.	Makati*	8.92	90.7	0.3	0	0	0
20.	Mangalore	31.1	67.79	0.33	0.69	_	0.05
21.	Nasrullahganj	_	68.9	2.0	26.5	_	2.5
22.	Negombo*	88.9	_	_	_	-	_
23.	Phine	59.9	32.5	_	-	_	7.6
24.	Pokhara	0	100.0	0	0	0	0
25.	Puer	57	42.8	0.1	0	0	0
26.	San Fernando*	0	47.1	10.5	41.2	0.9	0
27.	Sayabouly	59.9	59.9	_	-	_	7.8
28.	Song Cau	70.0	70.0	0	25.0	0	5.0
29.	Thap Cham	_	29.9	_	50.0	-	20.0
30.	Xieng Ngeun		36.0		59.9	_	2.6
	Top Value	100	100.0	10.5	59.9	0.9	61.0
	Range	0–100	0–100.0	0–10.5	0–59.9	0–0.9	0–61
	Average	27.3	44.0	0.9	13.9	0.0	7.3

EcoSan = ecological sanitation.

Note: "-" means data not available.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

# 2.8a. Coverage by Toilet System - I

		Toilet System Typea								
S.No.	City	Individu with Sew		Individu with Sep		Commun with Sep				
		Type I	Type la	Type II	Type IIa	Type III	Type IIIa			
		%	%	%	%	%	%			
1.	Banda Aceh*	_	_	93.1	3.9	_	0			
2.	Bharatpur	_	4.5	0	40.6	0	-			
3.	Bhopal	42	0		31.3	_	2.1			
4.	Calbayog*	_	_	0	38.9	0	61			
5.	Cam Ranh	_	_	0	62.0	-	-			
6.	Colombo*	0	29.7		_	_	_			
7.	Dewas	_	7.0	_	76.0	_	2.0			
8.	Dhaka*	20	0	0	45	_	_			
9.	Gwalior	33	27	_	6.0	2.0	_			
10.	Hetauda	_	5.3	0	75.5	0	2.5			
11.	Ho Chi Minh*	_	_	_	_	_	_			
12.	Hue*	24	26	15.0	22.6	0.1	0			
13.	Indore	55	0	_	20.7	_	3.5			
14.	Jabalpur	_	_	0	49.2	0	0.8			
15.	Jinghong	0	4	47	_	_	_			
16.	Kathmandu	0	69.9	_	28.1	_	_			
17.	Kunming	100	0	-	-	-	-			
18.	Lekhnath	_	_	0	67.9	0	0.1			
19.	Makati*	8.7	0.2	11.5	79.2	0.3	_			
20.	Mangalore	31.1	-	67.7	-	0.33	-			
21.	Nasrullahganj	_	-	_	68.9	-	2.0			
22.	Negombo*	_	88.9	_	_	_	_			
23.	Phine	41.5	17.7	_	32.5	_	_			
24.	Pokhara		-	0	100	-	-			
25.	Puer	57	0	42.8	0	0.1	0			
26.	San Fernando*	_	_	0	47.1	0	10.5			
27.	Sayabouly	_	-	_	35.9	-	-			
28.	Song Cau	_	-	70.0	-	-	-			
29.	Thap Cham		_	29.9	_		_			
30.	Xieng Ngeun	_	_	_	36.0	_	_			
	Top Value	100	88.9	93.1	100	2	61			
	Range	0–100	0–88.9	0–93.1	0–100	0–2	0–61			
	Average	13.7	9.3	12.6	32.2	0.1	2.8			

Note: a See Appendix, Note 1: Range of Sanitation Type.

<sup>&</sup>quot;-" means data not available.

 $<sup>\</sup>mbox{\ensuremath{^{\star}}}$  Indicates areas where survey responses were facilitated by CITYNET.

2.8b. Coverage by Toilet System - II

				Toilet Sy	stem Type	a	
		Pit Lat	rine	Ecos	San	Open Defeca	tion
S.No.	City	Type IV	Type IVa	Type V	Type Va	Type VI & Vla	Type VIb
		%	%	%	%	%	%
1.	Banda Aceh*	2.0	0	_	_	1.0	0
2.	Bharatpur	52.4	0	_	40.6	2.5	0
3.	Bhopal	2.1	_	_	_	22.5	0
4.	Calbayog*	38.9	_	_	_	61	0
5.	Cam Ranh		25.0	_	_	12.0	0
6.	Colombo*	_	_	_	_	_	_
7.	Dewas	2.0	4.0	_	_	9.0	_
8.	Dhaka*	20	0	_	_	15	0
9.	Gwalior	_	29.1	_	_	7.0	0
10.	Hetauda	0	16.5	_	_	0	0
11.	Ho Chi Minh*	_	_	_	_	_	_
12.	Hue*	_	_	_	_	0	12
13.	Indore	12.2	_	_	_	8.6	_
14.	Jabalpur	17.0	_	_	_	33	_
15.	Jinghong	25	21	_	_	5	_
16.	Kathmandu	_	-	_	-	1.8	_
17.	Kunming	_	-	_	-	_	-
18.	Lekhnath	0	31.9	_	-	0	0
19.	Makati*	_	-	_	-	_	_
20.	Mangalore	_	0.69	_	-	0.05	-
21.	Nasrullahganj	_	26.5	_	-	2.5	_
22.	Negombo*	6.0	5.1	_	-	_	_
23.	Phine	_	-	_	-	8.3	-
24.	Pokhara	_	-	_	-	_	-
25.	Puer	_	-	_	-	_	-
26.	San Fernando*	33.7	7.74	_	0	0	0
27.	Sayabouly	59.9	_	_	=	7.8	_
28.	Song Cau	25.0	0	_	_	5.0	0
29.	Thap Cham	59.9	_	_	=	20.0	_
30.	Xieng Ngeun	59.9	_	_		2.6	_
	Top Value	59.9	31.9	_	40.6	22.5	12
	Range	0–59.9	0–31.9	_	0–40.6	0–22.5	0–12
	Average	13.9	5.6	0.0	1.4	7.5	0.4

EcoSan = ecological sanitation.

Note: a See Appendix, Note 1: Range of Sanitation Type. "—" means data not available.

 $<sup>\</sup>mbox{\ensuremath{^{\star}}}$  Indicates areas where survey responses were facilitated by CITYNET.

#### 2.9. **Wastewater and Septage Treatment Facility**

		Treatr	nent Facilit			ent Facility P	rovider
S.No.	City	Wastewater	Septage	Desluding Frequency	Local Gov't.	National Gov't.	Private
		m3/day/10,000	m3/day	Year	%	%	%
1.	Banda Aceh*	_	135	_	100	_	_
2.	Bharatpur	-	_	_	30	62	8
3.	Bhopal	534.1	_	_	100	=	=
4.	Calbayog*	-	_	_	100	_	-
5.	Cam Ranh	0.4	-	_	100	_	-
6.	Colombo*	-	_	_	-	_	-
7.	Dewas	-	_	_	100	_	-
8.	Dhaka*	109.1	_	_	_	100	_
9.	Gwalior	476.1	_	_	100	_	-
10.	Hetauda	_	_	_	_	_	-
11.	Ho Chi Minh*	212	_	_	100	_	_
12.	Hue*	_	_	_	_	_	_
13.	Indore	549.1	_	_	100	_	_
14.	Jabalpur	-	_	_	_	_	_
15.	Jinghong	664.9	_	_	100	_	_
16.	Kathmandu	199.4	50	_	_	100	_
17.	Kunming	962.2	_	_	100	_	_
18.	Lekhnath	-	_	_	_	_	_
19.	Makati*	-	_	_	-	_	92.7
20.	Mangalore	1190.0	_	_	100	_	_
21.	Nasrullahganj	-	_	_	100	_	_
22.	Negombo*	-	_	_	-	_	_
23.	Phine	-	_	_	-	_	_
24.	Pokhara	-	_	_	100	_	-
25.	Puer	780.5	_	12	100	_	_
26.	San Fernando*	17.4	_	_	100	_	_
27.	Sayabouly	_	_	_	_	_	_
28.	Song Cau	-	_	5	50	_	20
29.	Thap Cham	217.3	_	_	50	_	20
30.	Xieng Ngeun	126.3	_	_	100	_	_
	Top Value	1190	135	12	100	100	92.7
	Range	0.4–1190	50–135	0–12	0–100	0–100	0–92.7
	Average	201.3	6.2	0.6	57.7	8.7	4.7

Gov't. = government, m3 = cubic meter. "-" means data not available.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

2.10a. Water Supply Facility – I

			Hous	ehold Wate	r Supply Sour	ce	
S.No.	City		later Supply stem	Borehole	Protected	Rainwater	Water
		In- house	Communal		Spring/Well		Vendor
		%	%	%	%	%	%
1.	Banda Aceh*	69.0	0	31.0	0	0	_
2.	Bharatpur	59.5	1.6	0	37.9	0.1	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	40.0	8	40.0	_	-	12.0
6.	Colombo*	99.4	_	0.5	0.01	0	0
7.	Dewas	42.0	15.0	36.0	_	_	7.0
8.	Dhaka*	80.0	0	0	20	0	0
9.	Gwalior	57.1	11.4	28.6	2.9	0	0
10.	Hetauda	60.4	1.5	1.0	36.2	0	0
11.	Ho Chi Minh*	37.5	_	-	_	_	_
12.	Hue*	91.9	6.1	2	0	0	0
13.	Indore	59.0	29.5	5.0	1.5	0	5.0
14.	Jabalpur	65.0	17.9	11.9	3.3	0	2.0
15.	Jinghong	3.6	0	0	96.4	0	0
16.	Kathmandu	61.1	0.5	0.1	6.0	0	0
17.	Kunming	90.8	0	0	9.2	0	0
18.	Lekhnath	44.3	8.3	4.5	41.1	0	0
19.	Makati*	97.7	2.1	0	0.3	8.4	100
20.	Mangalore	62.9	4.9	-	32.2	_	-
21.	Nasrullahganj	90.0	10.0	-	_	_	-
22.	Negombo*	80.7	0	1.9	6.4	0	0
23.	Phine	79.0	_	21.0	_	20	_
24.	Pokhara	95.0	0.5	2.6	0	0	1.9
25.	Puer	57.2	0	42.8	0	0	0
26.	San Fernando*	47.9	0	49.2	3	0	0
27.	Sayabouly	79.9	0	-	12.6	7.0	11.5
28.	Song Cau	65.8	0	34.2	_	_	_
29.	Thap Cham	69.9	0	25.0	_	-	5.0
30.	Xieng Ngeun	80.1	_	0	_	19.0	9.2
	Top Value	95.0	46.7	54.5	96.4	20.0	35
	Range	3.60–95.0	0–46.7	0–54.5	0–96.4	0–20.0	0–35.00
	Average	64.5	5.5	14.1	10.3	1.8	5.1

<sup>&</sup>quot;-" means data not available.
\* Indicates areas where survey responses were facilitated by CITYNET.

# 2.10b. Water Supply Facility - II

	City	Population Buying Bottled Water	Average	Water	Wa	ter Treatme	nt Provider
S.No.			Water Consumption	Treatment Facilities	Local Gov't.	National Gov't.	Private Concessionaire
		%	lpcd	Lpcd	%	%	%
1.	Banda Aceh*	50	90	27	100	0	0
2.	Bharatpur	-	50	1.8	30.0	62.0	8.0
3.	Bhopal	-	160	17.1	100	0	0
4.	Calbayog*	10	75	1.5	95	0	5
5.	Cam Ranh	-	100	139.0	0	100	0
6.	Colombo*	<1	160	300.0	100	=	0
7.	Dewas	_	135	135	100	-	_
8.	Dhaka*	5	140	16.4	0	100	0
9.	Gwalior	_	130	17.5	100	0	0
10.	Hetauda	_	40	11.0	0	100	0
11.	Ho Chi Minh*	_	150	18.6	_	_	-
12.	Hue*	15	_	45.8	_	-	-
13.	Indore	10	80	11.7	100	0	0
14.	Jabalpur	5	64	4.5	100	0	0
15.	Jinghong	_	_	13.3	100	0	0
16.	Kathmandu	30	90	181.4	0	_	100
17.	Kunming			19.7	100	0	0
18.	Lekhnath	-	70	12.1	0	50	50
19.	Makati*	-	-	_	_	-	-
20.	Mangalore	7	120	137.2	0	0	100
21.	Nasrullahganj	_	29	29	100	-	-
22.	Negombo*	25	_	_	0	84	16
23.	Phine	80	80	32.9	-	100	_
24.	Pokhara	_	40	_	-	-	-
25.	Puer	_	_	13.7	100	0	0
26.	San Fernando*	_	_	_	_	_	-
27.	Sayabouly	80	80	39.9	-	100	_
28.	Song Cau	_	80	23.9	100	-	0
29.	Thap Cham	_	120	321.5	100	0	0
30.	Xieng Ngeun	70	80	97.7	_	100	_
	Top Value	80	160	321.5	100	100	100
	Range	0–80	29–160	1.5–321.5	0–100	0–100	0–100
	Average	12.9	72.1	55.6	47.5	26.5	9.3

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

Note: "-" means data not available.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

# 2.11. Capital Investment

		Annual Amount	Source of Funds						
S.No.	City		National Government	Local Government	Loans	Tariff Revenues	Others		
		\$/capita	%	%	%	%	%		
1.	Banda Aceh*	_	90	10	0	0	-		
2.	Bharatpur	_	8	62	30	0	0		
3.	Bhopal	12.5	70	12	18	0	0		
4.	Calbayog*	_	_	_	-	=	-		
5.	Cam Ranh	_	60	40	_	=	-		
6.	Colombo*	168	0	0.06	99	0	0		
7.	Dewas	_	_	_	_	_	_		
8.	Dhaka*	_	20	0	80	0	0		
9.	Gwalior	18.9	50	20	30	-	_		
10.	Hetauda	_	8	62	30	0	0		
11.	Ho Chi Minh*	_	0	0	0	0	100		
12.	Hue*	3.7	0	0	0	0	100		
13.	Indore	43.0	50	10	40	0	0		
14.	Jabalpur	32.1	50	20	30	0	0		
15.	Jinghong				60	-	_		
16.	Kathmandu				_	-	_		
17.	Kunming	_	0	30	0	0	70		
18.	Lekhnath	1.0	80	20	0	0	0		
19.	Makati*	_	_	_	_	-	_		
20.	Mangalore	_	_	_	_	-	_		
21.	Nasrullahganj	_	_	_	_	-	_		
22.	Negombo*	_	_	_	_	_	_		
23.	Phine	_	_	_	_	-	_		
24.	Pokhara	0.5	0	100	0	0	0		
25.	Puer	27.9	47	0	53	0	0		
26.	San Fernando*	1.2	0	100	0	0	0		
27.	Sayabouly				_	-	_		
28.	Song Cau	_	_	_	_	=	_		
29.	Thap Cham	_	60	40	_	=			
30.	Xieng Ngeun		70	30	0	0	0		
	Top Value	168	90	100	99	0	100		
	Range	0.5–168	0–90	0–100	0–99	0	0–100		
	Average	10.3	22.1	18.5	15.7	0.0	9.0		

Note: "-" means data not available.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

# 2.12. Operations and Maintenance Expenditures

S.No.	City	AI	Source of Funds					
		Annual Amount	National Government	Local Government	Loans	Tariff Revenues	Others	
		\$/capita	%	%	%	%	%	
1.	Banda Aceh*	0.07	0	32	_	68	0	
2.	Bharatpur	0.7	0	50	0	50	0	
3.	Bhopal	_	0	100	0	0	0	
4.	Calbayog*	_	_	_	_	_	_	
5.	Cam Ranh	_	30	70	-	_	_	
6.	Colombo*	8.3	0	100	0	0	0	
7.	Dewas	-	_	_	-	=	-	
8.	Dhaka*	_	0	0	0	100	0	
9.	Gwalior	0.6	0	100	0	0	0	
10.	Hetauda	0.9	0	50	0	50	0	
11.	Ho Chi Minh*	0.9	0	100	0	0	0	
12.	Hue*	3.7	10	10	50	30	0	
13.	Indore	-	0	100	0	0	0	
14.	Jabalpur	5.4	0	100	0	0	0	
15.	Jinghong	_	_	_	-	_	-	
16.	Kathmandu	<0.01	_	_	_	=	_	
17.	Kunming	-	0	10	0	90	0	
18.	Lekhnath	0.2	0	60	0	40	0	
19.	Makati*	_	_	_	-	_	-	
20.	Mangalore	_	_	_	-	_	-	
21.	Nasrullahganj	_	_	_	-	_	-	
22.	Negombo*	_	_	_	-	_	-	
23.	Phine	-	_	_	_	_	_	
24.	Pokhara	0.1	0	100	0	0	0	
25.	Puer	-	47	0	53	0	0	
26.	San Fernando*	0.1	0	100	0	0	0	
27.	Sayabouly	-	_	-	_	_	_	
28.	Song Cau	-	30	70	-	_	_	
29.	Thap Cham	_	30	70	_		_	
30.	Xieng Ngeun	-	-	-	_		_	
	Top Value	8.3	47	100	53	100	0	
	Range	0.01–8.3	0–47	0–100	0–53	0–100	0	
	Average	0.7	4.9	40.7	3.4	14.3	0.0	

Note: "-" means data not available.
\* Indicates areas where survey responses were facilitated by CITYNET.

### 2.13. Revenues and Fees for Services

		Total	Sewered	Area	Des	ludging Fee	e Septic	Tanks
S.No.	City	Revenue	Connection Charges	Tariff Rate		vate		rnment
		\$/capita	\$/Connection	\$/m <sup>,</sup>	\$	% share	\$	% share
1.	Banda Aceh*	0.03	_		7.5	45	7.5	55
2.	Bharatpur	_	80.0	0.8	=	_	_	_
3.	Bhopal	_	50.0	30–90				_
4.	Calbayog*	_	_	_	_			_
5.	Cam Ranh	_	100	0.015	25	100	0	0
6.	Colombo*	_	_					
7.	Dewas	_	_	_	_	_	_	_
8.	Dhaka*	_	18.3	6	_	_	_	_
9.	Gwalior	_	_	_	_	_	_	_
10.	Hetauda	_	80.0	0.8	_	_	_	_
11.	Ho Chi Minh*	-	-	=	=	-	-	=
12.	Hue*	9.2	_	=	4.0	1	3.5	99
13.	Indore	_	50.0	30–90***	-	_	_	-
14.	Jabalpur	15.0	_	_	0	0	30	100
15.	Jinghong	_	_	_	0	_	-	100
16.	Kathmandu	_	_	=	30.0	70	20	30
17.	Kunming	_	_	_	_	0	-	100
18.	Lekhnath	_	_	_	-	-	_	_
19.	Makati*	_	_	_	-	100	_	0
20.	Mangalore	_	_	_	_	-	_	_
21.	Nasrullahganj	0.03	0.6	_	_	_	20	100
22.	Negombo*	_	_	_	0.0	0	10	100
23.	Phine	_	_	_	-	-	_	_
24.	Pokhara	_	_	_	_	_	-	_
25.	Puer	3.2	_	_	0.0	0	_	0
26.	San Fernando*	_	_	_	133.0	100	0	-
27.	Sayabouly			_	18.0	-	_	-
28.	Song Cau		110	0.015	25.0	100	_	-
29.	Thap Cham	-	110	0.015	25.0	100	_	0
30.	Xieng Ngeun	-	_	-	30.0	100	18	30
	Top Value	15.0	110	90	133	100	30	100
	Range	0.03-15.0	0.6–110	0.015–90	4–133	0- 100	0–30	0– 100
	Average	0.9	20.0	0.3	9.9	23.9	3.6	23.8

Note: "-" means data not available, m3 = cubic meter.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.
\*\* Environmental charge added to water tariff.

<sup>\*\*\*</sup> Proposed tariff.

#### 2.14a. Environmental Situation - I

		Monitoring	Source of Water Pollution							
S.No.	City	Water Quality	Household Solid Waste	Household Liquid Waste	Industrial Waste	Commercial Waste	Hospital Waste			
		Y/N	%	%	%	%	%			
1.	Banda Aceh*	Υ	5	50	10	35	0			
2.	Bharatpur	N	50	50	0	0	0			
3.	Bhopal	Υ	10	60	10	15	5			
4.	Calbayog*	N	45	35	2	15	3			
5.	Cam Ranh	Υ	10	32	12	20	10			
6.	Colombo*	Υ	10	20	38	15	17			
7.	Dewas	_	_	_	=	-	-			
8.	Dhaka*	Υ	15	40	30	10	5			
9.	Gwalior	Υ	10	60	10	15	5			
10.	Hetauda	Υ	30	60	10	0	0			
11.	Ho Chi Minh*	Υ	5	60	25	5	5			
12.	Hue*	Υ	50	36	5	5	4			
13.	Indore	Υ	10	60	10	15	5			
14.	Jabalpur	Υ	10	70	0	18	2			
15.	Jinghong	Υ	12	38	34	11	5			
16.	Kathmandu	N	20	80	0	0	0			
17.	Kunming	Υ	0	50	10	0	0			
18.	Lekhnath	Υ	50	50	0	0	0			
19.	Makati*	Υ	5	71	<1	20	<1			
20.	Mangalore	_	_	_	=	-	-			
21.	Nasrullahganj	_	_	_	=	-	-			
22.	Negombo*	N	67	15	3	15	0			
23.	Phine	Υ	50	50	-	-	_			
24.	Pokhara	N	50	40	10	-	-			
25.	Puer	Υ	_	_	-	-	_			
26.	San Fernando*	Υ			_	_	_			
27.	Sayabouly	Υ	50	50	-	_	_			
28.	Song Cau	Υ	10	32	20	10	10			
29.	Thap Cham	Υ	26	30	13	31	0			
30.	Xieng Ngeun	_	50	50	0	0	-			
	Top Value	_	67	80	38	35	17			
	Range	_	0–67	15–80	0–38	0–35	0–17			
	Average	_	21.7	39.6	8.4	8.5	2.5			

Y = yes, N = no. Note: "-" means data not available. \* Indicates areas where survey responses were facilitated by CITYNET.

2.14b. Environmental Situation - II

		Required to	Wastewate	r Treatme	nt				
S.No.	City	Treat Own		Own Central Treatment Sewer Plant System		Others	Description		
		Y/N	%	%	%	%			
1.	Banda Aceh*	Υ	_	_	_	_	through septic tank		
2.	Bharatpur	Υ	0	0	100	0	through septic tank		
3.	Bhopal	Υ	0	30	30	40	through septic tank		
4.	Calbayog*	_	0	0	99	1	anaerobic baffled reactor		
5.	Cam Ranh	Υ	-	35	22	43	through septic tank		
6.	Colombo*	Υ	-	-	-	-	through septic tank		
7.	Dewas	Υ	-	-	70	30	through septic tank		
8.	Dhaka*	Υ	-	-	-	-	-		
9.	Gwalior	Υ	0	0	50	50	through septic tank		
10.	Hetauda	Υ	0	0	95	5	through septic tank		
11.	Ho Chi Minh*	Υ	80	0	20	0	-		
12.	Hue*	Υ	7	23	60	10	_		
13.	Indore	Υ	0	30	30	40	through septic tank		
14.	Jabalpur	Υ	0	0	50	50	through septic tank		
15.	Jinghong	Υ	-	_	-	_	_		
16.	Kathmandu	Υ	0	0	100	0	through septic tank		
17.	Kunming	Υ	100	0	0	0	_		
18.	Lekhnath	Υ	0	0	100	0	through septic tank		
19.	Makati*	Υ	87	12	<1	0	through septic tank & STP		
20.	Mangalore	Y		-		_	through septic tank & STP		
21.	Nasrullahganj			_	_	_	through septic tank		
22.	Negombo*	Y	1	_	10	_	_		
23.	Phine	N	_	_	_	_	_		
24.	Pokhara	Υ	0	0	100	0	_		
25.	Puer	Υ	0	29	71	0	_		
26.	San Fernando*	Υ	_	_	-	_	_		
27.	Sayabouly	_	_		_	_	_		
28.	Song Cau	Υ	35	0	22	43	through septic tank		
29.	Thap Cham	Υ	0	35	65	0	through septic tank		
30.	Xieng Ngeun	-					_		
	Top Value	-	100	35	100	50			
	Range	_	0–100	0–35	0–100	0–50			
	Average	_	10.3	6.5	36.5	10.4			

Y = yes, N = no. Note: "-" means data not available.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

### 2.14c. Environmental Situation - III

		Located in	Riv	Adjoining Town			
S.No.	City	River Basin	River/Basin Name	Basin Area	City	Pollution	Sanitation
		Y/N	Name	Ha	Location	Load	Work/Plan
1.	Banda Aceh*	Υ	Krueng Aceh	75.15	Downstream	Low	Individual
2.	Bharatpur	Υ	Narayani	-	Midstream	_	_
3.	Bhopal	Υ	Kolans	36,500	Downstream	_	_
4.	Calbayog*	N	-	=		Medium	_
5.	Cam Ranh	N	_	-		_	_
6.	Colombo*	Υ	Kelani River	-	Downstream	Heavy	Cooperative
7.	Dewas	Υ	Kshipra River	_	Mid stream	High	_
8.	Dhaka*	Υ	Sitalakhay,Buriganga, Turag, Tha Balu	_	Midstream	Medium	Cooperative
9.	Gwalior	Υ	Swama Rekha	2,000	Midstream	High	_
10.	Hetauda	Υ	Rapti and Karra	-	Downstream	_	_
11.	Ho Chi Minh*	Υ	Sai Gon– Dong Nai	4,826,800	Downstream	Heavy	Individual
12.	Hue*	Υ	Perfume River	5,000	Midstream	-	_
13.	Indore	Υ	Khan and Saraswati	_	Midstream	_	_
14.	Jabalpur	Υ	Narmada	4,939,800	Midstream	_	_
15.	Jinghong	Υ	Lancang River, Liusha River	709,300	Downstream	Medium	-
16.	Kathmandu	Υ	Bagmati, Bishnumati, Dhobikhola	_	Midstream	Heavy	Individual
17.	Kunming	Υ	Jinsha River	292,000	Upstream	Medium	_
18.	Lekhnath	Υ	Seti Gandakii	-	Upstream	Heavy	Individual
19.	Makati*	Υ	Pamarisan River	556	Midstream	Medium	Cooperative
20.	Mangalore	Υ	Gurupur & Netravathi Rivers	_	Upstream	High	-
21.	Nasrullahganj	N	_	-	_	_	_
22.	Negombo*	Υ	Maha Oya	-	Downstream	Medium	_
23.	Phine	Υ	Sedon River	-	Upstream	Medium	_
24.	Pokhara	Υ	Seti Gandakii	-	_	Low	_
25.	Puer	Υ	Langcang River	5,000	Midstream	Medium	Individual
26.	San Fernando*	N	_	-	_	Medium	Individual
27.	Sayabouly	Υ	Houng River	_	Upstream	_	_
28.	Song Cau	N	_	-	-	_	_
29.	Thap Cham	N	-	-	-	Low	Individual
30.	Xieng Ngeun	Υ	Khan River	_	Upstream	Medium	Individual
	Top Value	_	-	4,939,800	_	_	_
	Range		_	75.15– 4,939,800		-	-
	Average	_	_	360,567.7	_	_	_

Y = yes, N = no. Note: "-" means data not available.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

### 2.15a. Sanitation Planning - I

		Existing Sani	tation Plan		Planned S	anitation St	
S.No.	City	With Sanitation Plan	Year Made	Planned Year	Total Amount	Amount per Capita	Source of Fund
		Y/N	Year	Year	\$(M)	\$/capita	Name
1.	Banda Aceh*	N	=	-	_	-	-
2.	Bharatpur	N	=	-	_	-	-
3.	Bhopal	N	-	-	_	9.6	Other agency
4.	Calbayog*	N	_	_	_	0.7	General Fund, City Government
5.	Cam Ranh	N	_	2015	_	_	_
6.	Colombo*	Υ	_	_	_	_	_
7.	Dewas	Υ	2011	-	24.1	85.9	Grants & revenues
8.	Dhaka*	N	-	-	_	_	World Bank
9.	Gwalior	Υ	2011	-	49.5	46.5	Other agency
10.	Hetauda	Υ	_	_	_	_	_
11.	Ho Chi Minh*	Υ	_	_	_	_	_
12.	Hue*	N	_	_	250.00	762.7	JBIC
13.	Indore	Υ	2006	_	13.00	7.9	Other agency
14.	Jabalpur	N	_	_	37.00	39.7	Other agency
15.	Jinghong	Υ	_	_	_	_	_
16.	Kathmandu	N	_	2015	_	_	_
17.	Kunming	Υ	-	-	_	_	-
18.	Lekhnath	N	_	_	_	_	_
19.	Makati*	Υ	_	_	_	_	_
20.	Mangalore	_	_	_	_	_	_
21.	Nasrullahganj	Υ	2011	_	1.9	9.44	Government Grants
22.	Negombo*	N	_	_	-	-	_
23.	Phine	N	_	2020	_	_	_
24.	Pokhara	N	_	_	_	_	_
25.	Puer	Υ	=	_	_	_	_
26.	San Fernando*	Y	=	_	_	_	_
27.	Sayabouly	N	_	2020	_	_	_
28.	Song Cau	N	_	_	_	_	_
29.	Thap Cham	N	_	_	_	_	_
30.	Xieng Ngeun	Υ	2007	_	_	_	_
	Top Value	_	2006	2020	250.0	762.7	_
	Range		2006–2011	2015– 2020	1.9– 250.0	0.7–762.7	-
	Average	-	2009	2018	12.5	32.1	-

 $\mathsf{JBIC} = \mathsf{Japan} \; \mathsf{Bank} \; \mathsf{for} \; \mathsf{International} \; \mathsf{Cooperation}, \; \mathsf{Y} = \mathsf{yes}, \; \mathsf{N} = \mathsf{no}.$ 

Note: "-" means data not available.

 $<sup>\</sup>ensuremath{^{\star}}$  Indicates areas where survey responses were facilitated by CITYNET.

### 2.15b. Sanitation Planning - II

S.No.	City	Major Sanitation Problem	Future Programs/ Projects List	Indicator	Funding Amount \$(M)	Source of Fund
1.	Banda Aceh*	Disposal of wastes without treatment	Sanitation Master Plan	-	_	-
2.	Bharatpur	Lack of sanitary urban facilities	Make the city open defecation free	open defecation	_	_
3.	Bhopal	There are still open defecation	Making the city "open defecation free."	open defecation	-	_
4.	Calbayog*	Pollution of bodies of water (e.g., rivers, sea, swamps) of wastewater	_	_	_	_
5.	Cam Ranh	Pollution due to disposal of untreated wastes	-	Open disposal	-	_
6.	Colombo*	100– year– old sewer system needs rehabilitation	Rehabilitation of main sewer lines	-	-	ADB
7.	Dewas	Pollution due to disposal of untreated wastes	Construction of sanitation system	Open defecation	24.1	Various sources
8.	Dhaka*	Unprecedented increase in population, Upland urbanization	North Dhaka East Sewerage treatment plant and associated works	_	_	World Bank/ PR China
9.	Gwalior	Missing sewer links, insufficient community toilet	Make the city open defecation free	open defecation	-	_
10.	Hetauda	Poor cannot afford basic sanitation services	Make municipality open defecation free	open defecation	-	-
11.	Ho Chi Minh*	Wastewater discharged into canals and rivers	_	-	-	_
12.	Hue*	Rivers/lakes water pollution	-	_	_	_
13.	Indore	Missing sewer links, insufficient community toilet	Open defecation free and totally sewered	open defecation	-	-
14.	Jabalpur	Absence of sewer system	Slum improvement and sewerage system	open defecation	-	GOI, ADB Municipal Corporation, Jabalpur
15.	Jinghong	Increase in pollution due to increased	_	_	_	-
16.	Kathmandu	Wastewater directly discharged into the river.	-	-	-	-
17.	Kunming	Rate of wastewater treatment cannot meet the requirements	Improvement of water supply, sanitation, and treatment	_	1.79	Kunming Government, UN– HABITAT
18.	Lekhnath	No sewer and waste water treatment facilities	Open defecation– free city	open defecation	_	=
19.	Makati*	Lack of understanding and appreciation of local pollution laws.	Capacity building of deputized barangay officials	-	_	-
20.	Mangalore	Inadequate treatment of waste	Implementation of sanitation Plan	Disposal of treated	1.9	grants

S.No.	City	Major Sanitation Problem	Future Programs/ Projects List	Indicator	Funding Amount \$(M)	Source of Fund
				wastes		
21.	Nasrullahganj	Pollution due to disposal of untreated wastes				
22.	Negombo*	No septage/sewage treatment facility	Construction of septage/ sewage treatment plants	_	_	-
23.	Phine	Uncontrolled disposal of waste	Improving access to sanitation facilities	_	_	_
24.	Pokhara	No waste water treatment facilities		-	_	-
25.	Puer	_	-	-	-	_
26.	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
27.	Sayabouly	No wastewater system in the town	_	_	_	_
28.	Song Cau	Uncontrolled disposal of waste	Improving access to sanitation facilities	_	_	_
29.	Thap Cham	Unhygienic sanitary facilities	_	_	_	_
30.	Xieng Ngeun	Uncontrolled disposal of waste	Improving access to sanitation facilities	_	=	_
	Top Value	_	_	_	24.1	_
	Range	_	=	-	0.96– 24.1	-
	Average	_	_	-	1.0	_

ADB = Asian Development Bank, GOI = Government of India. Note: "-" means data not available.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

### 2.16. Organizational Arrangement

		Number of Institutions Involved in Sanitation								
S.No.	City	G	overnmen	t	Priva	ite	NGO			
		National	Local	Utility	Water Utility	Enterprise	NGO			
1.	Banda Aceh*	3	1	-	-	_	_			
2.	Bharatpur	_	1	2	-	_	_			
3.	Bhopal	_	2	-	_	_	_			
4.	Calbayog*	_	3	_	_	_	_			
5.	Cam Ranh	_	_	1	_	_	_			
6.	Colombo*	_	1	_	_	_	_			
7.	Dewas	_	_	_	_	_	_			
8.	Dhaka*	_	1	1	_	_	_			
9.	Gwalior	_	2	_	-	_	_			
10.	Hetauda	_	_	1	_	_	1			
11.	Ho Chi Minh*	6	1	_	_	_	_			
12.	Hue*	_	1	1	_	_	_			
13.	Indore	_	2	_	-	-	_			
14.	Jabalpur	_	2	_	_	_	_			
15.	Jinghong	-	1	2	-	-	_			
16.	Kathmandu	1	2	-	1	1	2			
17.	Kunming	_	3	1	-	_	_			
18.	Lekhnath	_	_	1	-	_	_			
19.	Makati*	3	2	_	2	_	_			
20.	Mangalore	_	_	_	-	_	_			
21.	Nasrullahganj	_	_	_	-	_	_			
22.	Negombo*	1	1	_	_	_	_			
23.	Phine	_	1	_	_	_	_			
24.	Pokhara	_	1	_	_	_	_			
25.	Puer	_	2	2	_	_	_			
26.	San Fernando*	_	4	_	_	_	_			
27.	Sayabouly	_	2	-	_	_	_			
28.	Song Cau	_	-	1	-	_	_			
29.	Thap Cham	_	-	1	-	1	_			
30.	Xieng Ngeun	_	2	_	-	_	_			
	Top Value	6	4	2	2	1	2			
	Range	1–6	1–4	1–2	1–2	1–2	1–2			
	Average	0.5	1.3	0.5	0.1	0.1	0.1			

NGO = nongovernment organization. Note: "-" means data not available.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

### 2.17. Personnel Complement

			Gov	/ernment		Pi	Private		
S.No.	City	Total Personnel	Planning & Monitoring	Construction	Operations & Maintenance	Total Personnel	Operations & Maintenance		
		#/10,000 pop'n	%	%	%	#/10,000 pop'n	%		
1.	Banda Aceh*	2.14	100	100	100	_	_		
2.	Bharatpur	5.15	_	_	_	_	_		
3.	Bhopal	11.95	_	_	_	-	_		
4.	Calbayog*	9.8	_	_	_	-	_		
5.	Cam Ranh	=	_	_	_	-	_		
6.	Colombo*	6.01	100	100	100	_	_		
7.	Dewas	6.0	_	_	_	-	_		
8.	Dhaka*	0.73	_	_	_	_	_		
9.	Gwalior	20.56	_	_	_	_	_		
10.	Hetauda	_	_	_	_	_	_		
11.	Ho Chi Minh*	_	_	_	_	_	_		
12.	Hue*	36.3	43.7	_	_	_	_		
13.	Indore	14.03	_	_	_	_	_		
14.	Jabalpur	21.67	_	_	_	_	_		
15.	Jinghong	9.76	23.4	_	76.6	_	_		
16.	Kathmandu	0.46	_	_	_	12.3	_		
17.	Kunming	-	_	_	_	_	_		
18.	Lekhnath	3.14	_	_	_	_	_		
19.	Makati*	_	_	_	_	30.96	_		
20.	Mangalore	_	_	_	_	_	_		
21.	Nasrullahganj	47	5	6	89	_	_		
22.	Negombo*	13.3	50	_	50	_	_		
23.	Phine	_	_	_	_	_	_		
24.	Pokhara	6.26				-			
25.	Puer	10.15	12.7		87.3	-			
26.	San Fernando*	2.09	_	_	_	_	_		
27.	Sayabouly	0.4	-	-	-	_	_		
28.	Song Cau	16	10	30	60	_	_		
29.	Thap Cham	10.5	10	30	60	_	_		
30.	Xieng Ngeun	17.1	_	_	84.4	_	_		
	Top Value	21.67	100	100	100.0	30.96	_		
	Range	0.4–21.67	5– 100	6– 100	50–100.0	12.3–30.96	_		
	Average	9.0	11.8	8.9	23.6	1.4	_		

Pop'n = population. Note: "—" means data not available.

<sup>\*</sup> Indicates areas whose survey responses were facilitated by CITYNET.

### 2.18. Legal Framework

		Number of	Laws on				llecting Fees for tion Service
S.No.	City	Sanitat		Year E	nacted	With Law?	Year Enacted
		National	Local	Oldest	Latest	Y/N	rear Eriactea
1.	Banda Aceh*	1	_	1947	_	Υ	1947
2.	Bharatpur	1	_	1996	1996	Υ	1999
3.	Bhopal	_	1	1956	1956	Υ	1956
4.	Calbayog*	2	_	2000	2002	N	-
5.	Cam Ranh	2	1	2003	2006	Υ	2003 & 2004
6.	Colombo*	1	1	1947	1980	_	-
7.	Dewas	1	1	1956	2000	Υ	2000
8.	Dhaka*	3	1	1983	1998	Υ	1996
9.	Gwalior	_	2	1956	2000	Υ	2000
10.	Hetauda	1	_	1993	2011	Υ	1999
11.	Ho Chi Minh*	1	3	2006	2007	Υ	2003
12.	Hue*	1	_	2005	2005	Υ	2007
13.	Indore	_	1	1956	1956	Υ	1956
14.	Jabalpur	_	1	1956	1956	Υ	1956
15.	Jinghong	3	_	2001	2005	N	_
16.	Kathmandu	4	-	1996	2011	Υ	1990
17.	Kunming	3	1	1984	2002	Υ	2002
18.	Lekhnath	1	_	1993	1993	Υ	1999
19.	Makati*	7	2	1974	2011	Υ	1997
20.	Mangalore	2	1	_	2000	Υ	2000
21.	Nasrullahganj	1	1	1956	2000	Υ	2000
22.	Negombo*	_	-	_	-	N	_
23.	Phine	2	-	1991	1999	_	_
24.	Pokhara	_	-	=	-	=	-
25.	Puer	1	1	1994	2002	N	-
26.	San Fernando*	4	2	1972	2006	N	-
27.	Sayabouly	1	1	1999	2007	N	-
28.	Song Cau	2	1	2003	2007	Υ	2003
29.	Thap Cham	2	1	2003	2007	Υ	2003
30.	Xieng Ngeun					N	
	Top Value	7	3	2007	2007	_	2007
	Range	1–4	1–3	1947–2007	1956–2011	_	1947–2007
	Average	1.6	0.8	1985	1995		1985

Y = yes, N = no. Note: "-" means data not available.

<sup>\*</sup> Indicates areas where survey responses were facilitated by CITYNET.

# PART III: CITY SANITATION PROFILE

### 1. Dhaka, Bangladesh

Dhaka		For All Surveyed Cities and Municipalities
Coordinator	Md. Golam Mostofa, Secretary	
Office	Dhaka City Corporation	
Address	5, Hafezi Huzur Road, Fulbaria, Dhaka, Bangladesh	
Fax	88029565979	<del></del>
Telephone	88029563507	
E-mail address	mayordhaka@yahoo.com	<del></del>

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2007)	#(000) 11,000.00 11,000.00 21.7 - 11,000.0  % 5.00 7.10 0.35 - 7.10  #(000) 2,301.26 2,301.30 2.86 - 2,301.26  # 4.78 7.6 3.2 - 7.6  % 9.10 844.1 0 - 844.1  % 36.36 48.0 0 - 48.0  ha (000) 36.00 2,101.20 2.7 - 2,101.2  % 94.5 0.3 - 94.5  % 59.72 59.7 0 - 59.7  % 0 99.7 0 - 99.7  % 0 98.5 0 - 98.5  % 0 98.5 0 - 98.5  % 0 35.96 0 - 35.96  #/ha 305.60 305.6 0.5 - 305.6  #/ha - 426.0 6 - 426.0  #/ha - 184.0 4.0 - 184.0  #/ha - 133.0 3.0 - 133.0  #/ha - 1,519.4 20.0 - 1,519.4  Unit City Value Top Value Range A  ('000) ha 36.00 99.7 3.6 - 99.7  M 30.0 100.0 0.0 - 100.0  % 20.0 100.0 0.0 - 100.0  % 80.0 99.7 3.6 - 99.7	1200.3			
	Growth Rate	%	5.00	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	2,301.26	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	4.78	7.6	3.2 – 7.6	4.9
	Floating Population	%	9.10	844.1	0 – 844.1	34.5
	Urban Poor	%	36.36	48.0	0 – 48.0	14.6
	City Area	ha (000)	36.00	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%		94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	59.72	59.7	0 – 59.7	13.5
	Urban Fringe	%	0	99.7	0 – 99.7	18.9
	Peri–Urban	%	0	98.5	0 – 98.5	34.9
	Slum Area	%	0	35.96	0 – 35.96	4.3
	Average City Density	#/ha	305.60	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	_	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	_	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	-	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	_	1,519.4	20.0 – 1,519.4	120.7
<b>Sanitation Covera</b>	ige	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	36.00	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	30.6	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	97.2	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	11,000.00	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	20.0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	80.0	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	20	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	45	100.0	0.0–100.0	44.0
	III. Communal with Septic	%	0.0	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	%	20.0	59 9	0.0–59.9	13.9
	V. Eco Sanitation					0.0
	VI. Open Defecation					7.3
	Toilet System					
	Type I	%	20	100.0	0–100.0	13.7
	Type la	%	0	88.9		9.3
	Type II		0			12.6
	Type lla	%	45			32.2
	Type III	%	_			0.1
	Type IIIa					2.8
	Type IIIa					
		%	20	59.9	0–59.9	13.9
	Type IV Type IVa					13.9 5.6
	Type IV					5.6

Type VI & VIa	%	15	22.5	0–22.5	7.5
Type VIb	%	0	12.0	0–12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	109.1	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	-	100.0	0–100.0	57.7
National Government	%	100	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	-	135.0	50–135.0	6.2
Provider					
Local Government	%	-	100.0	0–100.0	57.7
National Government	%	-	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Desludging Services					
Frequency	year	-	12.0	0–12.0	0.6
Provider					
Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source					
Central Water Supply–Individual	%	80.0	95.0	3.60–95.0	64.
Central Water Supply–Communal	%	0	46.7	0.0–46.7	5
Borehole	%	0	54.5	0.0-54.5	14.
Protected Spring/Well	%	20.0	96.4	0.0-96.4	10.3
Rainwater	%	0	20.0	0.0-20.0	8.
Water Vendor	%	0	35.0	0.0–35.0	5.
Population Buying Bottled Water	%	5	80.0	0-80.0	12.9
Average Water Consumption	lpcd	140.0	160.0	29–160.0	72.
Water Treatment Facilities	lpcd	16.4	321.5	1.5–321.5	55.6
Local Government	%	0	100.0	0–100.0	47.5
National Government	%	100.0	100.0	0–100.0	26.5
Private Concessionaire	%	0	100.0	0–100.0	9.3
O	11:4	Cita Valar	Top Value	D	
Organizational Arrangement Institutions Involved in Sanitation	Unit	City Value	10p value	Range	Average
Public Sector  National Government	#		6	1–6	0.5
Local Government	#		4	1-4	1.3
State— Owned Utility	#	1	2	1–4	0.5
Private Sector	#	I	2	I-Z	0
Water Utility	#		2	0–2	0.
Enterprise	#		1	0-2	0.
·	#	_	2	0-2	0.
Nongovernment Organization	#		2	0–2	0.
Number of Personnel					
Public Sector	ш	0.77	24.67	0.4.24.67	-
Total Personnel (per 10,000 pop'n)	#	0.73	21.67	0.4–21.67	9.0
Planning and Monitoring	%		100	5–100	11.8
Construction	%	_	100	6–100	8.
Operations and Maintenance	%	_	100	50–100.0	23.6
Private Sector					
Total Personnel (per 10,000 pop,n)	#	_	30.96	12.3–30.96	1.4
• •					

	Operations and Maintenance	%	_	-		
Legal Framework		Unit	City Value	Top Value	Range	Average
Legal Mandate of Sar						
	Number of Laws on Sanitation					
	National	#	3	7	1–4	1.
	Local	#	1	3	1–3	1.
	Year Enacted					
	Oldest	year	1983	2007	1947–2007	198
	Latest	year	1998	2007	1956–2007	199
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Y	17	7–17	
	Year Enacted	year	1996	2007	1947–2007	198
Planning		Unit	City Value	Top Value	Range	Averag
Strategic Sanitation P	lan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year	_	2007	2006–2011	200
	New Sanitation Plan	-				
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year		2020	2015–2020	201
	Estimated Cost	\$		250	1.9–250.0	12.
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.
	Source of Fund	list	World Bank	, 52.7	0., 702.,	
Sanitation Problem	Major Sanitation Problem	Unprecedented in				
Sanitation (Toblem	Major Sanitation (Toblem	population, Uplan				
	Future Programs/Projects	treatment plant ar	North Dhaka East Sewerage treatment plant and associated works			
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.
	Funding Source	list	World Bank/			
Capital Investmer	nt	Unit	PR China  City Value	Top Value	Range	Averag
Capital Investmen	Annual Capital Investment	Ollit	City value	10p value	Nange	Averag
	Annual Amount	\$/capita	_	168.0	0.5–168.0	10.
	Source of Fund	<b>ψ/Caριta</b>		100.0	0.5-100.0	10.
	National Government	0/	20	90.0	0.0–90.0	22
	Local Government	%	20	100.0	0.0–90.0	22. 18.
	Loans	%	80	99.0	0.0–99.0	15.
	Tariff Revenue	%	0	0	0-0	
	Others	%	0	100.0	0.0–100.0	9.
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Averag
	Annual O&M Cost					
	Annual Amount	\$/capita	_	8.3	0.01–8.3	0.
	Source of Fund					
	National Government	%	0	47.0	0–47	4
	Local Covernment	%	0	100.0	0–100	40
	Local Government					
	Loans	%	0	53.0	0–53	
		%	100	100.0	0–53	
	Loans					14.
Revenues and Fee	Loans Tariff Revenue Others	%	100	100.0	0–100	3. 14.  Average
Revenues and Fee	Loans Tariff Revenue Others	%	100	100.0	0–100	14.
Revenues and Fee	Loans Tariff Revenue Others es for Services	%	100	100.0	0–100	14.
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees	% W	100 0 City Value	100.0 0 <b>Top Value</b>	0–100 0 <b>Range</b>	14.
Revenues and Fee	Loans Tariff Revenue Others  s for Services Annual Revenues and Fees Total Revenue	% W	100 0 City Value	100.0 0 <b>Top Value</b>	0–100 0 <b>Range</b>	14.

Septic Tank Desludging Fee					
Private	\$/ST	_	133	4–133	9.9
Government	\$/ST	-	100	0–100	23.9
Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	15	67	0–67	21.7
Household Liquid Waste	%	40	80	15–80	39.6
Industrial Waste	%	30	38	0–38	8.4
Commercial Waste	%	10	35	0–35	8.5
Hospital Waste	%	5	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Y			
Current Wastewater Disposal					
Own Treatment Plant	%	_	100	0–100	10.3
Central Sewer System	%	-	35	0–35	6.5
No Treatment	%	_	100	0–100	36.5
Others	%	_	50	0–50	10.4
Description	List	_			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Tha Balu	Buriganga, Turag,			
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.7
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	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	11450 MPN/100ml	22000#/ 100ml	<1- 22000	
BOD	mg/l	30.0	180	1.28–180.0	18.7
COD	mg/l	80.0	973	7.1–973.0	72.4
Total Suspended Solids	mg/l	30.0	261	1.0–261.0	49.6
Heavy Metals	mg/l		16.7	0.25–16.7	0.6
Health Statistics	Unit	City Value	Top Value	Range	Average
Sanitation – Related Diseases					
Reported Cases (per 10,000 population)					
Diarrhea	#	_	594.14	0.75–594.14	50.1
Hepatitis A & B	#	_	6.83	0.13–6.86	3.0
Trachoma	#	_	294.55	0.00–294.55	20.1
Acute Lower Respiratory Infection	#	_	507.79	0.32–507.79	153.9
Measles	#	_	4.45	0.00–4.45	0.3
Malaria	#	_	_	0.0–3.54	0.7
Death (children under 5 years) (per 10,000 population					
Diarrhea	#	-	0.47	0.0-0.47	0.0
Hepatitis A & B	#	_	0.25	0.0-0.25	0.0
Trachoma	#	_	0	0-0	0.0
Acute Lower Respiratory Infection	#	-	6.3	0.00–6.3	0.2
	ш		1.3	0.00-1.3	0.0
Measles Malaria	#		14.2	0.00–14.2	0.6

### 2. Bhopal, India

Bhopal		For All Surveyed Cities and Municipalities
Coordinator	Mr. Rajesh Bisaria, Project Manager	
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Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	1,883.3	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	3.50	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	258.58	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	5.9	7.6	3.2 – 7.6	4.9
	Floating Population	%	3.5	844.1	0 - 844.1	34.5
	Urban Poor	%	22.68	48.0	0 – 48.0	14.6
	City Area	ha (000)	28.5	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	9.8	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	11.9	59.7	0 – 59.7	13.5
	Urban Fringe	%	20.0	99.7	0 – 99.7	18.9
	Peri–Urban	%	50.2	98.5	0 – 98.5	34.9
	Slum Area	%	8.07	35.96	0 – 35.96	4.3
	Average City Density	#/ha	66.0	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	153.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	75.0	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	55.0	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	20.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	62.0	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	28.50	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	50.0	100.0	0.0 – 100.0	26.9
	Central Water Supply System	%	70.0	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	1,883.3	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	42.0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	45.3	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	42.0	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	31.3	100.0	0.0–100.0	44.0
	III. Communal with Septic	%	2.1	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	%	2.1	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%	0.0	0.9	0.0-0.9	0.0
		%	22.5	61.0	0.0–61.0	7.3
	vi. Open Defecation					
	VI. Open Defecation  Toilet System					
	Toilet System	%		100.0		13.7
	Toilet System Type I		42		0–100.0 0–88.9	13.7
	Toilet System  Type I  Type la	%	42	100.0	0–100.0 0–88.9	9.3
	Toilet System Type I Type la Type II	%	42 0 -	100.0 88.9 93.1	0–100.0 0–88.9 0–93.1	9.3 12.6
	Toilet System Type I Type la Type II Type IIa	% % %	42	100.0	0–100.0 0–88.9	9.3 12.6 32.2
	Toilet System Type I Type la Type II Type IIa Type IIa	% % %	42 0 - 31.3	100.0 88.9 93.1 100.0 2.0	0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	9.3 12.6 32.2 0.1
	Toilet System Type I Type la Type II Type IIa Type III Type III	% % % % %	42 0 - 31.3 - 2.1	100.0 88.9 93.1 100.0 2.0 61.0	0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	9.3 12.6 32.2 0.1 2.8
	Toilet System Type I Type la Type II Type IIa Type III Type III Type IIII Type IV	% % % % %	42 0 - 31.3	100.0 88.9 93.1 100.0 2.0 61.0 59.9	0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	9.3 12.6 32.2 0.1 2.8 13.9
	Toilet System Type I Type la Type II Type IIa Type III Type III	% % % % %	42 0 - 31.3 - 2.1	100.0 88.9 93.1 100.0 2.0 61.0	0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	9.3 12.6 32.2 0.1 2.8

Type VI & VIa	%	22.5	22.5	0–22.5	7.5
Type VIb	%	0	12.0	0-12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	534.1	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	100.0	100.0	0–100.0	57.7
National Government	%	-	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Septage Treatment Plant					
Capacity	m3/d		135.0	50–135.0	6.2
Provider					
Local Government	%	-	100.0	0–100.0	57.7
National Government	%		100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Desludging Services					
Frequency	year		12.0	0–12.0	0.6
Provider					
Government	%	_	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source					
Central Water Supply–Individual	%	43.3	95.0	3.60–95.0	64.5
Central Water Supply–Communal	%	1.9	46.7	0.0-46.7	5.!
Borehole	%	54.5	54.5	0.0-54.5	14.
Protected Spring/Well	%	0.2	96.4	0.0–96.4	10.3
Rainwater	%	0	20.0	0.0–20.0	8.
Water Vendor	%	0	35.0	0.0–35.0	5.1
Population Buying Bottled Water	%	_	80.0	0–80.0	12.9
Average Water Consumption	lpcd	160.0	160.0	29–160.0	72.
Water Treatment Facilities	lpcd	17.1	321.5	1.5–321.5	55.6
Local Government	%	100	100.0	0–100.0	47.5
National Government	%	0	100.0	0–100.0	26.5
Private Concessionaire	%	0	100.0	0–100.0	9.3
Organizational Arrangement	Unit	City Value	Top Value	Range	Average
Institutions Involved in Sanitation	Onit	City value	Top value	Kange	Average
Public Sector					
National Government	#	_	6	1–6	0.5
Local Government	#	2	4	1–4	1.3
State– Owned Utility	#		2	1–2	0.!
Private Sector	"			1 2	0
Water Utility	#	_	2	0–2	0.
Enterprise	#		1	0–2	0.
Nongovernment Organization	#		2	0-2	0.
Number of Personnel	"			0.2	<u> </u>
Public Sector					
Total Personnel (per 10,000	#	11.95	21.67	0.4–21.67	9.0
pop'n) Planning and Monitoring	%		100	5–100	11.8
Construction	%		100	6–100	8.9
Operations and Maintenance	%		100	50–100.0	23.6
Private Sector				22 100.0	
Total Personnel (per 10,000 pop,n)	#	-	30.96	12.3–30.96	1.4
1 1 / /					

	Operations and Maintenance	%	_	_		
Legal Framework	<u> </u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sai	nitation					
	Number of Laws on Sanitation					
	National	#	_	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	1956	2007	1947–2007	1985
	Latest	year	1956	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Y	17	7–17	-
	Year Enacted	year	1956	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	Plan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	9.6	762.7	0.7–762.7	32.1
	Source of Fund	list	Other Agency			
Sanitation Problem	Major Sanitation Problem	There are still ope				
	Future Programs/Projects	Making the city " free"				
	Funding Amount	\$/capita	-	24.1	0.96-24.1	1.0
	Funding Source	list	-			
Capital Investmen	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	12.5	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	70	90.0	0.0–90.0	22.1
	Local Government	%	12	100.0	0.0-100.0	18.5
	Loans	%	18	99.0	0.0-99.0	15.7
	Tariff Revenue	%	0	0	0–0	0
	Others	%	0	100.0	0.0-100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	_	8.3	0.01–8.3	0.7
	Source of Fund					
	National Government	%	0	47.0	0–47	4.9
	Local Government	%	100	100.0	0–100	40.7
	Loans	%	0	53.0	0–53	3.4
	Tariff Revenue	%	0	100.0	0–100	14.3
	Others	%	0	0	0	0
Revenues and Fee	es for Services	Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees			-		
	Total Revenue	\$/capita	_	15	0.3–15.0	0.9
	Sewered Area Charges	· · · · · · · · · · · · · · · · · · ·				
	Connection Charge	\$/connection	50.0	110	0.6–110.0	20.0
				90	0.015–90	0.3
	Tariff Rate	\$/M3	30–90	90	0.013-50	
	Tariff Rate Septic Tank Desludging Fee	\$/m3	30–90	90	0.013-30	0.5
	Septic Tank Desludging Fee Private	\$/M3 \$/ST	30–90	133	4–133	9.9

Government	\$/ST	-	100	0–100	23.9
Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	10	67	0–67	21.7
Household Liquid Waste	%	60	80	15–80	39.6
Industrial Waste	%	10	38	0–38	8.4
Commercial Waste	%	15	35	0–35	8.5
Hospital Waste	%	5	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	30	35	0–35	6.5
No Treatment	%	30	100	0–100	36.5
Others	%	40	50	0–50	10.4
Description	through septic tank				
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Kolans				
Basin Area	ha	36,500	4,939,800	75.15–4,939,800	360,567.
City Location	u,m,d	Downstream			
Adjoining Town					
Pollution Load	vh–vl	_			
Sanitation Work/Plan	i/c	_			
		City Value	Top Value	Range	Average
Environmental Statistics	i/c		Top Value	Range	Average
Environmental Statistics	i/c		22000#/ 100ml	<1- 22000	Average
Environmental Statistics Water Quality – Surface Water	i/c <b>Unit</b>	City Value	22000#/		
Environmental Statistics  Water Quality – Surface Water  Total Coliform	i/c <b>Unit</b> #/ml	City Value	22000#/ 100ml	<1- 22000	18.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD	i/c Unit #/ml mg/l	- City Value 30 #/ ml 6.0	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	i/c Unit  #/ml mg/l mg/l	- City Value 30 #/ ml 6.0 50.0	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4 49.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals	i/c Unit  #/ml  mg/l  mg/l  mg/l	- City Value  30 #/ ml  6.0  50.0  200.0	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics	i/c Unit  #/ml  mg/l  mg/l  mg/l  mg/l	- City Value  30 #/ ml  6.0  50.0  200.0  0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	i/c Unit  #/ml  mg/l  mg/l  mg/l  mg/l	- City Value  30 #/ ml  6.0  50.0  200.0  0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.0
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	i/c Unit  #/ml  mg/l  mg/l  mg/l  mg/l	- City Value  30 #/ ml  6.0  50.0  200.0  0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6 <b>Average</b>
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	i/c Unit  #/ml mg/l mg/l mg/l mg/l Unit	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b>	18.72.49.6 0.6 <b>Average</b>
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	i/c Unit  #/ml mg/l mg/l mg/l mg/l Unit	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.: 72.4 49.0 <b>Average</b> 50.
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	i/c Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Modit  Unit	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86	18. 72.49.0. 0.0 <b>Average</b> 50. 3.0
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	i/c Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55	18. 72. 49. 0.  Average  50. 3. 20.
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	i/c Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  # # #	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18. 72. 49. 0. <b>Averag</b> 50. 3. 20. 153.
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria	i/c	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18.: 72.4 49.6 0.6 <b>Average</b> 50.: 3.0 20.:
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	i/c	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18. <sup>7</sup> 72.49.0 0.1 <b>Average</b> 50. 3.1 20. 153.9 0 0
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)	i/c Unit  #/ml mg/l mg/l mg/l mg/l Unit  # # # # # # #	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54	18. 72. 49. 0. <b>Averago</b> 50. 3. 20. 153. 0.
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	i/c   Unit   #/ml	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54 0.0-0.47	18.: 72.4 49.0 0.0  Average 50. 3.0 20. 153.9 0.0 0.0
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B	i/c	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6 Average 50. 3.6 20. 0.6 0.6 0.6 0.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea Hepatitis A & B  Trachoma	i/c Unit  #/ml mg/l mg/l mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54  0.0-0.25  0-0	18.7 72.4 49.6 0.6 Average  50.7 3.0 20.1 153.9 0.6 0.6 0.6 0.6 0.6 0.6 0.6

### 3. Dewas, India

Dewas	For All Surveyed Cities and Municipalities
Coordinator	
Office	
Address	
Fax	
Telephone	
E–mail address	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	281.00	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	4.1	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	43.90	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	6.4	7.6	3.2 – 7.6	4.9
	Floating Population	%	7.1	844.1	0 – 844.1	34.5
	Urban Poor	%	39.6	48.0	0 – 48.0	14.6
	City Area	ha (000)	10.0	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	10.0	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	20.0	59.7	0 – 59.7	13.5
	Urban Fringe	%	-	99.7	0 – 99.7	18.9
	Peri–Urban	%	49.0	98.5	0 – 98.5	34.9
	Slum Area	%	11.0	35.96	0 – 35.96	4.3
	Average City Density	#/ha	28.0	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	65.7	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	38.8	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	4.3	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	122.7	1,519.4	20.0 – 1,519.4	120.7
<b>Sanitation Covera</b>	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	10.0	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	10.0	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	50.0	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	281.0	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	20.0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	50.0	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	7.0	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	76.0	100.0	0.0–100.0	44.0
	III. Communal with Septic Tank	%	2.0	10.5	0.0–10.5	0.9
	IV. Pit Latrine	%	6.0	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%	-	0.9	0.0-0.9	0.0
	VI. Open Defecation	%	9.0	61.0	0.0-61.0	7.3
	Toilet System					
	Type I	%	-	100.0	0–100.0	13.7
	Type la	%	7.0	88.9	0–88.9	9.3
	Type II	%	_	93.1	0–93.1	12.6
	Type lla	%	76.0	100.0	0–100.0	32.2
	Type III	%	_	2.0	0–2.0	0.1
	Type Illa	%	2.0	61.0	0–61.0	2.8
	туре ша					13.9
	Type IV	%	2.0	59.9	0-59.9	15.9
	**	%	2.0 4.0	59.9 31.9	0–59.9 0–31.9	5.6
	Type IV					

	Type VI & VIa	%	9.0	22.5	0–22.5	7.5
	Type VIb	%	_	12.0	0-12.0	0.4
<b>Treatment Facility</b>		Unit	City Value	Top Value	Range	Average
Waste Water Treatmer	nt Plant					
Capacity (10,000 popu	lation)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	100	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Septage Treatment Pla	nt					
Capacity		m3/d	-	135.0	50–135.0	6.2
	Provider					
	Local Government	%	-	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Desludging Services						
Frequency		year	-	12.0	0–12.0	0.6
	Provider					
	Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
<b>Water Supply Facil</b>	ity	Unit	City Value	Top Value	Range	Average
Household Water Supp	oly Source					
Central Water Supply–	Individual	%	42.0	95.0	3.60–95.0	64.5
Central Water Supply–	Communal	%	15.0	46.7	0.0–46.7	5.5
Borehole		%	36.0	54.5	0.0-54.5	14.1
Protected Spring/Well		%	_	96.4	0.0–96.4	10.3
Rainwater		%	_	20.0	0.0–20.0	8.1
Water Vendor		%	7.0	35.0	0.0–35.0	5.1
Population Buying Bott	led Water	%	_	80.0	0-80.0	12.9
Average Water Consur	nption	lpcd	135.0	160.0	29–160.0	72.1
Water Treatment Facili	ties	lpcd	135.0	321.5	1.5–321.5	55.6
Local Government		%	100.0	100.0	0–100.0	47.5
National Government		%	-	100.0	0–100.0	26.5
Private Concessionaire		%	_	100.0	0–100.0	9.3
Organizational Arr	angement	Unit	City Value	Top Value	Range	Average
Institutions Involved in	Sanitation					
Public Sector						
	National Government	#		6	1–6	0.5
	National Government Local Government	#	-	6	1-6 1-4	
			-			1.3
Private Sector	Local Government	#		4	1–4	1.3
Private Sector	Local Government	#		4	1–4	1.3 0.5
Private Sector	Local Government State– Owned Utility	#		2	1–4 1–2	1.3 0.5 0.1
Private Sector	Local Government State- Owned Utility Water Utility	# # #		2	1–4 1–2 0–2	0.5 0.1 0.1
Private Sector  Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise	# # #	-	2 1	1–4 1–2 0–2 0–2	0.5 1.3 0.5 0.1 0.1 0.1
	Local Government State- Owned Utility Water Utility Enterprise	# # #	-	2 1	1–4 1–2 0–2 0–2	0.5 0.1 0.1
Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization Total Personnel (per 10,000	# # #	-	2 1	1–4 1–2 0–2 0–2	0.5 0.1 0.1 0.1
Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization	# # # # #	- - -	2 1 2	1–4 1–2 0–2 0–2 0–2	0.1 0.1 0.1 0.1
Number of Personnel	Local Government State- Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# # # # #	6.0	2 2 1 2 21.67	1-4 1-2 0-2 0-2 0-2 0.4-21.67	1.3 0.5 0.1 0.1 0.1 9.0
Number of Personnel	Local Government State- Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # #	6.0	2 1 2 2 21.67	1-4 1-2 0-2 0-2 0-2 0.4-21.67 5-100	1.3 0.5 0.1 0.1 0.1 9.0 11.8 8.9
Number of Personnel	Local Government State- Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # # % %	6.0	2 2 1 2 21.67 100	1-4 1-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	0.5 0.1 0.1

	Operations and Maintenance	%	_	_	_	_
Legal Framework	·	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sa	nitation		<u>-</u>	-	-	
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	1956	2007	1947–2007	1985
	Latest	year	2000	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Υ	17	7–17	_
	Year Enacted	year	2000	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan		2.13, 2.11.11	Top canae	9-	7110190
Judicigle Julilianion 1	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Y	11	11–27	
	When Prepared		2011	2007	2006–2011	2009
	New Sanitation Plan	year	2011	2007	2000-2011	2009
	Will Prepare Sanitation Plan	Y/N				
	·			2020	2015 2020	2010
	Preparation Year	year	-	2020	2015–2020	2018
	Estimated Cost	\$	24.1	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	85.9	762.7	0.7–762.7	32.1
	Source of Fund	Grants and reve				
Sanitation Problem	Major Sanitation Problem	Pollution due to untreated waste	es ·			
	Future Programs/Projects		sanitation system			
	Funding Amount	\$/capita	24.1	24.1	0.96–24.1	1.0
	Funding Source	List	Various sources			
Capital Investme		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	_	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	_	90.0	0.0–90.0	22.1
	Local Government	%	_	100.0	0.0–100.0	18.5
	Loans	%	_	99.0	0.0–99.0	15.7
	Tariff Revenue	%	_	0	0–0	0
	Others	%	-	100.0	0.0-100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	-	8.3	0.01–8.3	0.7
	Source of Fund					
	National Government	%	-	47.0	0–47	4.9
	Local Government	%	_	100.0	0–100	40.7
	Loans	%	-	53.0	0–53	3.4
	Tariff Revenue	%	_	100.0	0–100	14.3
	Others	%		0	0	0
Revenues and Fed	es for Services	Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees					
	Total Revenue	\$/capita	_	15	0.3–15.0	0.9
	Sewered Area Charges	·				
	Connection Charge	\$/connection		110	0.6–110.0	20.0
	Tariff Rate	\$/m3		90	0.015–90	0.3
	Septic Tank Desludging Fee	**				
	Private	\$/ST	_	133	4–133	9.9
		4,5,			+ 155	٥.٥

Government	\$/ST	-	100	0–100	23.9
Other Fees	\$		30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	_			
Sources of Water Pollution					
Household Solid Waste	%	_	67	0–67	21.7
Household Liquid Waste	%	-	80	15–80	39.6
Industrial Waste	%	_	38	0–38	8.4
Commercial Waste	%	_	35	0–35	8.5
Hospital Waste	%	-	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	_	100	0–100	10.3
Central Sewer System	%	_	35	0–35	6.5
No Treatment	%	70	100	0–100	36.5
Others	%	30	50	0–50	10.4
Description	Through septic tan	k			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Shipra river				
Basin Area	ha		4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Midstream			
Adjoining Town					
Pollution Load	vh–vl	High			
Sanitation Work/Plan	i/c				
Environmental Statistics	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water			•		
Total Coliform	#/ml		22000#/ 100ml	<1- 22000	
BOD	mg/l	_	180	1.28–180.0	18.7
COD	mg/l	_	973	7.1–973.0	72.4
Total Suspended Solids					
	mg/l	-	261	1.0–261.0	49.6
			261 16.7		
Heavy Metals  Health Statistics	mg/l mg/l <b>Unit</b>	City Value		1.0–261.0	49.6 0.6 <b>Average</b>
Heavy Metals	mg/l		16.7	1.0–261.0 0.25–16.7	0.6
Heavy Metals Health Statistics	mg/l		16.7	1.0–261.0 0.25–16.7	0.6
Heavy Metals  Health Statistics  Sanitation— Related Diseases	mg/l		16.7	1.0–261.0 0.25–16.7	0.6 Average
Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	mg/l Unit	City Value	16.7 <b>Top Value</b> 594.14	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14	O.6 Average
Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)	mg/l Unit #	City Value	16.7 Top Value	1.0–261.0 0.25–16.7 <b>Range</b>	0.6 <b>Average</b> 50.1
Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	mg/l Unit # #	City Value	16.7 <b>Top Value</b> 594.14 6.83	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86	0.6 Average 50.1 3.0 20.1
Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	mg/l Unit  # # # #	City Value	16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	50.1 3.0 20.1
Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	mg/l Unit  # # # # #	City Value	16.7 <b>Top Value</b> 594.14 6.83 294.55	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	50.1 3.0 20.1 153.9
Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	mg/l Unit  # # # # # #	City Value	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	50.1 3.0 20.1 153.9
Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	mg/l Unit  # # # # # #	City Value	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	50.1 3.0 20.1 153.9 0.3
Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea	# # # # # # # # # # # # # # # # # # #	City Value	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	50.1 3.0 20.1 153.9 0.3 0.7
Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B	######################################	City Value	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45	1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.25	50.1 3.0 20.1 153.9 0.3 0.7
Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	# # # # # # # # # # # # # # # # # # #	City Value	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47  0.25	1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0	50.1 3.0 20.1 153.9 0.3 0.7
Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B	######################################	- City Value	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47  0.25	1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.25	0.6

## 4. Gwalior, India

Gwalior		For All Surveyed Cities and Municipalities
Coordinator	Mr. Balbir Singh Sikarwar, Assistant Project Manager	
Office	Project Implementation Unit, Municipal Corporation	
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Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	1,053.00	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	2.70	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	175.97	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	5.9	7.6	3.2 – 7.6	4.9
	Floating Population	%	0.5	844.1	0 – 844.1	34.5
	Urban Poor	%	10.40	48.0	0 – 48.0	14.6
	City Area	ha (000)	17.7	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	10.3	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	11.3	59.7	0 – 59.7	13.5
	Urban Fringe	%	19.7	99.7	0 – 99.7	18.9
	Peri–Urban	%	50.8	98.5	0 – 98.5	34.9
	Slum Area	%	7.91	35.96	0 – 35.96	4.3
	Average City Density	#/ha	47.6	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	138.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	75.0	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	52.0	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	18.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	59.0	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	17.70	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	79.1	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	85.9	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	1,053.00	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	85.7	100.0	0 – 100.0	31.5
	Central Water Supply System	%	79.0	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	56.4	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	5.5	100.0	0.0–100.0	44.0
	III. Communal with Septic	%	2.0	10.5	0.0-10.5	0.9
				10.5	0.0-10.5	0.5
	Tank  IV Pit Latring	%	29.1			
	IV. Pit Latrine	%	29.1	59.9	0.0–59.9	13.9
	IV. Pit Latrine V. Eco Sanitation	%	0.0	59.9 0.9	0.0–59.9 0.0–0.9	13.9
	IV. Pit Latrine V. Eco Sanitation VI. Open Defecation			59.9	0.0–59.9	13.9
	IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System	%	0.0 7.0	59.9 0.9 61.0	0.0–59.9 0.0–0.9 0.0–61.0	13.9 0.0 7.3
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I	% %	0.0 7.0	59.9 0.9 61.0	0.0-59.9 0.0-0.9 0.0-61.0	13.9 0.0 7.3
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia	% % %	0.0 7.0 33 27	59.9 0.9 61.0 100.0 88.9	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9	13.9 0.0 7.3 13.7 9.3
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II	% % % % %	0.0 7.0 33 27	59.9 0.9 61.0 100.0 88.9 93.1	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1	13.9 0.0 7.3 13.7 9.3 12.6
	IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa	% % % % %	0.0 7.0 33 27 - 6	59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	13.9 0.0 7.3 13.7 9.3 12.6 32.2
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III	% % % % % %	0.0 7.0 33 27 - 6 2	59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % %	0.0 7.0 33 27 - 6 2	59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type III  Type IIIa  Type III	% % % % % % % % % % %	0.0 7.0 33 27 - 6 2	59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % %	0.0 7.0 33 27 - 6 2	59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1

	Type VI & VIa	%	7.0	22.5	0–22.5	7.5
	Type VIb	%	0	12.0	0–12.0	0.4
Treatment Facility		Unit	City Value	Top Value	Range	Average
Waste Water Treatmen	t Plant					
Capacity (10,000 popul	lation)	m3/d	476.1	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	100	100.0	0–100.0	57.7
	National Government	%	_	100.0	0-100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Septage Treatment Plar	nt					
Capacity		m3/d	-	135.0	50–135.0	6.2
	Provider					
	Local Government	%	-	100.0	0–100.0	57.7
	National Government	%	_	100.0	0-100.0	8.7
	Private	%	_	92.7	0-92.7	4.7
Desludging Services						
Frequency		year	-	12.0	0–12.0	0.6
	Provider					
	Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0-92.7	4.7
Water Supply Facili	ity	Unit	City Value	Top Value	Range	Average
Household Water Supp	ly Source					
Central Water Supply–I	ndividual	%	57.1	95.0	3.60–95.0	64.5
Central Water Supply–0	Communal	%	11.4	46.7	0.0–46.7	5.5
Borehole		%	28.6	54.5	0.0-54.5	14.1
Protected Spring/Well		%	2.9	96.4	0.0–96.4	10.3
Rainwater		%	0	20.0	0.0–20.0	8.1
Water Vendor		%	0	35.0	0.0–35.0	5.1
Population Buying Bott	led Water	%	_	80.0	0-80.0	12.9
Average Water Consun	nption	lpcd	130.0	160.0	29–160.0	72.1
Water Treatment Facilit	ties	lpcd	17.5	321.5	1.5–321.5	55.6
Local Government		%	100	100.0	0–100.0	47.5
National Government		%	0	100.0	0–100.0	26.5
Private Concessionaire		%	0	100.0	0–100.0	9.3
Organizational Arra	angement	Unit	City Value	Top Value	Range	Average
Institutions Involved in	Sanitation					
Public Sector						
	National Government	#	_	6	1–6	0.5
	National Government Local Government	#	2	6 4	1–6 1–4	
			_ 2 _			1.3
Private Sector	Local Government	#	- 2 -	4	1–4	1.3
Private Sector	Local Government	#	- 2 -	4	1–4	1.3 0.5
Private Sector	Local Government State– Owned Utility	#		2	1–4 1–2	1.3 0.5 0.1
Private Sector	Local Government State- Owned Utility Water Utility	# # #		2	1–4 1–2 0–2	0.5 0.1 0.1
Private Sector  Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise	# # #	-	2 1	1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
	Local Government State- Owned Utility Water Utility Enterprise	# # #	-	2 1	1-4 1-2 0-2 0-2	0.5 0.1 0.1
Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise	# # #	-	2 1	1-4 1-2 0-2 0-2	0.1 0.1 0.1
Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization Total Personnel (per 10,000	# # # # #	- - -	2 1 2	1–4 1–2 0–2 0–2 0–2	0.1 0.1 0.1 9.0
Number of Personnel	Local Government State- Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# # # # #	20.56	2 2 1 2 21.67	1-4 1-2 0-2 0-2 0-2 0-2	1.3 0.5 0.1 0.1 0.1 9.0
Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # #	20.56	2 2 1 2 21.67	1-4 1-2 0-2 0-2 0-2 0.4-21.67 5-100	9.0 1.3 0.5 0.1 0.1 0.1
Number of Personnel	Local Government State- Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # # % %	20.56	2 2 1 2 21.67 100	1-4 1-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	0.5 0.1 0.1

	Operations and Maintenance	%		_		_
Legal Framework	<u> </u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sa	nitation					
	Number of Laws on Sanitation					
	National	#	_	7	1–4	1.9
	Local	#	2	3	1–3	1.2
	Year Enacted					
	Oldest	year	1956	2007	1947–2007	1985
	Latest	year	2000	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Y	17	7–17	-
	Year Enacted	year	2000	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Υ	11	11–27	
	When Prepared	year	2011	2007	2006–2011	2009
	New Sanitation Plan	-				
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$	49.5	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	46.5	762.7	0.7–762.7	32.1
	Source of Fund	Other agency				
Sanitation Problem	Major Sanitation Problem	Missing sewer link	ks, insufficient			
	-	community toilet				
	Future Programs/Projects	Make the city ope	en defecation free			
	Funding Amount	\$/capita		24.1	0.96–24.1	1.0
	Funding Source	List	_			
Capital Investmen		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	18.9	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	50	90.0	0.0–90.0	22.1
	Local Government	%	20	100.0	0.0–100.0	18.5
	Loans	%	30	99.0	0.0–99.0	15.7
	Tariff Revenue	%	_	0	0–0	0
	Others	%	_	100.0	0.0–100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	0.6	8.3	0.01–8.3	0.7
	Source of Fund					
	National Government	%	0	47.0	0–47	4.9
	Local Government	%	100	100.0	0–100	40.7
	Loans	%	0	53.0	0–53	3.4
	Tariff Revenue	%	0	100.0	0–100	14.3
	Others	%	0	0	0	0
Revenues and Fee		Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees					
	Total Revenue	\$/capita		15	0.3–15.0	0.9
	Sewered Area Charges					
	Connection Charge	\$/connection	-	110	0.6–110.0	20.0
	Tariff Rate	\$/m3	-	90	0.015–90	0.3
	Septic Tank Desludging Fee					
-	Private	\$/ST	-	133	4–133	9.9

Government	\$/ST	_	100	0–100	23.9
Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Y			
Sources of Water Pollution					
Household Solid Waste	%	10	67	0–67	21.7
Household Liquid Waste	%	60	80	15–80	39.6
Industrial Waste	%	10	38	0–38	8.4
Commercial Waste	%	15	35	0–35	8.5
Hospital Waste	%	5	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	0	35	0–35	6.5
No Treatment	%	50	100	0–100	36.5
Others	%	50	50	0–50	10.4
Description	Through septic tar	nk			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Swama Rekha				
Basin Area	ha	2,000	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Midstream			
Adjoining Town					
Pollution Load	vh–vl	High			
	vh–vl i/c	High –			
Pollution Load Sanitation Work/Plan		High – <b>City Value</b>	Top Value	Range	Average
Pollution Load Sanitation Work/Plan Environmental Statistics	i/c	_	Top Value	Range	Average
Pollution Load Sanitation Work/Plan Environmental Statistics	i/c		22000#/ 100ml	Range <1- 22000	Average
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water	i/c <b>Unit</b>	City Value	22000#/	<del>-</del>	
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform	i/c <b>Unit</b> #/ml	City Value	22000#/ 100ml	<1- 22000	18.7
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD	i/c Unit  #/ml mg/l	City Value	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7 72.4
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD	i/c Unit  #/ml mg/l mg/l	<1 #/ ml 6.0 50.0	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4 49.6
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids	i/c Unit  #/ml mg/l mg/l mg/l	<1 #/ ml 6.0 50.0 200.0	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6 0.6
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals	i/c Unit  #/ml mg/l mg/l mg/l mg/l	City Value <1 #/ ml 6.0 50.0 200.0 0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases	i/c Unit  #/ml mg/l mg/l mg/l mg/l	<1 #/ ml 6.0 50.0 200.0 0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases	i/c Unit  #/ml mg/l mg/l mg/l mg/l	<1 #/ ml 6.0 50.0 200.0 0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6 <b>Average</b>
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	i/c Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit	City Value <1 #/ ml 6.0 50.0 200.0 0.25 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range	18.7 72.4 49.6 0.6 <b>Average</b>
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea	i/c Unit  #/ml mg/l mg/l mg/l mg/l Unit	City Value <1 #/ ml 6.0 50.0 200.0 0.25 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b> 50.1
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B	i/c Unit  #/ml mg/l mg/l mg/l mg/l Unit	City Value  <1 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 Average 50.1 3.0 20.1
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma	i/c Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  # #	City Value  <1 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  # # # #	City Value  <1 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #	City Value  <1 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #	City Value  <1 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #  #  #  #  #  #  #  #  #	City Value  <1 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28–180.0  7.1–973.0  1.0–261.0  0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	18.7 72.4 49.6 0.6 Average 50.1 3.0 20.1 153.9 0.3 0.7
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #  #  #  #  #  #  #  #  #	City Value  <1 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre></pre>	18.7 72.4 49.6 0.6  Average  50.1 3.0 20.1 153.9 0.3 0.7
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #  #  #  #  #  #  #  #  #	City Value  <1 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0 0.0
Pollution Load Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea Hepatitis A & B Trachoma	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #  #  #  #  #  #  #  #  #	City Value  <1 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.25 0-0</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0

### 5. Indore, India

Indore		For All Surveyed Cities and Municipalities
Coordinator	Mr. Prabhas Sankhla, Project Manager	
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Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	2,171.40	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	4.80	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	330.0	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	5.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	6.1	844.1	0 – 844.1	34.5
	Urban Poor	%	15.86	48.0	0 – 48.0	14.6
	City Area	ha (000)	13.4	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	10.4	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	11.9	59.7	0 – 59.7	13.5
	Urban Fringe	%	20.1	99.7	0 – 99.7	18.9
	Peri–Urban	%	49.3	98.5	0 – 98.5	34.9
	Slum Area	%	8.21	35.96	0 – 35.96	4.3
	Average City Density	#/ha	122.3	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	350.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	184.0	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	133.0	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	50.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	149.0	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	13.40	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	44.8	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	48.5	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	2,171.40	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	55.0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	98.5	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	55	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	20.7	100.0	0.0–100.0	44.0
	III. Communal with Septic	%	3.5	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	%	12.2	F0.0	0.0–59.9	13.9
			12.2	59.9	0.0-59.9	
			0.0	59.9 0.9		
	V. Eco Sanitation	%	0.0	0.9	0.0-0.9	0.0
	V. Eco Sanitation VI. Open Defecation					0.0
	V. Eco Sanitation VI. Open Defecation Toilet System	%	0.0	0.9	0.0-0.9 0.0-61.0	0.0 7.3
	V. Eco Sanitation VI. Open Defecation  Toilet System  Type I	% %	0.0 8.6	0.9 61.0 100.0	0.0-0.9 0.0-61.0 0-100.0	0.0 7.3 13.7
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia	% % %	0.0 8.6 55	0.9 61.0 100.0 88.9	0.0-0.9 0.0-61.0 0-100.0 0-88.9	0.0 7.3 13.7 9.3
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type la Type II	% %	0.0 8.6 55 0	0.9 61.0 100.0 88.9 93.1	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1	0.0 7.3 13.7 9.3 12.6
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type la Type II Type IIa	% % % % %	0.0 8.6 55 0	0.9 61.0 100.0 88.9 93.1 100.0	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	0.0 7.3 13.7 9.3 12.6 32.2
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type la Type II Type IIa Type III	% % % % % %	0.0 8.6 55 0 - 20.7	0.9 61.0 100.0 88.9 93.1 100.0	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	0.0 7.3 13.7 9.3 12.6 32.2 0.1
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type III	% % % % % %	0.0 8.6 55 0 - 20.7 - 3.5	0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type la Type II Type IIa Type III Type III Type IIII	% % % % % % %	0.0 8.6 55 0 - 20.7	0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type III	% % % % % %	0.0 8.6 55 0 - 20.7 - 3.5	0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8

	Type VI & VIa	%	8.6	22.5	0–22.5	7.5
	Type VIb	%	-	12.0	0-12.0	0.4
<b>Treatment Facility</b>		Unit	City Value	Top Value	Range	Average
Waste Water Treatmer	nt Plant					
Capacity (10,000 popu	ılation)	m3/d	549.1	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	100	100.0	0–100.0	57.7
	National Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Septage Treatment Pla	nt					
Capacity		m3/d	-	135.0	50–135.0	6.2
	Provider					
	Local Government	%	-	100.0	0–100.0	57.7
	National Government	%	_	100.0	0-100.0	8.7
	Private	%	_	92.7	0-92.7	4.7
Desludging Services						
Frequency		year	_	12.0	0–12.0	0.6
	Provider					
	Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Water Supply Facil	ity	Unit	City Value	Top Value	Range	Average
Household Water Supp	oly Source					
Central Water Supply–	Individual	%	59.0	95.0	3.60–95.0	64.5
Central Water Supply–	Communal	%	29.5	46.7	0.0–46.7	5.5
Borehole		%	5.0	54.5	0.0-54.5	14.1
Protected Spring/Well		%	1.5	96.4	0.0–96.4	10.3
Rainwater		%	0	20.0	0.0–20.0	8.1
Water Vendor		%	5.0	35.0	0.0–35.0	5.1
Population Buying Bott	tled Water	%	10	80.0	0-80.0	12.9
Average Water Consur	mption	lpcd	80	160.0	29–160.0	72.1
Water Treatment Facili	ties	lpcd	11.7	321.5	1.5–321.5	55.6
Local Government		%	100	100.0	0–100.0	47.5
National Government		%	0	100.0	0–100.0	26.5
Private Concessionaire		%	0	100.0	0–100.0	9.3
Organizational Arr	angement	Unit	City Value	Top Value	Range	Average
Institutions Involved in			<u> </u>	-		
Public Sector						
	National Government	#	_	6	1–6	0.5
	Local Government	#	2	4	1–4	1.3
						0.5
	State– Owned Utility	#	_	2	1–2	0.5
Private Sector	State- Owned Utility	#	-	2	1–2	0.5
Private Sector	State– Owned Utility  Water Utility	#	-	2	0–2	
Private Sector	·		-			0.1
Private Sector	Water Utility Enterprise	#	- - -	2	0–2	0.1
Private Sector  Number of Personnel	Water Utility	#	- - -	2	0–2 0–2	0.1 0.1 0.1
	Water Utility Enterprise	#	-	2	0–2 0–2	0.1
Number of Personnel	Water Utility Enterprise Nongovernment Organization Total Personnel (per 10,000	#	- - - - 14.03	2	0–2 0–2	0.1 0.1 0.1
Number of Personnel	Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# # #		2 1 2	0-2 0-2 0-2	0.1 0.1 0.1
Number of Personnel	Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # %	14.03	2 1 2 2 21.67	0-2 0-2 0-2 0.4-21.67 5-100	0.1 0.1 0.1 9.0
Number of Personnel	Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # % %	14.03	2 1 2 21.67 100	0-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	0.1 0.1 0.1 9.0 11.8 8.9
Number of Personnel	Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # %	14.03	2 1 2 2 21.67	0-2 0-2 0-2 0.4-21.67 5-100	0.1 0.1 0.1 9.0

	Operations and Maintenance	%		_		
Legal Framework	<u> </u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sa	nitation					
	Number of Laws on Sanitation					
	National	#	_	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	1956	2007	1947–2007	1985
	Latest	year	1956	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Y	17	7–17	-
	Year Enacted	year	1956	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Y	11	11–27	
	When Prepared	year	2006	2007	2006–2011	2009
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	Year	_	2020	2015–2020	2018
	Estimated Cost	\$	13.0	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	7.9	762.7	0.7–762.7	32.1
	Source of Fund	Other agency				
Sanitation Problem	Major Sanitation Problem	Missing sewer link community toilet	ss, insufficient			
	Future Programs/Projects	Open defecation t sewered	ree and totally			
	Funding Amount	\$/capita	-	24.1	0.96–24.1	1.0
	Funding Source	List	_			
Capital Investmen		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	43.0	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	50	90.0	0.0–90.0	22.1
	Local Government	%	10	100.0	0.0–100.0	18.5
	Loans	%	40	99.0	0.0–99.0	15.7
	Tariff Revenue	%	0	0	0–0	0
	Others	%	0	100.0	0.0-100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	_	8.3	0.01–8.3	0.7
	Source of Fund					
	National Government	%	0	47.0	0–47	4.9
	Local Government	%	100	100.0	0–100	40.7
	Loans	%	0	53.0	0–53	3.4
	Tariff Revenue	%	0	100.0	0–100	14.3
	Others	%	0	0	0	0
Revenues and Fee	es for Services	Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees					
	Total Revenue	\$/capita	-	15	0.3–15.0	0.9
	Sewered Area Charges					
	Connection Charge	\$/connection	50.0	110	0.6–110.0	20.0
	Tariff Rate	\$/m3	30–90	90	0.015–90	0.3
	C :: T   D			i		
	Septic Tank Desludging Fee					
	Private	\$/ST		133	4–133	9.9

Government	\$/ST	_	100	0–100	23.9
Other Fees	\$	_	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	10	67	0–67	21.7
Household Liquid Waste	%	60	80	15–80	39.6
Industrial Waste	%	10	38	0–38	8.4
Commercial Waste	%	15	35	0–35	8.5
Hospital Waste	%	5	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	30	35	0–35	6.5
No Treatment	%	30	100	0–100	36.5
Others	%	40	50	0–50	10.4
Description	Through septic tank				
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Khan and Saraswati				
Basin Area	Ha	_	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Midstream			•
Adjoining Town					
Pollution Load	vh–vl				
	i/c	_			
Sanitation Work/Plan		_	Top Value	Range	Average
Sanitation Work/Plan  Environmental Statistics	i/c	City Value	Top Value	Range	Average
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water	i/c	_	<b>Top Value</b> 22000#/	<b>Range</b>	Average
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform	i/c <b>Unit</b> #/ml	City Value	22000#/ 100ml	<1- 22000	
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD	i/c Unit #/ml mg/l	30 #/ ml	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	i/c Unit  #/ml mg/l mg/l	30 #/ ml 6.0 50.0	22000#/ 100ml	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	i/c Unit #/ml mg/l	- City Value 30 #/ ml 6.0 50.0 200.0	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals	i/c Unit  #/ml  mg/l mg/l mg/l mg/l	30 #/ ml 6.0 50.0 200.0 0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics	i/c Unit  #/ml  mg/l mg/l mg/l	- City Value 30 #/ ml 6.0 50.0 200.0	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	i/c Unit  #/ml  mg/l mg/l mg/l mg/l	30 #/ ml 6.0 50.0 200.0 0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	i/c Unit  #/ml mg/l mg/l mg/l mg/l Unit	30 #/ ml 6.0 50.0 200.0 0.25	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range	18.7 72.4 49.6 0.6 <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	i/c Unit  #/ml mg/l mg/l mg/l mg/l Unit	30 #/ ml 6.0 50.0 200.0 0.25	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	i/c Unit  #/ml mg/l mg/l mg/l mg/l Unit	30 #/ ml 6.0 50.0 200.0 0.25	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  # #	City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	i/c Unit  #/ml  mg/l  mg/l  mg/l  mg/l  The state of the	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  # #	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #  #  #  #  #  #  #  #  #	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #	- City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)	i/c  Unit  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #  #  #  #  #  #  #  #  #	City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	i/c Unit  #/ml mg/l mg/l mg/l mg/l  Thit  # # # # # # # # # # # # # # # # # #	City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B	i/c Unit  #/ml mg/l mg/l mg/l mg/l  Unit  # # # # # # # # # # # # # # # # # #	City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	i/c Unit  #/ml mg/l mg/l mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	City Value  30 #/ ml  6.0  50.0  200.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6

### 6. Jabalpur, India

Jabalpur		For All Surveyed Cities and Municipalities
Coordinator	Mr. Ashish Shrivastav, Project Manager	
Office	Municipal Corporation, Jabalpur	
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Fax	917612410892	
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Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	1,267.00	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	2.80	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	173.65	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	6.2	7.6	3.2 – 7.6	4.9
	Floating Population	%	4.8	844.1	0 - 844.1	34.5
	Urban Poor	%	31.12	48.0	0 – 48.0	14.6
	City Area	ha (000)	12.9	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	10.1	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	11.8	59.7	0 – 59.7	13.5
	Urban Fringe	%	20.1	99.7	0 – 99.7	18.9
	Peri–Urban	%	50.3	98.5	0 – 98.5	34.9
	Slum Area	%	7.74	35.96	0 – 35.96	4.3
	Average City Density	#/ha	72.1	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	215.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	111.0	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	79.0	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	29.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	93.0	1,519.4	20.0 – 1,519.4	120.7
<b>Sanitation Covera</b>	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	12.92	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	-	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	92.9	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	1,267.00	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	84.8	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	0	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	49.2	100.0	0.0-100.0	44.0
	III. Communal with Septic Tank	%	0.8	10.5	0.0–10.5	0.9
	IV. Pit Latrine	%	17.0	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%	0.0	0.9	0.0-0.9	0.0
	VI. Open Defecation	%	33.0	61.0	0.0–61.0	7.3
	Toilet System					
	Type I	%	_	100.0	0–100.0	13.7
	Type la	%	_	88.9	0–88.9	9.3
	Type II	%	0	93.1	0–93.1	12.6
	Type lla	%	49.2	100.0	0-100.0	32.2
	Type III	%	0	2.0	0–2.0	0.1
	Type Illa	%	0.8	61.0	0–61.0	2.8
	Type IV	%	17.0	59.9	0–59.9	13.9
	Type IVa	%	_	31.9	0–31.9	5.6
	., pe					
	Type V	%	_	_	-	0.0

	Type VI & VIa	%	33	22.5	0–22.5	7.5
	Type VIb	%	_	12.0	0-12.0	0.4
Treatment Facility		Unit	City Value	Top Value	Range	Average
Waste Water Treatmen	nt Plant					
Capacity (10,000 popu	lation)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	_	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Septage Treatment Plai	nt					
Capacity		m3/d	-	135.0	50–135.0	6.2
	Provider					
	Local Government	%	-	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Desludging Services						
Frequency		year	-	12.0	0–12.0	0.6
	Provider					
	Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Water Supply Facili	ity	Unit	City Value	Top Value	Range	Average
Household Water Supp	ly Source					
Central Water Supply–I	Individual	%	65.0	95.0	3.60–95.0	64.5
Central Water Supply–C	Communal	%	17.9	46.7	0.0–46.7	5.5
Borehole		%	11.9	54.5	0.0-54.5	14.1
Protected Spring/Well		%	3.3	96.4	0.0–96.4	10.3
Rainwater		%	0	20.0	0.0–20.0	8.1
Water Vendor		%	2.0	35.0	0.0–35.0	5.1
Population Buying Bott	led Water	%	5.0	80.0	0-80.0	12.9
Average Water Consun	nption	lpcd	64.0	160.0	29–160.0	72.1
Water Treatment Facilit	ties	lpcd	4.5	321.5	1.5–321.5	55.6
Local Government		%	100.0	100.0	0–100.0	47.5
National Government		%	0	100.0	0–100.0	26.5
Private Concessionaire		%	0	100.0	0–100.0	9.3
Organizational Arra	angement	Unit	City Value	Top Value	_	
	ag	J	City value	rop value	Range	Average
Institutions Involved in		- Cilii	City value	rop value	Range	Average
Institutions Involved in Public Sector			City value	Top value	Kange	Average
		#	City value	6	Kange	
	Sanitation			-		0.5
	Sanitation  National Government	#	-	6	1–6	0.5
	National Government Local Government	#	-	6 4	1-6 1-4	0.5
Public Sector	National Government Local Government	#	-	6 4	1-6 1-4	0.5 1.3 0.5
Public Sector	National Government Local Government State- Owned Utility	# # #	-	6 4 2	1-6 1-4 1-2	0.5 1.3 0.5
Public Sector	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility	# # # #	-	6 4 2	1-6 1-4 1-2 0-2	0.5 1.3 0.5 0.1
Public Sector	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise	# # # # #		6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1
Private Sector	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise	# # # # #		6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1
Private Sector  Private Sector  Number of Personnel	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise  Nongovernment Organization  Total Personnel (per 10,000	# # # # #		6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
Private Sector  Private Sector  Number of Personnel	National Government Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization	# # # # # #	- 2 - -	6 4 2 2 1 2	1-6 1-4 1-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1
Private Sector  Private Sector  Number of Personnel	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise  Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# # # # #	- 2 - - - - 21.67	6 4 2 2 1 2 2 21.67	1-6 1-4 1-2 0-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1 9.0
Private Sector  Private Sector  Number of Personnel	National Government Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # # # # #	2 - - - - 21.67	2 2 1 2 21.67	1-6 1-4 1-2 0-2 0-2 0-2 0.4-21.67	0.5 1.3 0.5 0.1 0.1 0.1 9.0 11.8
Private Sector  Private Sector  Number of Personnel	National Government Local Government State- Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # # # %	21.67 ————————————————————————————————————	2 2 1 2 2 2 1 1 2 2 1.67 100 100	1-6 1-4 1-2 0-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	0.5 1.3 0.5 0.1

	Operations and Maintenance	%	_	_	_	-
Legal Framework		Unit	City Value	Top Value	Range	Average
Legal Mandate of San	itation					
	Number of Laws on Sanitation					
	National	#	-	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	1956	2007	1947–2007	1985
	Latest	year	1956	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Y	17	7–17	-
	Year Enacted	year	1956	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	an					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$	37.0	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	39.7	762.7	0.7–762.7	32.
	Source of Fund	Other agency		7 52.7	0., , 02.,	
Sanitation Problem	Major Sanitation Problem	Absence of sewer	system			
Sumuation Frobiem	Future Programs/Projects	Slum improvemen				
	ratare rrograms/rrojects	system	it and sewerage			
	Funding Amount	\$/capita	-	24.1	0.96–24.1	1.
	Funding Source	GOI, ADB Municip	oal Corporation,			
Capital Investmen	.+	Jabalpur <b>Unit</b>	City Value	Top Value	Range	Average
Capital Investmen	Annual Capital Investment	Offic	City value	TOP Value	nalige	Average
	Annual Amount	\$/capita	32.1	168.0	0.5–168.0	10.3
	Source of Fund	<b>э</b> /Сарна	32.1	100.0	0.5-166.0	10.5
		0/	F0	00.0	0.0.00.0	22.
	National Government	%	50	90.0	0.0–90.0	22.7
	Local Government	%	20	100.0	0.0–100.0	18.
		0.7	20	20.0	0.0.00.0	
	Loans	%	30	99.0	0.0–99.0	15.7
	Tariff Revenue	%	0	0	0-0	15.7
	Tariff Revenue Others	%	0	0 100.0	0–0 0.0–100.0	15.7 ( 9.(
Operations and M	Tariff Revenue Others aintenance Expenditures	%	0	0	0-0	15. <sup>-</sup> ( 9.(
Operations and M	Tariff Revenue Others aintenance Expenditures Annual O&M Cost	% Unit	0 0 City Value	0 100.0 <b>Top Value</b>	0-0 0.0-100.0 <b>Range</b>	15.`` 9. <b>\</b> <b>Average</b>
Operations and M	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount	%	0	0 100.0	0–0 0.0–100.0	15.`` 9. <b>\</b> <b>Average</b>
Operations and M	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund	% Wnit \$/capita	0 0 City Value	0 100.0 <b>Top Value</b> 8.3	0-0 0.0-100.0 <b>Range</b> 0.01-8.3	9.  Average
Operations and M	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount	% Unit	0 0 City Value	0 100.0 <b>Top Value</b>	0-0 0.0-100.0 <b>Range</b>	9. <b>Average</b>
Operations and M	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund	% Wnit \$/capita	0 0 City Value	0 100.0 <b>Top Value</b> 8.3	0-0 0.0-100.0 <b>Range</b> 0.01-8.3	15. ( 9. ( <b>Average</b> 0. (
Operations and M	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government	% Unit  \$/capita	0 0 <b>City Value</b> 5.4	0 100.0 <b>Top Value</b> 8.3	0-0 0.0-100.0 <b>Range</b> 0.01-8.3	15. 9. Average 0. 4. 40.
Operations and M	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government	%	0 0 <b>City Value</b> 5.4 0 100	0 100.0 <b>Top Value</b> 8.3 47.0 100.0	0-0 0.0-100.0 <b>Range</b> 0.01-8.3 0-47 0-100	15. 9. Average 0. 4. 40. 3.
Operations and M	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans	% Unit  \$/capita  % %	0 City Value  5.4  0 100	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0-0 0.0-100.0 <b>Range</b> 0.01-8.3 0-47 0-100 0-53	9. <b>Average</b> 0. 4. 40. 3.
	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	%	0 0 City Value 5.4 0 100 0	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100	15 () 9 <b>Average</b> 0 4 40 3 14
	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	% Unit  \$/capita  % % % % %	0 0 City Value 5.4 0 100 0 0	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0	15 () 9 <b>Average</b> 0 4 40 3 14
	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others s for Services	% Unit  \$/capita  % % % % %	0 0 City Value 5.4 0 100 0 0	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0	9.  Average  0.  4.9  4.0  Average
	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others s for Services Annual Revenues and Fees	% Unit  \$/capita  % % % % Unit Unit	0 City Value  5.4  0 100 0 City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range	9.  Average  0.  4.  40.  3.  Average
	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others s for Services Annual Revenues and Fees Total Revenue	% Unit  \$/capita  % % % % Unit Unit	0 City Value  5.4  0 100 0 City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range	15. (9. (9. (1. (1. (1. (1. (1. (1. (1. (1. (1. (1
	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others s for Services Annual Revenues and Fees Total Revenue Sewered Area Charges	%	0 City Value  5.4  0 100 0 City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range	15.7 (9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3 (0.9
Operations and M	Tariff Revenue Others aintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others s for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	% Unit  \$/capita  % % % % % Unit  \$/capita	0 City Value  5.4  0 100 0 City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range  0.3-15.0	15.7 0.9.0 <b>Average</b> 0.7  4.9  40.7  3.4  14.3  0 <b>Average</b> 0.9  20.0  0.3

Government	\$/ST	30	100	0–100	23.9
Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	10	67	0–67	21.7
Household Liquid Waste	%	70	80	15–80	39.6
Industrial Waste	%	0	38	0–38	8.4
Commercial Waste	%	18	35	0–35	8.5
Hospital Waste	%	2	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	0	35	0–35	6.5
No Treatment	%	50	100	0–100	36.5
Others	%	50	50	0–50	10.4
Description	Through septic tank				
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Narmada				
Basin Area	ha	4,939,800	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Midstream		· · · · · · · · · · · · · · · · · · ·	
Adjoining Town					
Pollution Load	vh–vl				
POILUTION LOAG	VI I—VI	_			
	i/c				
Sanitation Work/Plan  Environmental Statistics		-	Top Value	Range	Average
Sanitation Work/Plan	i/c	- City Value	Top Value	Range	Average
Sanitation Work/Plan  Environmental Statistics	i/c	-	22000#/ 100ml	<b>Range</b> <1- 22000	Average
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water	i/c <b>Unit</b>	City Value	22000#/		
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform	i/c Unit #/ml	City Value	22000#/ 100ml	<1- 22000	18.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD	i/c Unit #/ml mg/l	- City Value < 200 #/ ml	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7 72.4
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml mg/l mg/l	City Value < 200 #/ ml 4.5 50.0	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4 49.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	#/ml mg/l mg/l mg/l	- City Value  < 200 #/ ml  4.5  50.0  1.0	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals	#/ml mg/l mg/l mg/l mg/l	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l mg/l	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	#/ml mg/l mg/l mg/l mg/l	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6 <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l mg/l Unit	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range	18.7 72.4 49.6 0.6 <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea	#/ml mg/l mg/l mg/l mg/l mg/l tmg/l fmg/l	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b> 50.1
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l mt  ## #	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 Average 50.1 3.0 20.1
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l mg/l  mg/l # # # # # # # # # # # # # # # # # # #	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	#/ml #/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	#/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	#/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28–180.0  7.1–973.0  1.0–261.0  0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea	#/ml #/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	<pre></pre>	18.7 72.4 49.6 0.6 Average 50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l  mt  ## # # # # # # # # # # # # # # # #	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l mg/l  H # # # # # # # # # # # # # # # # # #	- City Value  < 200 #/ ml  4.5  50.0  1.0  0.25  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<1- 22000  1.28–180.0  7.1–973.0  1.0–261.0  0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54  0.0–0.25  0-0	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0

### 7. Mangalore, India

Mangalore	For All Surveyed Cities and Municipalities
Coordinator	
Office	
Address	
Fax	
Telephone	
E–mail address	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	463.30	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	1.05	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	92.66	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	5.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	-	844.1	0 - 844.1	34.5
	Urban Poor	%	1.8	48.0	0 – 48.0	14.6
	City Area	ha (000)	13.2	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	3.0	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	23.3	59.7	0 – 59.7	13.5
	Urban Fringe	%	72.7	99.7	0 – 99.7	18.9
	Peri–Urban	%	_	98.5	0 – 98.5	34.9
	Slum Area	%	0.13	35.96	0 – 35.96	4.3
	Average City Density	#/ha	39.5	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	134.3	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	73.6	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	25.9	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	-	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	47.7	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	13.2	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	_	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	_	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	_	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	_	100.0	0 – 100.0	31.5
	Central Water Supply System	%	_	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	31.1	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	67.79	100.0	0.0.400.0	
			07.75	100.0	0.0–100.0	44.0
	III. Communal with Septic	%	0.33	100.0	0.0–100.0	0.9
	Tank		0.33	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	%	0.33	10.5 59.9	0.0–10.5	0.9
	Tank  IV. Pit Latrine  V. Eco Sanitation	%	0.33	10.5 59.9 0.9	0.0–10.5 0.0–59.9 0.0–0.9	0.9 13.9 0.0
	Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation	%	0.33	10.5 59.9	0.0–10.5	0.9
	Tank  IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System	% % %	0.33 0.69 - 0.05	10.5 59.9 0.9 61.0	0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	0.9 13.9 0.0 7.3
	Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I	% % %	0.33	10.5 59.9 0.9 61.0	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0	0.9 13.9 0.0 7.3
	Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia	% % %	0.33 0.69 - 0.05 31.1	10.5 59.9 0.9 61.0 100.0 88.9	0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0 0–100.0 0–88.9	0.9 13.9 0.0 7.3 13.7 9.3
	Tank  IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II	% % % %	0.33 0.69 - 0.05	10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1	0.9 13.9 0.0 7.3 13.7 9.3
	Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa	% % % % %	0.33 0.69 - 0.05 31.1 - 67.7	10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2
	Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type la Type II Type IIa Type III	% % % % % %	0.33 0.69 - 0.05 31.1 - 67.7 - 0.33	10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type III	% % % % % %	0.33 0.69 - 0.05 31.1 - 67.7 - 0.33	10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8
	Tank  IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa  Type IIIa	% % % % % % % % % % % % % % %	0.33 0.69 - 0.05 31.1 - 67.7 - 0.33	10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type III	% % % % % %	0.33 0.69 - 0.05 31.1 - 67.7 - 0.33	10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1

Type VI & VIa	%	0.05	22.5	0–22.5	7.5
Type VIb	%	-	12.0	0–12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	1,190.0	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	100	100.0	0-100.0	57.7
National Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0-92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	_	135.0	50-135.0	6.2
Provider					
Local Government	%	-	100.0	0-100.0	57.7
National Government	%	-	100.0	0-100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Desludging Services					
Frequency	year	-	12.0	0–12.0	0.6
Provider					
Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source					
Central Water Supply–Individual	%	62.9	95.0	3.60–95.0	64.5
Central Water Supply–Communal	%	4.9	46.7	0.0–46.7	5.5
Borehole	%	_	54.5	0.0-54.5	14.1
Protected Spring/Well	%	32.2	96.4	0.0–96.4	10.3
Rainwater	%	_	20.0	0.0-20.0	8.1
Water Vendor	%	_	35.0	0.0–35.0	5.1
Population Buying Bottled Water	%	7	80.0	0-80.0	12.9
Average Water Consumption	lpcd	120.0	160.0	29–160.0	72.1
Water Treatment Facilities	lpcd	137.2	321.5	1.5–321.5	55.6
Local Government	%	0	100.0	0–100.0	47.5
National Government	%	0	100.0	0–100.0	26.5
Private Concessionaire	%	100.0	100.0	0–100.0	9.3
Organizational Arrangement	Unit	City Value	Top Value	Range	Average
Institutions Involved in Sanitation		-	-		
Public Sector					
National Government	#	_	6	1–6	0.5
Local Government	#	_	4	1–4	1.3
State- Owned Utility	#	_	2	1–2	0.5
Private Sector					
Water Utility	#	_	2	0–2	0.1
Enterprise	#	_	1	0–2	0.1
Nongovernment Organization	#	_	2	0–2	0.1
Number of Personnel					
Public Sector					
Total Personnel (per 10,000 pop'n)	#	-	21.67	0.4–21.67	9.0
Planning and Monitoring	%	_	100	5–100	11.8
Construction	%	_	100	6–100	8.9
Operations and Maintenance	%		100	50–100.0	23.6
Private Sector					
Total Personnel (per 10,000 pop,n)	#	-	30.96	12.3–30.96	1.4

	Operations and Maintenance	%	_	_	_	_
Legal Framework	'	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sar	nitation					
	Number of Laws on Sanitation					
	National	#	2	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	_	2007	1947–2007	1985
	Latest	year	2000	2007	1956–2007	1993
	Sanitation Service Charges	-				
	Law on Collecting Fees	Y/N	Υ	17	7–17	_
	Year Enacted	Year	2000	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan			•		
- · · · · · · · · · · · · · · · · · · ·	Existing Sanitation Plan					
	With Sanitation Plan	Y/N		11	11–27	
	When Prepared	year		2007	2006–2011	2009
	New Sanitation Plan	year		2007	2000 2011	2003
	Will Prepare Sanitation Plan	Y/N				
	Preparation Year			2020	2015–2020	2018
	Estimated Cost	year \$		250	1.9–250.0	12.5
					0.7–762.7	
	Amount per Capita	\$/capita		762.7	0.7-762.7	32.1
Carlotte Ballan	Source of Fund		_			
Sanitation Problem	Major Sanitation Problem	Inadequate treat				
	Future Programs/Projects		of sanitation Plan			
	Funding Amount	\$/capita	1.9	24.1	0.96–24.1	1.0
	Funding Source	Grants				
Capital Investmer	nt	Unit	City Value	Top Value	Range	Average
			City value	10p talac	itarige	Average
	Annual Capital Investment		City Fund	-	-	
	Annual Capital Investment Annual Amount	\$/capita	-	168.0	0.5–168.0	
	Annual Capital Investment Annual Amount Source of Fund	\$/capita		-	0.5–168.0	
	Annual Capital Investment Annual Amount	\$/capita		168.0	0.5–168.0	10.3
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government	\$/capita  % %	-	90.0 100.0	0.5–168.0 0.0–90.0 0.0–100.0	10.3 22.1 18.5
	Annual Capital Investment Annual Amount Source of Fund National Government	\$/capita	-	168.0	0.5–168.0	10.3 22.1 18.5
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government	\$/capita  % %	-	90.0 100.0	0.5–168.0 0.0–90.0 0.0–100.0	10.3 22.1 18.5 15.7
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans	\$/capita  % % % %	-	90.0 90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0	10.5 22.1 18.5 15.7
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue	\$/capita  % % % % %	- - - -	90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0	22.1 18.5 15.7 0
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	\$/capita  % % % % % %	- - - -	90.0 100.0 99.0 0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	10.3 22.1 18.5 15.7 (
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  laintenance Expenditures	\$/capita  % % % % % %	- - - -	90.0 100.0 99.0 0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	10.3 22.1 18.5 15.7 ( 9.0 <b>Average</b>
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost	\$/capita  % % % % % Unit	- - - -	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	10.3 22.1 18.5 15.7 ( 9.0 <b>Average</b>
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount	\$/capita  % % % % % Unit	- - - -	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	10.3 22.1 18.5 15.7 ( 9.0 <b>Average</b>
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others laintenance Expenditures Annual O&M Cost Annual Amount Source of Fund	\$/capita  % % % % % Unit  \$/capita	- - - -	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range	10.3 22.1 18.5 15.7 ( 9.0 <b>Average</b>
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government	\$/capita  % % % % % W Unit  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0–0  0.0–100.0  Range	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government	\$/capita  % % % % % Whit  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3	10.3 22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others laintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government	\$/capita  % % % % % Unit  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Loans Tariff Revenue Others	\$/capita  % % % % % White  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0–0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100	10.3 22.1 18.5 15.7 0 9.0  Average 0.7 4.9 40.7 3.4
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Loans Tariff Revenue Others	\$/capita  % % % % % % Unit  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0  100.0  53.0  100.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Ses for Services	\$/capita  % % % % % % Unit  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Cothers Tariff Revenue Others Is for Services Annual Revenue and Fees Total Revenue	\$/capita  % % % % % White  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Cothers Tariff Revenue Others Tariff Revenue Others Tariff Revenue Others Tariff Revenue Others Total Revenues and Fees Total Revenue Sewered Area Charges	\$/capita  % % % % % Whit  \$/capita  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Source of Fund National Government Loans Tariff Revenue Others Ses for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	\$/capita  % % % % % % Unit  \$/capita	City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 ( 9.0  Average  0.7 4.9 40.7 3.4 ( Average  0.9 20.0
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Is for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	\$/capita  % % % % % Whit  \$/capita  \$/capita	City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Ser for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate Septic Tank Desludging Fee	\$/capita  % % % % % % Unit  \$/capita  % % % Unit  \$/capita	City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3  22.1  18.5  15.7  0  9.0  Average  4.9  40.7  3.4  14.3  0  Average  0.9
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Is for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	\$/capita  % % % % % % Unit  \$/capita	City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0 Average  0.7 4.9 40.7 3.4 14.3 0 Average  0.9 20.0 0.3

Other Fees	\$		30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	-			
Sources of Water Pollution					
Household Solid Waste	%	_	67	0–67	21.7
Household Liquid Waste	%	-	80	15–80	39.6
Industrial Waste	%	_	38	0–38	8.4
Commercial Waste	%	_	35	0–35	8.5
Hospital Waste	%	_	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	_	100	0–100	10.3
Central Sewer System	%	-	35	0–35	6.5
No Treatment	%	_	100	0–100	36.5
Others	%	-	50	0–50	10.4
Description	Through seption	tank and STP			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Gurupur & Net	travathi Rivers			
Basin Area	ha	-	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Upstream			
Adjoining Town					
Pollution Load	vh–vl	High			
Sanitation Work/Plan	i/c	_			
Environmental Statistics	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	-	22000#/	<1- 22000	
POD	no er /l		100ml 180	1.28–180.0	18.7
BOD COD	mg/l	_	973	7.1–973.0	72.4
	mg/l	_			
Total Suspended Solids	mg/l	-	261	1.0–261.0	49.6
Heavy Metals			1 ( 7	0.25 16.7	0.0
<u> </u>	mg/l	-	16.7	0.25–16.7	
Health Statistics	Unit	City Value	16.7 <b>Top Value</b>	0.25–16.7 <b>Range</b>	
Health Statistics Sanitation– Related Diseases					
Health Statistics Sanitation– Related Diseases Reported Cases (per 10,000 population)	Unit	City Value	Top Value	Range	Average
Health Statistics Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea	Unit #	City Value	<b>Top Value</b> 594.14	0.75-594.14	Average
Health Statistics Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B	# #	City Value	594.14 6.83	0.75-594.14 0.13-6.86	<b>Average</b> 50.1 3.0
Health Statistics Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma	# # #	City Value	594.14 6.83 294.55	0.75–594.14 0.13–6.86 0.00–294.55	50.1 3.0 20.1
Health Statistics Sanitation- Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	# # # # #	City Value	594.14 6.83 294.55 507.79	0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79	50.1 3.0 20.1 153.9
Health Statistics Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles	# # # # # # # # # # # # # # # # # # #	City Value	594.14 6.83 294.55	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	50.1 3.0 20.1 153.9
Health Statistics Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	# # # # # # # # # # # # # # # # # # #	City Value	594.14 6.83 294.55 507.79	0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79	50.1 3.0 20.1 153.9
Health Statistics Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria Death (children under 5 years) (per 10,000 population)	# # # # # # # # # # # # # # # # # # #	City Value	594.14 6.83 294.55 507.79 4.45	0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54	50.1 3.0 20.1 153.9 0.3
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea	# # # # # # # # # # # # # # # # # # #	City Value	594.14 6.83 294.55 507.79 4.45 —	0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54	50.1 3.0 20.1 153.9 0.3 0.7
Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria Death (children under 5 years) (per 10,000 population) Diarrhea Hepatitis A & B	# # # # # # # # # # # # # # # # # # #	City Value	594.14 6.83 294.55 507.79 4.45 ——————————————————————————————————	0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54 0.0-0.47	50.1 3.0 20.1 153.9 0.3 0.7
Health Statistics Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria Death (children under 5 years) (per 10,000 population) Diarrhea Hepatitis A & B Trachoma	# # # # # # # # # # # # # # # # # # #	City Value	594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54 0.0-0.25 0-0	50.1 3.0 20.1 153.9 0.3 0.7
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	# # # # # # # # # # # # # # # # # # #	City Value	594.14 6.83 294.55 507.79 4.45 ——————————————————————————————————	0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54 0.0-0.47 0.0-0.25 0-0 0.00-6.3	50.1 3.0 20.1 153.9 0.3 0.7
Health Statistics Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria Death (children under 5 years) (per 10,000 population) Diarrhea Hepatitis A & B Trachoma	# # # # # # # # # # # # # # # # # # #	City Value	594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54 0.0-0.25 0-0	0.6  Average  50.1  3.0  20.1  153.9  0.3  0.7  0.0  0.0  0.0  0.0  0.2  0.0  0.6

## 8. Nasrullahganj, India

Nasrullahganj		For All Surveyed Cities and Municipalities
Coordinator	Mr. Noushad Ahamad Lari	
Office	Chief Municipal Officer, Nagar Panchayat Nasrullahganj	
Address	District Sehore, India	<u></u>
Fax	91 7563-276062	
Telephone	91 7563-276062	
E-mail address		

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	21.7	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	2.64	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	2.86	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	7.6	7.6	3.2 – 7.6	4.9
	Floating Population	%	2.0	844.1	0 - 844.1	34.5
	Urban Poor	%	48.0	48.0	0 - 48.0	14.6
	City Area	ha (000)	0.8	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	60.0	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	10.0	59.7	0 – 59.7	13.5
	Urban Fringe	%	-	99.7	0 – 99.7	18.9
	Peri–Urban	%	-	98.5	0 – 98.5	34.9
	Slum Area	%	30.0	35.96	0 – 35.96	4.3
	Average City Density	#/ha	26.9	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	-	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	-	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	_	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	-	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ige	Unit	City Value	Top Value	Range	Average
Area Coverage		(′000) ha	0.8	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	_	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	100.0	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	21.7	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	_	100.0	0 – 100.0	31.5
	Central Water Supply System	%	90.0	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
-	I. Central Sewerage System	%	-	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	68.9	100.0	0.0-100.0	44.0
	III. Communal with Septic	%	2.0	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	%	26.5	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%		0.9	0.0-0.9	0.0
	VI. Open Defecation	%	2.5	61.0	0.0–61.0	7.3
				00		7.5
	LOHET System					
	Toilet System  Type I	%		100.0	0–100.0	13.7
	Type I	%	-	100.0	0–100.0 0–88.9	
	Type I Type Ia	%	-	88.9	0–88.9	9.3
	Type I Type Ia Type II	%	-	88.9 93.1	0–88.9 0–93.1	9.3 12.6
	Type I Type Ia Type II Type IIa	% % %		88.9 93.1 100.0	0-88.9 0-93.1 0-100.0	9.3 12.6 32.2
	Type I Type Ia Type II Type IIa Type III	% % %	- - 68.9	88.9 93.1 100.0 2.0	0-88.9 0-93.1 0-100.0 0-2.0	9.3 12.6 32.2 0.1
	Type I Type Ia Type II Type IIa Type III Type III	% % % %	- - 68.9	88.9 93.1 100.0 2.0 61.0	0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	9.3 12.6 32.2 0.1 2.8
	Type I Type Ia Type II Type IIa Type III Type III Type IIIa Type IV	% % % %	- 68.9 - 2.0	88.9 93.1 100.0 2.0 61.0 59.9	0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	9.3 12.6 32.2 0.1 2.8 13.9
	Type I Type Ia Type II Type IIa Type III Type III	% % % %	- - 68.9	88.9 93.1 100.0 2.0 61.0	0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	13.7 9.3 12.6 32.2 0.1 2.8 13.9 5.6

	Type VI & VIa	%	2.5	22.5	0–22.5	7.5
	Type VIb	%	_	12.0	0–12.0	0.4
Treatment Facility		Unit	City Value	Top Value	Range	Average
Waste Water Treatmer	nt Plant					
Capacity (10,000 popu	ılation)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	100	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Septage Treatment Pla	nt					
Capacity		m3/d	-	135.0	50–135.0	6.2
	Provider					
	Local Government	%	_	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Desludging Services						
Frequency		year	_	12.0	0–12.0	0.6
	Provider					
	Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Water Supply Facil	ity	Unit	City Value	Top Value	Range	Average
Household Water Supp	oly Source					
Central Water Supply–	Individual	%	90.0	95.0	3.60–95.0	64.5
Central Water Supply–	Communal	%	10.0	46.7	0.0–46.7	5.5
Borehole		%	_	54.5	0.0-54.5	14.1
Protected Spring/Well		%	_	96.4	0.0–96.4	10.3
Rainwater		%	_	20.0	0.0–20.0	8.1
Water Vendor		%	_	35.0	0.0–35.0	5.1
Population Buying Bott	tled Water	%	_	80.0	0-80.0	12.9
Average Water Consur	mption	lpcd	29.0	160.0	29–160.0	72.1
Water Treatment Facili	ties	lpcd	29.0	321.5	1.5–321.5	55.6
Local Government		%	100.0	100.0	0–100.0	47.5
National Government		%	0	100.0	0–100.0	26.5
Private Concessionaire		%	0	100.0	0–100.0	9.3
Organizational Arr	angement	Unit	City Value	Top Value	Dange	Average
		Oilit	City value	10p value	Range	Average
Institutions Involved in		Oiiit	City value	TOP Value	nange	Average
Institutions Involved in Public Sector		Onic	City value	Top value	nange	Average
		#	City value	6	1–6	
	Sanitation			-		0.5
	Sanitation  National Government	#	-	6	1–6	0.5
	Sanitation  National Government  Local Government	#	-	6 4	1-6 1-4	0.5
Public Sector	Sanitation  National Government  Local Government	#	-	6 4	1-6 1-4	0.5 1.3 0.5
Public Sector	National Government Local Government State- Owned Utility	# # #	-	6 4 2	1-6 1-4 1-2	0.5 1.3 0.5
Public Sector	National Government Local Government State— Owned Utility Water Utility	# # # #	-	6 4 2	1-6 1-4 1-2 0-2	0.5 1.3 0.5 0.1
Public Sector	Sanitation  National Government  Local Government  State— Owned Utility  Water Utility  Enterprise	# # # # #	-	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
Private Sector	Sanitation  National Government  Local Government  State— Owned Utility  Water Utility  Enterprise	# # # # #	-	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1
Private Sector  Private Sector  Number of Personnel	Sanitation  National Government  Local Government  State— Owned Utility  Water Utility  Enterprise  Nongovernment Organization  Total Personnel (per 10,000	# # # # #	-	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
Private Sector  Private Sector  Number of Personnel	National Government Local Government State— Owned Utility Water Utility Enterprise Nongovernment Organization	# # # # # #	- - - -	6 4 2 2 1 2	1-6 1-4 1-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1
Private Sector  Private Sector  Number of Personnel	Sanitation  National Government  Local Government  State— Owned Utility  Water Utility  Enterprise  Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# # # # #	- - - - - - 47	6 4 2 2 1 2 2 21.67	1-6 1-4 1-2 0-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1 9.0
Private Sector  Private Sector  Number of Personnel	National Government Local Government State— Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # # # # # # # # # # # # # # # #	- - - - - - 47	2 2 1 2 21.67	1-6 1-4 1-2 0-2 0-2 0-2 0.4-21.67	0.5 1.3 0.5 0.1 0.1 0.1 9.0 11.8
Private Sector  Private Sector  Number of Personnel	Sanitation  National Government  Local Government  State— Owned Utility  Water Utility  Enterprise  Nongovernment Organization  Total Personnel (per 10,000 pop'n)  Planning and Monitoring  Construction	# # # # # # %	- - - - - - - 47 5	2 2 1 2 2 2 1 1 2 2 1.67 100 100	1-6 1-4 1-2 0-2 0-2 0-2 0-2 5-100 6-100	0.5 1.3 0.5 0.1

	Operations and Maintenance	%	_	_	_	_
Legal Framework	•	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sa	nitation					
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	1956	2007	1947–2007	1985
	Latest	year	2000	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Y	17	7–17	_
	Year Enacted	year	2000	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan		<u> </u>	-		
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Υ	11	11–27	
	When Prepared	year	2011	2007	2006–2011	2009
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	Year	_	2020	2015–2020	2018
	Estimated Cost	\$	1.9	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	9.44	762.7	0.7–762.7	32.1
	Source of Fund	Government gran				
Sanitation Problem	Major Sanitation Problem	Pollution due to d				
Summation 1 Toblem	-	untreated wastes	15/0541 01			
	Future Programs/Projects		_			
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	Funding Source		_			
Capital Investme		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita		168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	_	90.0	0.0–90.0	22.1
	Local Government	%	_	100.0	0.0–100.0	18.5
	Loans	%	_	99.0	0.0–99.0	15.7
	Tariff Revenue	%	_	0	0–0	0
	Others	%	-	100.0	0.0–100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	-	8.3	0.01–8.3	0.7
	Source of Fund					
	National Government	%	-	47.0	0–47	4.9
	Local Government	%	-	100.0	0–100	40.7
	Loans	%	-	53.0	0–53	3.4
	Tariff Revenue	%	-	100.0	0–100	14.3
	Others	%	_	0	0	0
Revenues and Fee	es for Services	Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees					
	Total Revenue	\$/capita	0.03	15	0.3–15.0	0.9
	Sewered Area Charges					
	Connection Charge	\$/connection	0.6	110	0.6–110.0	20.0
	Tariff Rate	\$/m3	_	90	0.015–90	0.3
	Septic Tank Desludging Fee					
	Private	\$/ST	_	133	4–133	9.9

Government	\$/ST	20	100	0–100	23.9
Other Fees	\$	_	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	-			
Sources of Water Pollution					
Household Solid Waste	%	_	67	0–67	21.
Household Liquid Waste	%	-	80	15–80	39.
Industrial Waste	%	-	38	0–38	8.4
Commercial Waste	%	-	35	0–35	8.
Hospital Waste	%	-	17	0–17	2.
Polluter to Treat Own Wastewater	Y/N	-			
Current Wastewater Disposal					
Own Treatment Plant	%	_	100	0–100	10.
Central Sewer System	%	_	35	0–35	6.
No Treatment	%	_	100	0–100	36.
Others	%	_	50	0–50	10.
Description	Through septic tank				
Within River Basin	Y/N	N			
River Basin/Major River Name		_			
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.
City Location	u,m,d	_			
Adjoining Town					
Pollution Load	vh–vl	_			
Pollution Load Sanitation Work/Plan	vh–vl i/c				
		City Value	Top Value	Range	Average
Sanitation Work/Plan Environmental Statistics	i/c		Top Value	Range	Average
Sanitation Work/Plan	i/c		22000#/ 100ml	<b>Range</b> <1- 22000	Average
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water	i/c <b>Unit</b>	City Value	22000#/		
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform	i/c Unit #/ml	City Value	22000#/ 100ml	<1- 22000	18.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD	i/c Unit #/ml mg/l	City Value	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml mg/l mg/l	City Value	22000#/ 100ml 180	<1- 22000 1.28-180.0 7.1-973.0	18. 72. 49.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals	#/ml mg/l mg/l mg/l	City Value	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.0
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l mg/l	City Value	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18. <sup>7</sup> 72.49.0.0
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l mg/l	City Value	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18. <sup>7</sup> 72.49.0.0
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	#/ml mg/l mg/l mg/l mg/l	City Value	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18. 72. 49. 0. <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l Tmg/l Unit	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b>	18. 72. 49. 0. <b>Averag</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea	#/ml mg/l mg/l mg/l mg/l Tmg/l mg/l #	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18. 72. 49. 0. <b>Averag</b> (
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l thit	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86	18. 72. 49. 0. Average 50. 3.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l mg/l the state of t	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55	18. 72. 49. 0.  Average  50. 3. 20.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	#/ml #/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18. 72. 49. 0. <b>Average</b> 50. 3. 20. 153.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	#/ml mg/l mg/l mg/l mg/l mg/l  ## # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18. 72. 49. 0. <b>Averago</b> 50. 3. 20. 153.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	#/ml mg/l mg/l mg/l mg/l mg/l  ## # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18. 72. 49. 0. <b>Averago</b> 50. 3. 20. 153. 0.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l  mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54	18. 72. 49. 0. <b>Averago</b> 50. 3. 20. 153. 0.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea	#/ml #/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54 0.0-0.47	18. 72. 49. 0. <b>Average</b> 50. 3. 20. 153. 0.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l mg/l  H # # # # # # # # # # # # # # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54  0.0-0.25  0-0	18. 72. 49. 0.  Average  50. 153. 0. 0. 0. 0.
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l  H # # # # # # # # # # # # # #	City Value  City Value  City Value	22000#/ 100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<pre></pre>	18.7 72.4 49.0 0.6 <b>Average</b> 50. 3.0 20. 153.9 0.0 0.0 0.0

## 9. Bharatpur, Nepal

Bharatpur		For All Surveyed Cities and Municipalities
Coordinator	Birat Ghimire/ Januka K.C, Section Head	
Office	Environment Section/ Bharatpur Municipality Office	
Address	Bharaptur-10,Chitwan Nepal	
Fax	977-56520014	
Telephone	977-56521013/ 525305	
E-mail address	bmc@ntc.net.np	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	143.8	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	5.00	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	36.93	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	3.9	7.6	3.2 – 7.6	4.9
	Floating Population	%	0	844.1	0 - 844.1	34.5
	Urban Poor	%	9.46	48.0	0 – 48.0	14.6
	City Area	ha (000)	7.7	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	11.0	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	22.0	59.7	0 – 59.7	13.5
	Urban Fringe	%	3.2	99.7	0 – 99.7	18.9
	Peri–Urban	%	58.2	98.5	0 – 98.5	34.9
	Slum Area	%	5.56	35.96	0 – 35.96	4.3
	Average City Density	#/ha	18.6	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	35.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	20.0	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	5.0	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	10.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	20.0	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	7.73	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	7.8	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	58.2	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	143.83	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	4.5	100.0	0 – 100.0	31.5
	Central Water Supply System	%	61.2	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	4.5	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	40.6	100.0	0.0–100.0	44.0
	III. Communal with Septic	%	-	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	%	52.4	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%	0.0	0.9	0.0-0.9	0.0
	VI. Open Defecation	%	2.5	61.0	0.0–61.0	7.3
		-				
	Toilet System					
	Toilet System Type I	%	_	100.0	0–100.0	13.7
	Type I	%	- 4.5	100.0	0–100.0 0–88.9	
	Type I Type la	%	4.5	88.9	0–88.9	9.3
	Type I					9.3
	Type I Type Ia Type II Type IIa	%	0	88.9 93.1	0–88.9 0–93.1	9.3 12.6
	Type I Type Ia Type II Type IIa Type III	% % %	0 40.6	88.9 93.1 100.0 2.0	0-88.9 0-93.1 0-100.0 0-2.0	9.3 12.6 32.2 0.1
	Type I Type Ia Type II Type IIa Type III Type III	% % %	0 40.6 0	88.9 93.1 100.0 2.0 61.0	0-88.9 0-93.1 0-100.0	9.3 12.6 32.2 0.1 2.8
	Type I Type Ia Type II Type IIa Type III Type III Type IIII Type IV	% % % % %	0 40.6	88.9 93.1 100.0 2.0 61.0 59.9	0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	9.3 12.6 32.2 0.1 2.8 13.9
	Type I Type Ia Type II Type IIa Type III Type III	% % % %	0 40.6 0 - 52.4	88.9 93.1 100.0 2.0 61.0	0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	0.1

Type VI & VIa	%	2.5	22.5	0–22.5	7.5
Type VIb	%	0	12.0	0–12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	30	100.0	0-100.0	57.7
National Government	%	62	100.0	0–100.0	8.7
Private	%	8	92.7	0–92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	_	135.0	50-135.0	6.2
Provider					
Local Government	%	30	100.0	0–100.0	57.7
National Government	%	62	100.0	0–100.0	8.7
Private	%	8	92.7	0–92.7	4.7
Desludging Services					
Frequency	year	-	12.0	0–12.0	0.6
Provider					
Government	%	_	100.0	0-100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source					
Central Water Supply–Individual	%	59.5	95.0	3.60–95.0	64.5
Central Water Supply–Communal	%	1.6	46.7	0.0-46.7	5.5
Borehole	%	0	54.5	0.0–54.5	14.1
Protected Spring/Well	%	37.9	96.4	0.0-96.4	10.3
Rainwater	%	0.1	20.0	0.0-20.0	8.1
Water Vendor	%	0	35.0	0.0–35.0	5.1
Population Buying Bottled Water	%	_	80.0	0-80.0	12.9
Average Water Consumption	lpcd	50.0	160.0	29–160.0	72.1
Water Treatment Facilities	lpcd	1.8	321.5	1.5–321.5	55.6
Local Government	%	30.0	100.0	0-100.0	47.5
National Government	%	62.0	100.0	0–100.0	26.5
Private Concessionaire	%	8.0	100.0	0–100.0	9.3
Organizational Arrangement	Unit	City Value	Top Value	Range	Average
Institutions Involved in Sanitation					
Public Sector					
National Government	#	_	6	1–6	0.5
Local Government	#	1	4	1–4	1.3
State- Owned Utility	#	2	2	1–2	0.5
Private Sector					
Water Utility	#	_	2	0–2	0.1
Enterprise	#	-	1	0–2	0.1
Nongovernment Organization	#	_	2	0–2	0.1
Number of Personnel					
Public Sector					
Total Personnel (per 10,000 pop'n)	#	5.15	21.67	0.4–21.67	9.0
Planning and Monitoring	%	-	100	5–100	11.8
Construction	%	-	100	6–100	8.9
Operations and Maintenance	%	_	100	50-100.0	23.6
Private Sector					
Total Personnel (per 10,000 pop,n)	#	-	30.96	12.3–30.96	1.4

	Operations and Maintenance	%	_	_	_	_
Legal Framework	<u>'</u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sar	nitation					
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	_	3	1–3	1.2
	Year Enacted					
	Oldest	year	1996	2007	1947–2007	1985
	Latest	year	1996	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Υ	17	7–17	_
	Year Enacted	year	1999	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan	,				
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year		2020	2015–2020	2018
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.1
	Source of Fund	<b>У</b> /Сарта	_	702.7	0.7 702.7	32.
Sanitation Problem	Major Sanitation Problem	Lack of sanitary u	than facilities			
Sanitation Froblem	Future Programs/Projects	Make the city ope				
	Funding Amount	\$/capita	- Truelecation free	24.1	0.96–24.1	1 (
	Funding Source	<b>Ъ</b> /Сарна	_	24.1	0.90-24.1	1.0
C:t   t		Unit		Top Value	D	A
Capital Investmen	Annual Capital Investment	Onit	City Value	Top value	Range	Average
	Annuai Capitai investment					
	· · · · · · · · · · · · · · · · · · ·	¢/canita		160.0	0 F 169 0	10.7
	Annual Amount	\$/capita	_	168.0	0.5–168.0	10.3
	Annual Amount Source of Fund					
	Annual Amount  Source of Fund  National Government	%	8	90.0	0.0–90.0	22.1
	Annual Amount  Source of Fund  National Government  Local Government	%	8	90.0	0.0–90.0	22.7
	Annual Amount  Source of Fund  National Government  Local Government  Loans	% % %	8 62 30	90.0 100.0 99.0	0.0–90.0 0.0–100.0 0.0–99.0	22.1 18.5 15.7
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue	% % % %	8 62 30 0	90.0 100.0 99.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0	22.1 18.5 15.7
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others	% % % % %	8 62 30 0	90.0 100.0 99.0 0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	22.1 18.5 15.7 0
Operations and N	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures	% % % %	8 62 30 0	90.0 100.0 99.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0	22.1 18.5 15.7 0
Operations and N	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Jaintenance Expenditures  Annual O&M Cost	% % % % % Unit	8 62 30 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 ( 9.0 <b>Average</b>
Operations and N	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  laintenance Expenditures  Annual O&M Cost  Annual Amount	% % % % %	8 62 30 0	90.0 100.0 99.0 0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	22.1 18.5 15.7 ( 9.0 <b>Average</b>
Operations and N	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund	% % % % % Unit	8 62 30 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 ( 9.0 <b>Average</b>
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government	% % % % % Unit	8 62 30 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 ( 9.0 <b>Average</b>
Operations and N	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund	% % % % Unit \$/capita	8 62 30 0 0 <b>City Value</b>	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 ( 9.0 <b>Average</b> 0.7
Operations and N	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government	% % % % W W tunit \$/capita	8 62 30 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range 0.01–8.3	22.1 18.5 15.7 ( 9.0 <b>Average</b> 0.7 4.9
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government	% % % % White  ### Capita  ### ### ### ### ### ### ### ### ### #	8 62 30 0 0 City Value 0.7	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range 0.01–8.3	22.1 18.5 15.7 ( 9.0 <b>Average</b> 0.7 4.5 40.7
Operations and N	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans	% % % % Whit  \$/capita  % % %	8 62 30 0 0 City Value  0.7  0 50	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3  0–47 0–100 0–53	22.1 18.5 15.7 ( 9.0 <b>Average</b> 0.7 4.9 40.7 3.4
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others	% % % % Whit  \$/capita  % % % % % % % % % %	8 62 30 0 City Value  0.7  0 50 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	22.1 18.5 15.7 ( 9.0 <b>Average</b> 0.7 4.9 40.7 3.4
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others	% % % % Unit \$/capita % % % %	8 62 30 0 0 <b>City Value</b> 0.7 0 50 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Ses for Services	% % % % Unit \$/capita % % % %	8 62 30 0 0 <b>City Value</b> 0.7 0 50 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	22.1 18.5 15.7 ( 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Ses for Services  Annual Revenues and Fees	% % % % Whit  \$/capita  % % % % Unit  Unit	8 62 30 0 0 <b>City Value</b> 0.7 0 50 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0  100.0  53.0  100.0  0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0  Range	22.1 18.5 15.7 ( 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  es for Services  Annual Revenue  Total Revenue	% % % % Whit  \$/capita  % % % % Unit  Unit	8 62 30 0 0 <b>City Value</b> 0.7 0 50 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0  100.0  53.0  100.0  0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0  Range	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Ses for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges	% % % % Wnit \$/capita  % % % Unit \$/capita	8 62 30 0 0 City Value  0.7  0 50 0 City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3  47.0 100.0 53.0 100.0 0 Top Value	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0  Range	22.1 18.5 15.7 ( 9.0  Average  4.5 40.7 3.4 14.3 (  Average  0.9 20.0
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  es for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges  Connection Charge	%     %     %     %     Whit  #/capita  %     %	8 62 30 0 0 City Value  0.7  0 50 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0  Range	22.1 18.5 15.7 ( 9.0  Average  4.5 40.7 3.4 14.3 (  Average  0.9 20.0
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Ses for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges  Connection Charge  Tariff Rate	%     %     %     %     Whit  #/capita  %     %	8 62 30 0 0 City Value  0.7  0 50 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0  Range	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9 20.0 0.3
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Ser for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges  Connection Charge  Tariff Rate  Septic Tank Desludging Fee	%     %     %     %     W     w     w     w     Unit  \$/capita  %     %     %     %     w     unit  \$/capita	8 62 30 0 0 City Value  0.7  0 50 0 City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3  47.0 100.0 53.0 100.0 0 Top Value	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0 Range  0.3–15.0  0.6–110.0 0.015–90	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9

Other Fees	\$	1	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	N			
Sources of Water Pollution					
Household Solid Waste	%	50	67	0–67	21.7
Household Liquid Waste	%	50	80	15–80	39.6
Industrial Waste	%	0	38	0–38	8.4
Commercial Waste	%	0	35	0–35	8.5
Hospital Waste	%	0	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	0	35	0–35	6.5
No Treatment	%	100	100	0–100	36.5
Others	%	0	50	0–50	10.4
Description	Through septic tank				
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Narayani				
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Midstream			
Adjoining Town					
Pollution Load	vh–vl	_			
Sanitation Work/Plan	i/c	_			
Environmental Statistics	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	_	22000#/	<1- 22000	
BOD	mg/l		100ml 180	1.28–180.0	18.7
COD	mg/l		973	7.1–973.0	72.4
	myn		9/3		
Total Suspended Solids	ma/l	_	261		
Total Suspended Solids	mg/l	-	261	1.0–261.0	49.6
Heavy Metals	mg/l	_	16.7	1.0–261.0 0.25–16.7	49.6 0.6
Heavy Metals Health Statistics		- City Value		1.0–261.0	49.6
Heavy Metals  Health Statistics  Sanitation— Related Diseases	mg/l	_	16.7	1.0–261.0 0.25–16.7	49.6 0.6
Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)	mg/l Unit	City Value	16.7 Top Value	1.0–261.0 0.25–16.7 <b>Range</b>	49.6 0.6 <b>Average</b>
Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	mg/l Unit #	_	16.7 <b>Top Value</b> 594.14	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14	49.6 0.6 <b>Average</b> 50.1
Heavy Metals  Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B	mg/l Unit # #	- <b>City Value</b> 594.14	16.7 <b>Top Value</b> 594.14 6.83	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86	49.6 0.6 <b>Average</b> 50.1 3.0
Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	mg/l Unit  # # #	594.14 - 294.55	16.7 <b>Top Value</b> 594.14 6.83 294.55	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55	49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	mg/l Unit  # # # #	- <b>City Value</b> 594.14	16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles	# # # # # #	594.14 	16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	# # # # # # # # # # # # # # # # # # #	594.14 - 294.55	16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population	# # # # # # # # # # # # # # # # # # #	594.14 - 294.55 1,084.04	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45	1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Heavy Metals  Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea	# # # # # # # # # # # # # # # # # # #	594.14  294.55 1,084.04 	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -	1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B	# # # # # # # # # # # # # # # # # # #	594.14 	16.7  Top Value  594.14  6.83  294.55  507.79  4.45  -  0.47  0.25	1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B  Trachoma	######################################	594.14 294.55 1,084.04	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47  0.25	1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.25 0-0	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	# # # # # # # # # # # # # # # # # # #	- City Value  594.14 - 294.55 1,084.04	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45   0.47  0.25  0  6.3	1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0 0.00-6.3	49.6 0.6  Average  50.1 3.0 20.1 153.9 0.3 0.7  0.0 0.0 0.0 0.0
Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B  Trachoma	######################################	594.14 294.55 1,084.04	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47  0.25	1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.25 0-0	49.6 0.6

## 10. Hetauda, Nepal

Hetauda		For All Surveyed Cities and Municipalities
Coordinator	Mr. Dhurba Bahadur Bhujel, Section Officer	
Office	Social Welfare Hetauda Municipality	
Address	Hetauda Municipality, Hetauda Makwanpur, Nepal	
Fax	977(0)57-520044	
Telephone	977(0)57-520433	
E-mail address	drb_bhu62@yahoo.com	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2012)	#(000)	84.7	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	2.51	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	19.85	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	4.2	7.6	3.2 – 7.6	4.9
	Floating Population	%	1.5	844.1	0 – 844.1	34.5
	Urban Poor	%	10.60	48.0	0 – 48.0	14.6
	City Area	ha (000)	4.6	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	9.0	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	11.0	59.7	0 – 59.7	13.5
	Urban Fringe	%	57.0	99.7	0 – 99.7	18.9
	Peri–Urban	%	21.0	98.5	0 – 98.5	34.9
	Slum Area	%	2.0	35.96	0 – 35.96	4.3
	Average City Density	#/ha	19.0	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	74.5	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	39.0	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	4.7	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	8.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	110.0	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		(′000) ha	4.55	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	11.2	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	11.0	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	84.67	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	5.3	100.0	0 – 100.0	31.5
	Central Water Supply System	%	61.9	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
			•	•	Kange	_
	I. Central Sewerage System	%	5.3	100.0	0.0–100.0	27.3
	I. Central Sewerage System II. Individual with Septic Tank	%		_	_	
	II. Individual with Septic Tank III. Communal with Septic		5.3	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank III. Communal with Septic Tank	%	5.3 75.5 2.5	100.0 100.0 10.5	0.0–100.0 0.0–100.0 0.0–10.5	27.3 44.0 0.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine	% % %	5.3 75.5 2.5	100.0 100.0 10.5	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9	27.3 44.0 0.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation	% % %	5.3 75.5 2.5 16.5 0.0	100.0 100.0 10.5 59.9	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9	27.3 44.0 0.9 13.9 0.0
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation	% % %	5.3 75.5 2.5	100.0 100.0 10.5	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9	27.3 44.0 0.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System	% % % %	5.3 75.5 2.5 16.5 0.0	100.0 100.0 10.5 59.9 0.9 61.0	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	27.3 44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I	% % % %	5.3 75.5 2.5 16.5 0.0	100.0 100.0 10.5 59.9 0.9 61.0	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	27.3 44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia	% % % % %	5.3 75.5 2.5 16.5 0.0 -	100.0 100.0 10.5 59.9 0.9 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II	% % % % % % % %	5.3 75.5 2.5 16.5 0.0 - - 5.3	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa	% % % % % % % % % %	5.3 75.5 2.5 16.5 0.0 -	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III	% % % % % % % % % % % % %	5.3 75.5 2.5 16.5 0.0 - - 5.3 0 75.5	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % % %	5.3 75.5 2.5 16.5 0.0 - - 5.3 0 75.5 0	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type IIIa Type IIIa	% % % % % % % % % % % % % % % %	5.3 75.5 2.5 16.5 0.0  5.3 0 75.5 0 2.5	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % % %	5.3 75.5 2.5 16.5 0.0 - - 5.3 0 75.5 0	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2

Type VI & VIa Type VIb	%	_			
Tuna VIII	, 0	0	22.5	0–22.5	7.5
Type VID	%	0	12.0	0–12.0	0.4
	Unit	City Value	Top Value	Range	Average
Plant					
ation)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	_	100.0	0–100.0	57.7
National Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0–92.7	4.7
t					
	m3/d	-	135.0	50-135.0	6.2
Provider					
Local Government	%	_	100.0	0–100.0	57.7
National Government	%	-	100.0	0–100.0	8.7
Private	%	-	92.7	0-92.7	4.7
	year	-	12.0	0-12.0	0.6
Provider					
Government	%	_	100.0	0–100.0	8.7
Private	%		92.7	0–92.7	4.7
:y	Unit	City Value	Top Value	Range	Average
y Source		-	-		
 ıdividual	%	60.4	95.0	3.60–95.0	64.5
	%	1.5	46.7	0.0–46.7	5.5
	%	1.0	54.5	0.0–54.5	14.1
	%	36.2	96.4	0.0–96.4	10.3
		0	20.0		8.1
		0	35.0		5.1
ed Water					12.9
		40.0			72.1
•		11.0	321.5		55.6
		0			47.5
		100.0	100.0		26.5
					9.3
ngement					Average
				<b>y</b> -	
National Government	#	_	6	1–6	0.5
Local Government	#	_	4	1–4	1.3
State– Owned Utility	#	1	2	1–2	0.5
state- Owned Othick					
- State- Owned Othity		'			
· · · · · · · · · · · · · · · · · · ·	#		2	0–2	0.1
Water Utility	#			0–2 0–2	
Water Utility Enterprise	#	- - 1	1	0–2	0.1
Water Utility	#	-			0.1 0.1 0.1
Water Utility Enterprise	#	-	1	0–2	0.1
Water Utility Enterprise Nongovernment Organization	# # #	-	1 2	0–2 0–2	0.1
Water Utility Enterprise Nongovernment Organization Total Personnel (per 10,000 pop'n)	# # #	-	21.67	0-2 0-2 0.4-21.67	9.0
Water Utility Enterprise Nongovernment Organization Total Personnel (per 10,000	# # #	-	1 2	0–2 0–2	9.0
Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # % %	- - 1	21.67	0-2 0-2 0.4-21.67 5-100 6-100	9.0 11.8 8.9
Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # %	- - 1	21.67	0-2 0-2 0.4-21.67 5-100	9.0
Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # % %	- - 1	21.67 100 100	0-2 0-2 0.4-21.67 5-100 6-100	9.0 11.8 8.9
	National Government Private  t  Provider Local Government National Government Private  Provider Government Private  Sy y Source Individual Communal  Private  Provider  Red Water Potion Pes  Anitation  National Government  National Government  National Government	National Government % National Government % Private %  t m3/d  Provider Local Government % National Government % Private %  Private %  Provider  Government % Private %  Local Government %  Private %  Local Government %  Private %  Local Government %  Private %  Local Government %  Private %  Local Government %  Private %  Local Government %  Private %  Local Government %  Private %  Local Government %  Private %  Local Government %  Private %  Local Government %  Private %  Local Government %  Local Government %  Local Government %  Mational Government #  National Government #	Local Government % — National Government % — Private % —  t	Decide   Covernment   We	Local Government   %   -   100.0   0-100.0     National Government   %   -   100.0   0-100.0     Private   %   -   92.7   0-92.7     Total

	Operations and Maintenance	%	_	_	_	_
Legal Framework		Unit	City Value	Top Value	Range	Average
Legal Mandate of Sai	nitation					
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	-	3	1–3	1.2
	Year Enacted					
	Oldest	year	1993	2007	1947–2007	1985
	Latest	year	2011	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Υ	17	7–17	_
	Year Enacted	year	1999	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan		-	-	-	
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Υ	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan	,				
	Will Prepare Sanitation Plan	Y/N				
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$		250	1.9–250.0	12.5
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.1
	Source of Fund	ф, сарта	_	, 52.7	0.7 7 02.7	32.1
Sanitation Problem	Major Sanitation Problem	Poor cannot affor	d basic sanitation			
	Future Programs/Projects	Make municipality free	open defecation			
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	Funding Source		_			
Capital Investmen	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	_	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	8	90.0	0.0–90.0	22.1
	Local Government	%	62	100.0	0.0-100.0	18.5
	Loans	%	30	99.0	0.0–99.0	15.7
	Tariff Revenue	%	0	0	0–0	0
	Others	%	0	100.0	0.0-100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
•	Annual O&M Cost			•		
	Annual Amount	\$/capita	0.9	8.3	0.01–8.3	0.7
	Source of Fund	4 1				
	National Government	%	0	47.0	0–47	4.9
	Local Government	%	50	100.0	0–100	40.7
	Local Government	%	50 0	100.0 53.0	0–100 0–53	
	Loans	%	0	53.0	0–53	3.4
	Loans Tariff Revenue	%	0 50	53.0 100.0	0–53 0–100	3.4 14.3
Revenues and Foo	Loans Tariff Revenue Others	% % %	0 50 0	53.0 100.0 0	0–53 0–100 0	3.4 14.3 0
Revenues and Fee	Loans Tariff Revenue Others es for Services	%	0 50	53.0 100.0	0–53 0–100	40.7 3.4 14.3 0 <b>Average</b>
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees	% % Unit	0 50 0	53.0 100.0 0 <b>Top Value</b>	0–53 0–100 0 <b>Range</b>	3.4 14.3 0 <b>Average</b>
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue	% % %	0 50 0	53.0 100.0 0	0–53 0–100 0	3.4 14.3 0 <b>Average</b>
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges	% % Unit  \$/capita	0 50 0 <b>City Value</b>	53.0 100.0 0 <b>Top Value</b>	0–53 0–100 0 <b>Range</b>	3.4 14.3 0 <b>Average</b>
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	% % Unit  \$/capita	0 50 0 <b>City Value</b> -	53.0 100.0 0 <b>Top Value</b> 15	0-53 0-100 0 <b>Range</b> 0.3-15.0	3.4 14.3 0 <b>Average</b> 0.9
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	% % Unit  \$/capita	0 50 0 <b>City Value</b>	53.0 100.0 0 <b>Top Value</b>	0–53 0–100 0 <b>Range</b>	3.4 14.3 0
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	% % Unit  \$/capita	0 50 0 <b>City Value</b> -	53.0 100.0 0 <b>Top Value</b> 15	0-53 0-100 0 <b>Range</b> 0.3-15.0	3.4 14.3 0 <b>Average</b> 0.9

Government	\$/ST	-	100	0–100	23.9
Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	30	67	0–67	21.7
Household Liquid Waste	%	60	80	15–80	39.6
Industrial Waste	%	10	38	0–38	8.4
Commercial Waste	%	0	35	0–35	8.5
Hospital Waste	%	0	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Y			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	0	35	0–35	6.5
No Treatment	%	95	100	0–100	36.5
Others	%	5	50	0–50	10.4
Description	Through septic tank				
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Rapti and Karra				
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Downstream			
Adjoining Town					
Pollution Load	vh–vl	-			
Sanitation Work/Plan	i/c	_			
	i/c <b>Unit</b>	City Value	Top Value	Range	Average
Environmental Statistics		City Value	Top Value	Range	Average
Environmental Statistics		City Value	22000#/ 100ml	<b>Range</b> <1- 22000	Average
Environmental Statistics Water Quality – Surface Water	Unit	-	22000#/	<1- 22000 1.28-180.0	
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	Unit #/ml	-	22000#/ 100ml	<1- 22000	18.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	#/ml mg/l	-	22000#/ 100ml 180	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml mg/l mg/l	- - -	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4 49.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l	- - -	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	#/ml mg/l mg/l mg/l mg/l	- - - -	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l	- - - -	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range	18.7 72.4 49.6 0.6 <b>Average</b>
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	#/ml mg/l mg/l mg/l mg/l	- - - -	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b>
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l The mg/l Mg/l Mg/l Unit	- - - - City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 <b>Average</b> 50.1
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l Thit	- - - City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l The mg/l mg/l mg/l mg/l # #	- City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79</pre>	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	#/ml  mg/l  mg/l  mg/l  mg/l  The state of t	- City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria	#/ml  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #	- City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population	#/ml mg/l mg/l mg/l mg/l  The state of the s	- City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	- City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	0.75–594.14 0.13–6.86 0.00–2.45 0.0–0.47	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B	#/ml  #/ml  mg/l  mg/l  mg/l  mg/l  Unit  #  #  #  #  #  #  #  #  #  #  #  #  #	- City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	- City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0</pre>	18.7 72.4 49.6 0.6  Average  50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	#/ml mg/l mg/l mg/l mg/l  The state of the s	- City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0 6.3	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l  The state of the s	- City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0</pre>	18.7 72.4 49.6 0.6

## 11. Kathmandu, Nepal

Kathmandu		For All Surveyed Cities and Municipalities
Coordinator	Rabin Man Shrestha, Chief and Senior Environmental Engineer	
Office	Environment Management Division	<u> </u>
Address	P.O. Box: 8416, Teku	<del>_</del>
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E-mail address	rms916@hotmail.com	<u></u>

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	1,003.3	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	4.04	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	254.76	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	3.9	7.6	3.2 – 7.6	4.9
	Floating Population	%	_	844.1	0 - 844.1	34.5
	Urban Poor	%	_	48.0	0 – 48.0	14.6
	City Area	ha (000)	5.07	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	5.4	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	14.2	59.7	0 – 59.7	13.5
	Urban Fringe	%	43.7	99.7	0 – 99.7	18.9
	Peri–Urban	%	36.7	98.5	0 – 98.5	34.9
	Slum Area	%	-	35.96	0 – 35.96	4.3
	Average City Density	#/ha	198.0	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	426.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	138.0	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	113.0	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	110.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
<b>Sanitation Covera</b>	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	5.07	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	92.0	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	100.0	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	1,003.28	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	69.9	100.0	0 – 100.0	31.5
	Central Water Supply System	%	100.0	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	69.9	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	28.1	100.0	0.0-100.0	44.0
	III. Communal with Septic Tank	%	0.0	10.5	0.0–10.5	0.9
	IV. Pit Latrine	%	0.0	59.9	0.0-59.9	13.9
	V. Eco Sanitation	%	0.0	0.9	0.0-0.9	0.0
	VI. Open Defecation	%	1.8	61.0	0.0-61.0	7.3
	Toilet System					
	Type I	%	0	100.0	0–100.0	13.7
	Type la	%	69.9	88.9	0–88.9	9.3
	Type II	%	-	93.1	0–93.1	12.6
	Type lla	%	28.1	100.0	0-100.0	32.2
	Type III	%	-	2.0	0–2.0	0.1
	Type Illa	%	-	61.0	0–61.0	2.8
	Type IV	%	_	59.9	0–59.9	13.9
	Type IVa	%	_	31.9	0–31.9	5.6
				ļ		
	Type V	%	_	_	_	0.0

	Type VI & VIa	%	1.8	22.5	0–22.5	7.5
	Type VIb	%	_	12.0	0-12.0	0.4
Treatment Facility		Unit	City Value	Top Value	Range	Average
Waste Water Treatmen	t Plant					
Capacity (10,000 popu	lation)	m3/d	199.4	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	_	100.0	0–100.0	57.7
	National Government	%	100	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Septage Treatment Plai	nt					
Capacity		m3/d	50	135.0	50–135.0	6.2
	Provider					
	Local Government	%	_	100.0	0–100.0	57.7
	National Government	%	100	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Desludging Services						
Frequency		year	_	12.0	0–12.0	0.6
	Provider					
	Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Water Supply Facili	ity	Unit	City Value	Top Value	Range	Average
Household Water Supp	ly Source					
Central Water Supply–I	ndividual	%	61.1	95.0	3.60–95.0	64.5
Central Water Supply–C	Communal	%	0.5	46.7	0.0–46.7	5.5
Borehole		%	0.1	54.5	0.0-54.5	14.1
Protected Spring/Well		%	6.0	96.4	0.0–96.4	10.3
Rainwater		%	0	20.0	0.0–20.0	8.1
Water Vendor		%	0	35.0	0.0–35.0	5.1
Population Buying Bott	led Water	%	30	80.0	0-80.0	12.9
Average Water Consun	nption	lpcd	90	160.0	29–160.0	72.1
Water Treatment Facilit	ties	lpcd	181.4	321.5	1.5–321.5	55.6
Local Government		%	0	100.0	0–100.0	47.5
National Government		%	-	100.0	0–100.0	26.5
Private Concessionaire		%	100	100.0	0–100.0	9.3
Organizational Arra	angement	Unit	City Value	Top Value	Range	Average
Institutions Involved in	Sanitation					
Public Sector						
<del></del>	National Government	#	1	6	1–6	0.5
	National Government Local Government	#	1 2	6	1–6 1–4	
						1.3
Private Sector	Local Government	#		4	1–4	1.3
Private Sector	Local Government	#		4	1–4	1.3 0.5
Private Sector	Local Government State– Owned Utility	#	2	2	1–4 1–2	1.3 0.5 0.1
Private Sector	Local Government State- Owned Utility Water Utility	# # #	2 -	2	1–4 1–2 0–2	0.5 0.1 0.1
Private Sector  Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise	# # #	1	2 1	1–4 1–2 0–2 0–2	0.5 0.1 0.1
	Local Government State- Owned Utility Water Utility Enterprise	# # #	1	2 1	1–4 1–2 0–2 0–2	0.5 0.1 0.1
Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization Total Personnel (per 10,000	# # #	1	2 1	1–4 1–2 0–2 0–2	0.5 1.3 0.5 0.1 0.1 0.1
Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization	# # # # #	1 1 2	2 1 2	1–4 1–2 0–2 0–2 0–2	0.1 0.1 0.1 0.1
Number of Personnel	Local Government State- Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# # # # #	1 1 2 0.46	2 2 1 2 21.67	1-4 1-2 0-2 0-2 0-2 0.4-21.67	1.3 0.5 0.1 0.1 0.1 9.0
Number of Personnel	Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # # # # # # # # # # # # # # # #	2 - 1 1 2 0.46	2 2 1 2 21.67	1-4 1-2 0-2 0-2 0-2 0.4-21.67 5-100	1.3 0.5 0.1 0.1 0.1 9.0 11.8
Number of Personnel	Local Government State- Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # # % %	2 - 1 1 2 0.46	2 2 1 2 21.67 100	1-4 1-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	0.1 0.1 0.1

	Operations and Maintenance	%	_	_	_	_
Legal Framework	'	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sar	nitation					
	Number of Laws on Sanitation					
	National	#	4	7	1–4	1.9
	Local	#	_	3	1–3	1.2
	Year Enacted					
	Oldest	year	1996	2007	1947–2007	1985
	Latest	year	2011	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Y	17	7–17	-
	Year Enacted	year	1990	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	Year	2015	2020	2015–2020	2018
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	_	762.7	0.7–762.7	32.1
	Source of Fund	•	_			
Sanitation Problem	Major Sanitation Problem	Wastewater directions into the river.	ly discharged			
	Future Programs/Projects	into the river.	_			
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	Funding Source	4, 55 p. 10				
Capital Investmen		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Capital Investment Annual Amount	\$/capita		168.0	0.5–168.0	10.3
	Annual Amount	\$/capita	-	168.0	0.5–168.0	10.3
	Annual Amount Source of Fund	·				
	Annual Amount  Source of Fund  National Government	%		90.0	0.0–90.0	22.1
	Annual Amount  Source of Fund  National Government  Local Government	% %	-	90.0	0.0–90.0	18.5
	Annual Amount  Source of Fund  National Government  Local Government  Loans	% % %	-	90.0 100.0 99.0	0.0–90.0 0.0–100.0 0.0–99.0	22.1 18.5 15.7
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue	% % %	-	90.0 100.0 99.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0	22.1 18.5 15.7
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others	% % % %	- - - -	90.0 100.0 99.0 0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	22.1 18.5 15.7 0 9.0
Operations and N	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Jaintenance Expenditures	% % %	-	90.0 100.0 99.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0	22.1 18.5 15.7
Operations and N	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Jaintenance Expenditures  Annual O&M Cost	% % % % Unit	- - - - City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 0 9.0 <b>Average</b>
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount	% % % %	- - - -	90.0 100.0 99.0 0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	22.1 18.5 15.7 0 9.0 <b>Average</b>
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund	% % % % Unit \$/capita	- - - - City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 0 9.0 <b>Average</b>
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government	% % % % Unit \$/capita	- - - - City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government	% % % % Wnit \$/capita	- - - - City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range 0.01–8.3	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans	% % % % Unit \$/capita	City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3  0–47 0–100 0–53	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue	% % % White  \$/capita  % % % % % % % % % %	- - - - City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others	% % % Wnit \$/capita % % % %	City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0
Operations and M	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Ses for Services	% % % White  \$/capita  % % % % % % % % % %	City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Source of Fund  National Government  Loans  Tariff Revenue  Others  Source of Fund  Annual Revenue  Others  Annual Revenues and Fees	% % % % Unit  \$/capita  % % % Unit	City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0  100.0  53.0  100.0  0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0  Range	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3 0 <b>Average</b>
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Is for Services  Annual Revenues and Fees  Total Revenue	% % % Wnit \$/capita % % % %	City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3 0 <b>Average</b>
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Ses for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges	% % % Wnit  \$/capita  % % % Unit  \$/capita	City Value  - City Value  - City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3  47.0 100.0 53.0 100.0 0 Top Value	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0  Range	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Is for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges  Connection Charge	%    %    %    %    Wnit  \$/capita  %    %    %    %    W    W    %    %	- City Value  - City Value  - City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0.0–100.0 Range  0.01–8.3 0–47 0–100 0–53 0–100 0 Range	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Is for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges  Connection Charge  Tariff Rate	% % % Wnit  \$/capita  % % % Unit  \$/capita	City Value  - City Value  - City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3  47.0 100.0 53.0 100.0 0 Top Value	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0  Range	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average
	Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Is for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges  Connection Charge	%    %    %    %    Wnit  \$/capita  %    %    %    %    W    W    %    %	- City Value  - City Value  - City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0.0–100.0 Range  0.01–8.3 0–47 0–100 0–53 0–100 0 Range	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9

Government	\$/ST	20	100	0–100	23.9
Other Fees	\$	_	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	N			
Sources of Water Pollution					
Household Solid Waste	%	20	67	0–67	21.7
Household Liquid Waste	%	80	80	15–80	39.6
Industrial Waste	%	0	38	0–38	8.4
Commercial Waste	%	0	35	0–35	8.5
Hospital Waste	%	0	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	0	35	0–35	6.5
No Treatment	%	100	100	0–100	36.5
Others	%	0	50	0–50	10.4
Description	Through septi	c tank			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Bagmati, Bishi	numati, Dhobikhola			
Basin Area	Ha		4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Midstream	, ,		<u> </u>
Adjoining Town					
Pollution Load	vh–vl	High			
Sanitation Work/Plan	i/c	Individual			
Environmental Statistics	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water		•	•	<u> </u>	
Total Coliform	#/ml	(2,400,000/ml)	22000#/ 100ml	<1- 22000	
BOD	mg/l	36.0	180	1.28-180.0	18.7
COD	mg/l	207.0	973	7.1–973.0	72.4
Total Suspended Solids	mg/l				
	1119/1	-	261	1.0-261.0	49.6
Heavy Metals		0.05	261 16.7	1.0–261.0 0.25–16.7	
Heavy Metals Health Statistics	mg/l Unit	0.05 City Value			0.6
	mg/l		16.7	0.25–16.7	49.6 0.6 <b>Average</b>
Health Statistics	mg/l		16.7	0.25–16.7	0.6
Health Statistics Sanitation—Related Diseases	mg/l		16.7	0.25–16.7	0.6 Average
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population) Diarrhea	mg/l Unit	City Value	16.7 <b>Top Value</b> 594.14	0.25–16.7 <b>Range</b> 0.75–594.14	O.6 Average
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)	mg/l Unit #	City Value	16.7 Top Value	0.25–16.7 <b>Range</b>	0.6 <b>Average</b> 50.1
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma	mg/l Unit # #	142.23 23.79	16.7 <b>Top Value</b> 594.14 6.83	0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86	0.6 Average 50.1 3.0 20.1
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection	mg/l Unit  # # # #	142.23 23.79 0.01 180.66	16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79	50.1 3.0 20.1
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles	mg/l Unit  # # # # #	142.23 23.79 0.01 180.66 0.60	16.7 <b>Top Value</b> 594.14 6.83 294.55	0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45	50.1 3.0 20.1 153.9
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	# # # # # # #	142.23 23.79 0.01 180.66	16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79	50.1 3.0 20.1 153.9
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)	# # # # # # # # # # # # # # # # # # #	142.23 23.79 0.01 180.66 0.60 7.56	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45	0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	50.1 3.0 20.1 153.9 0.3
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea	# # # # # # # # # # # # # # # # # # #	142.23 23.79 0.01 180.66 0.60 7.56	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47	0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	50.1 3.0 20.1 153.9 0.3 0.7
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea Hepatitis A & B	######################################	142.23 23.79 0.01 180.66 0.60 7.56	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45	0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54  0.0–0.25	50.1 3.0 20.1 153.9 0.3 0.7
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea Hepatitis A & B Trachoma	# # # # # # # # # # # # # # # # # # #	142.23 23.79 0.01 180.66 0.60 7.56  0.03 1.18	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47  0.25  0	0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54  0.0–0.47  0.0–0.25  0–0	50.1 3.0 20.1 153.9 0.3 0.7
Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea Hepatitis A & B	######################################	142.23 23.79 0.01 180.66 0.60 7.56	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47  0.25	0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54  0.0–0.25	0.6

## 12. Lekhnath, Nepal

Lekhnath		For All Surveyed Cities and Municipalities
Coordinator	Mr. Bodhraj Lamichane, Chairperson	
Office	Leknath Water Supply and sanitation Users Committee	
Address	Leknath Chowk-3	
Fax		
Telephone	977-9856023959	
E-mail address	leknathwatersupply@ymail.com	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	58.8	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	2.90	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	14.93	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	3.9	7.6	3.2 – 7.6	4.9
	Floating Population	%	0	844.1	0 – 844.1	34.5
	Urban Poor	%	1.56	48.0	0 – 48.0	14.6
	City Area	ha (000)	7.9	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	40.6	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	24.7	59.7	0 – 59.7	13.5
	Urban Fringe	%	0	99.7	0 – 99.7	18.9
	Peri–Urban	%	0	98.5	0 – 98.5	34.9
	Slum Area	%	35.96	35.96	0 – 35.96	4.3
	Average City Density	#/ha	7.4	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	11.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	5.1	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	-	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	7.89	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	-	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	65.1	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	58.81	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	99.6	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	0	100.0	0.0–100.0	27.3
	I. Central Sewerage System  II. Individual with Septic Tank	%	0 67.9	100.0 100.0	0.0–100.0 0.0–100.0	27.3 44.0
	II. Individual with Septic Tank III. Communal with Septic					
	II. Individual with Septic Tank III. Communal with Septic Tank	%	67.9 0.1	100.0 10.5	0.0–100.0 0.0–10.5	44.0 0.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine	% % %	67.9 0.1 31.9	100.0 10.5 59.9	0.0–100.0 0.0–10.5 0.0–59.9	44.0 0.9 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation	% % %	67.9 0.1 31.9 0.0	100.0 10.5 59.9 0.9	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9	44.0 0.9 13.9 0.0
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation	% % %	67.9 0.1 31.9	100.0 10.5 59.9	0.0–100.0 0.0–10.5 0.0–59.9	44.0 0.9 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System	% % % %	67.9 0.1 31.9 0.0 0.0	100.0 10.5 59.9 0.9 61.0	0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I	% % % %	67.9 0.1 31.9 0.0	100.0 10.5 59.9 0.9 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0	44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia	% % % % %	67.9 0.1 31.9 0.0 0.0	100.0 10.5 59.9 0.9 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9	44.0 0.9 13.9 0.0 7.3 13.7 9.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II	% % % % % % % %	67.9 0.1 31.9 0.0 0.0	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1	44.0 0.9 13.9 0.0 7.3 13.7 9.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa	% % % % % % % % % %	67.9 0.1 31.9 0.0 0.0	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III	% % % % % % % % % % % % %	67.9 0.1 31.9 0.0 0.0  0 67.9	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % % %	67.9 0.1 31.9 0.0 0.0 0 67.9 0	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type II Type IIa Type III Type IIII Type IIIa Type III	% % % % % % % % % % % % % % % %	67.9 0.1 31.9 0.0 0.0 0 67.9 0 0.1	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % % %	67.9 0.1 31.9 0.0 0.0 0 67.9 0	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1

	Type VI & VIa	%	0	22.5	0–22.5	7.5
	Type VIb	%	0	12.0	0–12.0	0.4
<b>Treatment Facility</b>		Unit	City Value	Top Value	Range	Average
Waste Water Treatmer	nt Plant					
Capacity (10,000 popu	lation)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	-	100.0	0–100.0	57.7
	National Government	%	_	100.0	0-100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Septage Treatment Pla	nt					
Capacity		m3/d	_	135.0	50–135.0	6.2
	Provider					
	Local Government	%	_	100.0	0–100.0	57.7
	National Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Desludging Services						
Frequency		year	_	12.0	0–12.0	0.6
	Provider					
	Government	%	_	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Water Supply Facil	ity	Unit	City Value	Top Value	Range	Average
Household Water Supp	ly Source					
Central Water Supply-	Individual	%	44.3	95.0	3.60–95.0	64.5
Central Water Supply-	Communal	%	8.3	46.7	0.0–46.7	5.5
Borehole		%	4.5	54.5	0.0–54.5	14.1
Protected Spring/Well		%	41.1	96.4	0.0–96.4	10.3
Rainwater		%	0	20.0	0.0–20.0	8.1
Water Vendor		%	0	35.0	0.0–35.0	5.1
Population Buying Bott	led Water	%	-	80.0	0-80.0	12.9
Average Water Consur	nption	lpcd	70	160.0	29–160.0	72.1
Water Treatment Facili	ties	lpcd	12.1	321.5	1.5–321.5	55.6
Local Government		%	0	100.0	0–100.0	47.5
National Government		%	50.0	100.0	0–100.0	26.5
Private Concessionaire		%	50.0	100.0	0–100.0	9.3
Organizational Arr						
	angement	Unit	City Value	Top Value	Range	Average
Institutions Involved in		Unit	City Value	Top Value	Range	Average
Institutions Involved in Public Sector		Unit	City Value	Top Value	Range	Average
		#	City Value	Top Value	Range	
	Sanitation		City Value	-	-	0.5
	Sanitation  National Government	#	-	6	1–6	0.5
	Sanitation  National Government  Local Government	# #	-	6 4	1-6 1-4	0.5
Public Sector	Sanitation  National Government  Local Government	# #	-	6 4	1-6 1-4	0.5 1.3 0.5
Public Sector	Sanitation  National Government  Local Government  State- Owned Utility	# # #	-	6 4 2	1-6 1-4 1-2	0.5 1.3 0.5
Public Sector	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility	# # # #	-	6 4 2	1-6 1-4 1-2 0-2	0.5 1.3 0.5 0.1
Public Sector	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise	# # # # #	- - 1	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
Private Sector	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise	# # # # #	- - 1	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1
Private Sector  Private Sector  Number of Personnel	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise  Nongovernment Organization  Total Personnel (per 10,000	# # # # #	- - 1	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
Private Sector  Private Sector  Number of Personnel	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise  Nongovernment Organization	# # # # # #	- - 1	6 4 2 2 1 2	1-6 1-4 1-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1
Private Sector  Private Sector  Number of Personnel	Sanitation  National Government  Local Government  State— Owned Utility  Water Utility  Enterprise  Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# # # # # #	- - 1 - - - 3.14	6 4 2 2 1 2 2 21.67	1-6 1-4 1-2 0-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1 9.0
Private Sector  Private Sector  Number of Personnel	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise  Nongovernment Organization  Total Personnel (per 10,000 pop'n)  Planning and Monitoring	# # # # # # # # #	3.14	6 4 2 2 1 2 2 21.67	1-6 1-4 1-2 0-2 0-2 0-2 0.4-21.67	0.5 1.3 0.5 0.1
Private Sector  Private Sector  Number of Personnel	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise  Nongovernment Organization  Total Personnel (per 10,000 pop'n)  Planning and Monitoring  Construction	# # # # # # %	3.14	2 2 1 2 2 2 1 1 2 2 1.67 100 100	1-6 1-4 1-2 0-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	0.5 1.3 0.5 0.1 0.1 0.1 9.0 11.8

	Operations and Maintenance	%	_	_	_	_
Legal Framework	·	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sa	nitation		-	-	<u>-</u>	
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	_	3	1–3	1.2
	Year Enacted					
	Oldest	year	1993	2007	1947–2007	1985
	Latest	year	1993	2007	1956–2007	1993
	Sanitation Service Charges	-				
	Law on Collecting Fees	Y/N	Υ	17	7–17	_
	Year Enacted	year	1999	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan			-		
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year		2007	2006–2011	2009
	New Sanitation Plan	,		2007	2000 2011	
	Will Prepare Sanitation Plan	Y/N				
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.1
	Source of Fund	<i>ұлсарна</i>		702.7	0.7 702.7	32.1
Sanitation Problem	Major Sanitation Problem	No sewer and wa				
Samuation Floblem	Major Samtation Froblem	treatment facilitie				
	Future Programs/Projects	Open defecation	free city			
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	Funding Source		_			
Capital Investme	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	1.0	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	80	90.0	0.0–90.0	22.1
	Local Government	%	20	100.0	0.0-100.0	18.5
	Loans	%	0	99.0	0.0–99.0	15.7
	Tariff Revenue	%	0	0	0–0	0
	Others	%	0	100.0	0.0-100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	0.2	8.3	0.01-8.3	0.7
	Source of Fund					
	National Government	%	0	47.0	0–47	4.9
	Local Government	%	60	100.0	0–100	40.7
	Loans	%	0	53.0	0–53	3.4
	Tariff Revenue	%	40	100.0	0–100	14.3
	Others	%	0	0	0	0
Revenues and Fed	es for Services	Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees				-	
	Total Revenue	\$/capita	_	15	0.3–15.0	0.9
	Sewered Area Charges	· · · · · · · · · · · · · · · · · · ·			<u> </u>	
	Connection Charge	\$/connection		110	0.6–110.0	20.0
	Tariff Rate	\$/m3		90	0.015–90	0.3
	Septic Tank Desludging Fee	**				
	Private	\$/ST	_	133	4–133	9.9
		<b>Ψ, □</b> .			- 1JJ	ر. ر

Government	\$/ST	-	100	0–100	23.9
Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Y			
Sources of Water Pollution					
Household Solid Waste	%	50	67	0–67	21.7
Household Liquid Waste	%	50	80	15–80	39.6
Industrial Waste	%	0	38	0–38	8.4
Commercial Waste	%	0	35	0–35	8.5
Hospital Waste	%	0	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	0	35	0–35	6.5
No Treatment	%	100	100	0–100	36.5
Others	%	0	50	0–50	10.4
Description	Through septic tan	k			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Seti Gandakii				
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Upstream			
Adjoining Town					
Pollution Load	vh–vl	High			
Pollution Load Sanitation Work/Plan	vh–vl i/c	High Individual			
			Top Value	Range	Average
Sanitation Work/Plan	i/c	Individual	Top Value	Range	Average
Sanitation Work/Plan  Environmental Statistics	i/c	Individual	22000#/ 100ml	<b>Range</b> <1- 22000	Average
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water	i/c <b>Unit</b>	Individual	22000#/		
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform	i/c Unit #/ml	Individual  City Value	22000#/ 100ml	<1- 22000	18.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD	i/c Unit #/ml mg/l	Individual  City Value	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7 72.4
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml mg/l mg/l	Individual  City Value  -	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4 49.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	#/ml mg/l mg/l mg/l	Individual  City Value  -	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals	#/ml mg/l mg/l mg/l mg/l	Individual  City Value	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l mg/l	Individual  City Value	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation—Related Diseases	#/ml mg/l mg/l mg/l mg/l	Individual  City Value	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6 <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l Tmg/l Unit	Individual  City Value  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range	18.7 72.4 49.6 0.6 <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea	#/ml mg/l mg/l mg/l mg/l mg/l  mg/l  ##	Individual  City Value  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b> 50.1
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l the mg/l file file file file file file file fil	Individual  City Value  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 Average 50.1 3.0 20.1
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l Unit  # # #	Individual  City Value  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	#/ml #/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	Individual   City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	#/ml mg/l mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	Individual  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	#/ml mg/l mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	Individual  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l Unit  # # # # # # #	Individual   City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28–180.0  7.1–973.0  1.0–261.0  0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea	#/ml #/ml mg/l mg/l mg/l mg/l  The state of	Individual   City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	<pre></pre>	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	Individual  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l mg/l  H # # # # # # # # # # # # # # # # # #	Individual  City Value	22000#/ 100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<1- 22000  1.28–180.0  7.1–973.0  1.0–261.0  0.25–16.7  Range  0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54  0.0–0.25  0-0	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0

## 13. Pokhara, Nepal

Pokhara		For All Surveyed Cities and Municipalities
Coordinator	Sarad Mohan Kaphle, Senior Engineer Technical Chief	
Office	Pokhara sub-Metropolitan City Office	
Address	Kaski, Pokhara, New Road-8	
Fax	977-061-520600	
Telephone	977-061-50064	
E-mail address		

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	255.4	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	5.27	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	68.23	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	3.7	7.6	3.2 – 7.6	4.9
	Floating Population	%	_	844.1	0 - 844.1	34.5
	Urban Poor	%	4.00	48.0	0 – 48.0	14.6
	City Area	ha (000)	5.6	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	20.0	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	35.0	59.7	0 – 59.7	13.5
	Urban Fringe	%	20.0	99.7	0 – 99.7	18.9
	Peri–Urban	%	15.0	98.5	0 – 98.5	34.9
	Slum Area	%	9.9	35.96	0 – 35.96	4.3
	Average City Density	#/ha	45.9	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	67.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	33.0	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	29.0	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	26.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	39.0	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	5.56	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	-	100.0	0.0 – 100.0	26.9
	Central Water Supply System	%	89.9	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	255.46	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	95.5	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
-	I. Central Sewerage System	%	0	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	100	100.0	0.0-100.0	44.0
	III. Communal with Septic	%	0	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	%	0	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%	0	0.9	0.0-0.9	0.0
	VI. Open Defecation	%	0	61.0	0.0–61.0	7.3
	Toilet System			00		7.5
	Type I	%		100.0	0–100.0	13.7
	Type la	%	_	88.9	0–88.9	9.3
	Type II	%	0	93.1	0–93.1	12.6
	Type IIa	%	100	100.0	0–100.0	32.2
	Type III	%		2.0	0–2.0	0.1
	Type Illa	%	_	61.0	0–61.0	2.8
	Type IV	%	_	59.9	0–59.9	13.9
	Type IVa	%	_	31.9	0–31.9	5.6
				1		
	Type V	%	_	_	_	0.0

Type VI & VIa	%	-	22.5	0–22.5	7.5
Type VIb	%	-	12.0	0-12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	-	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	100	100.0	0–100.0	57.7
National Government	%	-	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	-	135.0	50–135.0	6.2
Provider					
Local Government	%	-	100.0	0–100.0	57.7
National Government	%	_	100.0	0-100.0	8.7
Private	%	_	92.7	0-92.7	4.7
Desludging Services					
Frequency	year	_	12.0	0–12.0	0.6
Provider					
Government	%	_	100.0	0–100.0	8.7
Private	%		92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source		-	-	-	
Central Water Supply–Individual	%	95.0	95.0	3.60–95.0	64.5
Central Water Supply–Communal	%	0.5	46.7	0.0–46.7	5.5
Borehole	%	2.6	54.5	0.0–54.5	14.1
Protected Spring/Well	%	0	96.4	0.0–96.4	10.3
Rainwater	%	0	20.0	0.0–20.0	8.1
Water Vendor	%	1.9	35.0	0.0–35.0	5.1
Population Buying Bottled Water	%	_	80.0	0-80.0	12.9
Average Water Consumption	lpcd	40	160.0	29–160.0	72.1
Water Treatment Facilities	lpcd	_	321.5	1.5–321.5	55.6
Local Government	%	_	100.0	0–100.0	47.5
National Government	%	_	100.0	0–100.0	26.5
Private Concessionaire	%		100.0	0–100.0	9.3
Organizational Arrangement	Unit	City Value	Top Value	Range	Average
Institutions Involved in Sanitation		<b>-</b>	rop rando	9-	711011190
Public Sector					
National Government	#		6	1–6	0.5
Local Government	#	1	4	1–4	1.3
State– Owned Utility	#		2	1–2	0.5
Private Sector					
Water Utility	#		2	0–2	0.1
Enterprise	#		1	0-2	0.1
Nongovernment Organization	#		2	0-2	0.1
Number of Personnel	"			U Z	0.1
Public Sector					
Total Personnel (per 10,000	#	6.26	21.67	0.4–21.67	9.0
pop'n)	π	0.20	21.07	0.4-21.07	5.0
Planning and Monitoring	%	-	100	5–100	11.8
Construction	%	-	100	6–100	8.9
Operations and Maintenance	%	-	100	50–100.0	23.6
Private Sector					
riivate sector					
Total Personnel (per 10,000	#		30.96	12.3–30.96	1.4

	Operations and Maintenance	%	_	_	_	_
Legal Framework	·	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sar	nitation					
	Number of Laws on Sanitation					
	National	#	_	7	1–4	1.9
	Local	#	_	3	1–3	1.2
	Year Enacted					
	Oldest	Year	-	2007	1947–2007	1985
	Latest	Year	-	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	_	17	7–17	_
	Year Enacted	Year	_	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	Plan		•	•		
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year		2007	2006–2011	2009
	New Sanitation Plan	,				
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year		2020	2015–2020	2018
	Estimated Cost	\$		250	1.9–250.0	12.5
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.1
	Source of Fund	<b>У</b> Сарна		702.7	0.7-762.7	32.1
Canitatian Drahlam		N==+==+==+				
Sanitation Problem	Major Sanitation Problem	No waste water tr	eatment facilities			
	Future Programs/Projects	* · · ·		24.4	0.05.24.4	4.0
	Funding Amount	\$/capita		24.1	0.96–24.1	1.0
	Funding Source		_			
<b>Capital Investmer</b>	nt	Unit	City Value	Top Value	Range	Average
				156 14.45	90	Average
	Annual Capital Investment	**	-	-	-	
	Annual Capital Investment Annual Amount	\$/capita	0.5	168.0	0.5–168.0	
	Annual Capital Investment Annual Amount Source of Fund		0.5	168.0	0.5–168.0	10.3
	Annual Capital Investment Annual Amount Source of Fund National Government	%	0.5	168.0	0.5–168.0	10.3
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government	%	0.5 0 100	90.0 100.0	0.5–168.0 0.0–90.0 0.0–100.0	10.3 22.1 18.5
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans	% % %	0.5 0 100 0	90.0 90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0	10.3 22.1 18.5 15.7
	Annual Capital Investment Annual Amount  Source of Fund National Government Local Government Loans Tariff Revenue	% % % %	0.5 0 100	90.0 90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0	10.3 22.1 18.5 15.7
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	% % % %	0.5 0 100 0	90.0 90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0	10.3 22.1 18.5 15.7
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  laintenance Expenditures	% % % %	0.5 0 100 0	90.0 90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0	10.3 22.1 18.5 15.7 0
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	% % % %	0.5 0 100 0 0	90.0 100.0 99.0 0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	10.3 22.1 18.5 15.7 0
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount	% % % %	0.5 0 100 0 0	90.0 100.0 99.0 0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	10.3 22.1 18.5 15.7 0 9.0 <b>Average</b>
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost	% % % % % Unit	0.5  0 100 0 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	10.3 22.1 18.5 15.7 0 9.0 <b>Average</b>
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount	% % % % % Unit	0.5  0 100 0 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	10.3 22.1 18.5 15.7 0 9.0 Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund	% % % % Unit \$/capita	0.5  0 100 0 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range	10.3 22.1 18.5 15.7 0 9.0 Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government	% % % % Unit \$/capita	0.5  0 100 0 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0–0  0.0–100.0  Range	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government	% % % % White  ### Company of the Co	0.5  0 100 0 0 City Value  0.1	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9 40.7
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government	% % % % Whit  \$/capita  % % %	0.5  0 100 0 0 City Value  0.1 0 100 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Loans Tariff Revenue Others	% % % % Unit \$/capita	0.5  0 100 0 0 City Value  0.1  0 100 0 0 0	90.0 90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0–0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Loans Tariff Revenue Others	% % % White  White  \$/capita  % % % % % % % % % % % % % % %	0.5  0 100 0 0 City Value  0.1  0 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0	10.3 22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Ses for Services	% % % White  White  \$/capita  % % % % % % % % % % % % % % %	0.5  0 100 0 0 City Value  0.1  0 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0	10.3  22.1  18.5  15.7  0  9.0  Average  0.7  4.9  40.7  3.4  14.3  0  Average
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue	% % % % Unit  \$/capita  % % % Unit	0.5  0 100 0 0 City Value  0.1  0 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3  22.1  18.5  15.7  0  9.0  Average  0.7  4.9  40.7  3.4  14.3  0  Average
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges	% % % % Wnit  \$/capita  % % % Unit  \$/capita	0.5  0 100 0 0 City Value  0.1  0 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Cons Tariff Revenue Others Es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	%    %    %    %    Wnit  \$/capita  %    %    %    %    %    W    W    W	0.5  0 100 0 0 City Value  0.1  0 100 0 City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9 40.7 3.4 14.3 0 Average
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Ses for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	% % % % Wnit  \$/capita  % % % Unit  \$/capita	0.5  0 100 0 0 City Value  0.1  0 100 0 City Value	90.0 90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0 Average  0.7 4.9 40.7 3.4 14.3 0 Average
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate Septic Tank Desludging Fee	% % % % Wnit  \$/capita  % % % % % % % % % % % % % % % % % %	0.5  0 100 0 0 City Value  0.1  0 100 0 City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range  0.3–15.0  0.6–110.0  0.015–90	10.3 22.1 18.5 15.7 0 9.0 Average  0.7 4.9 40.7 3.4 14.3 0 Average  0.9
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Ses for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	%    %    %    %    Wnit  \$/capita  %    %    %    %    %    W    W    W	0.5  0 100 0 0 City Value  0.1  0 100 0 City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3

3.6	0–30	30	- :	\$	Other Fees
Average	Range	Top Value	City Value	Unit	Environmental Situation
					Water Quality and Pollution
			N	Y/N	Water Quality Monitored
					Sources of Water Pollution
21.7	0–67	67	50	%	Household Solid Waste
39.6	15–80	80	40	%	Household Liquid Waste
8.4	0–38	38	10	%	Industrial Waste
8.5	0–35	35	_	%	Commercial Waste
2.5	0–17	17	_	%	Hospital Waste
			Υ	Y/N	Polluter to Treat Own Wastewater
					Current Wastewater Disposal
10.3	0–100	100	0	%	Own Treatment Plant
6.5	0–35	35	0	%	Central Sewer System
36.5	0–100	100	100	%	No Treatment
10.4	0–50	50	0	%	Others
			_		Description
			Y	Y/N	Within River Basin
				Seti Gandakii	River Basin/Major River Name
360,567.7	75.15–4,939,800	4,939,800	_	ha	Basin Area
			Upstream	u,m,d	City Location
					Adjoining Town
			High	vh–vl	Pollution Load
			Individual	i/c	Sanitation Work/Plan
Average	Range	Top Value	City Value	Unit	Environmental Statistics
,					Water Quality – Surface Water
	<1- 22000	22000#/	(291CFU/100ml)	#/ml	Total Coliform
18.7	1.28–180.0	100ml 180	22.5	mg/l	BOD
	7.1–973.0	973	95.0	mg/l	COD
	1.0–261.0	261	61.0	mg/l	Total Suspended Solids
	0.25–16.7	16.7		mg/l	Heavy Metals
Average	Range	Top Value	City Value	Unit	Health Statistics
71101490	9-	тор тапас	e.e <b>y</b>		Sanitation– Related Diseases
					Reported Cases (per 10,000 population)
50.1	0.75–594.14	594.14	179.49	#	Diarrhea
	0.13–6.86	6.83	53.88	#	Hepatitis A & B
	0.00–294.55	294.55	305.47	#	Trachoma
	0.32–507.79	507.79	409.58	#	Acute Lower Respiratory Infection
	0.00-4.45	4.45	1.36	#	Measles
	0.0–3.54		0.23	#	Malaria
	0.0 3.3 1		0.23		
0.0	0.0–0.47	0.47	_		
	0-0-0.23				·
			_		
7 5 3	0.0-0.47 0.0-0.25	0.47 0.25 0 6.3 1.3 14.2	- - - - -	# # # # # #	Death (children under 5 years) (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria

## 14. Colombo, Sri Lanka

Colombo		For All Surveyed Cities and Municipalities
Coordinator	M.I.M Salim, Director Engineering (Water Supply and Drainage)	
Office	Water Supply and Drainage Department	_
Address	Ananda Mawatha, Maligakanda, Colombo 10, Sri Lanka	_
Fax	094112692696	_
Telephone	094112674809	_
E-mail address	mimsalimseprojects@yahoo.com [and] munici@slt.lk	_

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2012)	#(000)	665.0	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	0.35	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	117.33	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	6.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	60.1	844.1	0 - 844.1	34.5
	Urban Poor	%	13.5	48.0	0 – 48.0	14.6
	City Area	ha (000)	3.7	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	-	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	-	59.7	0 – 59.7	13.5
	Urban Fringe	%	-	99.7	0 – 99.7	18.9
	Peri–Urban	%	-	98.5	0 – 98.5	34.9
	Slum Area	%	-	35.96	0 – 35.96	4.3
	Average City Density	#/ha	174.7	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	-	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	_	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	-	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	3.72	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	80.0	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	95.0	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	665.0	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	29.7	100.0	0 – 100.0	31.5
	Central Water Supply System	%	99.4	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Damma	Averses
			•		Range	Average
	I. Central Sewerage System	%	29.7	100.0	0.0–100.0	27.3
	I. Central Sewerage System II. Individual with Septic Tank			_	_	
	II. Individual with Septic Tank III. Communal with Septic	%		100.0	0.0–100.0	27.3
	II. Individual with Septic Tank III. Communal with Septic Tank	% %	29.7 - -	100.0 100.0 10.5	0.0–100.0 0.0–100.0 0.0–10.5	27.3 44.0 0.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine	% % %	29.7	100.0 100.0 10.5	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9	27.3 44.0 0.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation	% % % %	29.7 - -	100.0 100.0 10.5 59.9	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9	27.3 44.0 0.9 13.9 0.0
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation	% % %	29.7 - - -	100.0 100.0 10.5	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9	27.3 44.0 0.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System	% % % % %	29.7 - - - -	100.0 100.0 10.5 59.9 0.9 61.0	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	27.3 44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I	% % % % %	29.7 - - - - -	100.0 100.0 10.5 59.9 0.9 61.0	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	27.3 44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia	% % % % % %	29.7 - - - - 0 29.7	100.0 100.0 10.5 59.9 0.9 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9	27.3 44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II	% % % % % % % % % %	29.7 - - - - -	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa	% % % % % % % % % % % %	29.7 - - - - 0 29.7	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III	% % % % % % % % % % % % % %	29.7 - - - - 0 29.7 - -	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % % % % % % %	29.7 0 29.7	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type IIIa Type IIIa	% % % % % % % % % % % % % % % % % % %	29.7 - - - - 0 29.7 - -	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % % % % % % %	29.7 0 29.7	100.0 100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	27.3 44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8

Type VI & VIa	%	-	22.5	0–22.5	7.5
Type VIb	%	-	12.0	0-12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	-	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	-	100.0	0–100.0	57.7
National Government	%	-	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	-	135.0	50–135.0	6.2
Provider					
Local Government	%	-	100.0	0–100.0	57.7
National Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Desludging Services					
Frequency	year	-	12.0	0-12.0	0.6
Provider					
Government	%	-	100.0	0–100.0	8.7
Private	%		92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source		-	-	-	
Central Water Supply–Individual	%	99.4	95.0	3.60–95.0	64.5
Central Water Supply–Communal	%	_	46.7	0.0–46.7	5.5
Borehole	%	0.5	54.5	0.0-54.5	14.1
Protected Spring/Well	%	0.01	96.4	0.0–96.4	10.3
Rainwater	%	0	20.0	0.0–20.0	8.1
Water Vendor	%	0	35.0	0.0–35.0	5.1
Population Buying Bottled Water	%	<1	80.0	0-80.0	12.9
Average Water Consumption	lpcd	160.0	160.0	29–160.0	72.1
Water Treatment Facilities	lpcd	300.0	321.5	1.5–321.5	55.6
Local Government	%	100.0	100.0	0–100.0	47.5
National Government	%	_	100.0	0–100.0	26.5
Private Concessionaire	%	0	100.0	0–100.0	9.3
Organizational Arrangement	Unit	City Value	Top Value	Range	Average
Institutions Involved in Sanitation			10p Julius	9-	711-01-11-90
Public Sector					
National Government	#		6	1–6	0.5
Local Government	#	1	4	1–4	1.3
State- Owned Utility	#	· ·	2	1–2	0.5
Private Sector	"			1 2	0.5
Water Utility	#		2	0–2	0.1
Enterprise	#		1	0-2	0.1
Nongovernment Organizati			2	0-2	0.1
Number of Personnel					0.1
Public Sector					
Total Personnel (per 10,000	) #	6.01	21.67	0.4–21.67	9.0
pop'n)	, т	0.01	21.07	0.4-21.07	9.0
Planning and Monitoring	%	100	100	5–100	11.8
	/0				
Construction	%	100	100	6–100	8.9
Construction Operations and Maintenand	%	100 100	100 100	6–100 50–100.0	
	%				23.6
Operations and Maintenand	% ce %				

	Operations and Maintenance	%	_	_		_
Legal Framework	<u> </u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sai	nitation					
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	1947	2007	1947–2007	1985
	Latest	year	1980	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	_	17	7–17	-
	Year Enacted	year	_	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	Plan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Y	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	_	762.7	0.7–762.7	32.1
	Source of Fund		_			
Sanitation Problem	Major Sanitation Problem	100– vear– old se	wer system needs			
	-	rehabilitation	-			
	Future Programs/Projects	Rehabilitation of I	main sewer lines			
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	Funding Source	ADB				
Capital Investme		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	168	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	0	90.0	0.0–90.0	22.1
	Local Government	%	0.06	100.0	0.0–100.0	18.5
	Loans	%	99	99.0	0.0–99.0	15.7
	Tariff Revenue	%	0	0	0–0	0
	Others	%	0	100.0	0.0-100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	8.3	8.3	0.01–8.3	0.7
	Source of Fund					
	National Government	%	0	47.0	0–47	4.9
	Local Government	%	100	100.0	0–100	40.7
	Loans	%	0	53.0	0–53	3.4
	Tariff Revenue	%	0	100.0	0-100	14.3
	Others	%	0	0	0	0
Revenues and Fee	es for Services	Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees					
	Total Revenue	\$/capita	-	15	0.3–15.0	0.9
	Sewered Area Charges					
	Connection Charge	\$/connection	_	110	0.6–110.0	20.0
	Tariff Rate	\$/m3	_	90	0.015–90	0.3
	Septic Tank Desludging Fee					
	Septic Tank Desludging Fee Private	\$/ST	_	133	4–133	9.9

Government	\$/ST	-	100	0–100	23.9
Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Y			
Sources of Water Pollution					
Household Solid Waste	%	10	67	0–67	21.7
Household Liquid Waste	%	20	80	15–80	39.6
Industrial Waste	%	38	38	0–38	8.4
Commercial Waste	%	15	35	0–35	8.5
Hospital Waste	%	17	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Y			
Current Wastewater Disposal					
Own Treatment Plant	%	-	100	0–100	10.3
Central Sewer System	%	-	35	0–35	6.5
No Treatment	%	-	100	0–100	36.5
Others	%	_	50	0–50	10.4
Description	Through septic to	ank			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	e Kelani river				
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Downstream		· · · · · · · · · · · · · · · · · · ·	•
Adjoining Town	<u> </u>				
Pollution Load	vh–vl	Heavy			
		,			
Sanitation Work/Plan	i/c	Cooperative			
Sanitation Work/Plan  Environmental Statistics	i/c <b>Unit</b>	Cooperative  City Value	Top Value	Range	Average
Environmental Statistics		Cooperative  City Value	Top Value	Range	Average
		City Value	<b>Top Value</b> 22000#/	<b>Range</b>	Average
Environmental Statistics Water Quality – Surface Water Total Coliform	<b>Unit</b> #/ml	(5000/100ml)	22000#/ 100ml	<1- 22000	
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD	#/ml mg/l	(5000/100ml) 48.0	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml mg/l mg/l	(5000/100ml) 48.0 75.0	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	#/ml mg/l	(5000/100ml) 48.0 75.0 80.0	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml mg/l mg/l mg/l mg/l mg/l	(5000/100ml) 48.0 75.0 80.0 16.70	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	#/ml mg/l mg/l mg/l	(5000/100ml) 48.0 75.0 80.0	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation— Related Diseases	#/ml mg/l mg/l mg/l mg/l mg/l	(5000/100ml) 48.0 75.0 80.0 16.70	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l mg/l mg/l	(5000/100ml) 48.0 75.0 80.0 16.70	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range	18.7 72.4 49.6 0.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation— Related Diseases	#/ml mg/l mg/l mg/l mg/l mg/l	(5000/100ml) 48.0 75.0 80.0 16.70	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6 <b>Average</b>
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l Unit	(5000/100ml) 48.0 75.0 80.0 16.70 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 <b>Average</b>
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	#/ml mg/l mg/l mg/l mg/l Unit	(5000/100ml) 48.0 75.0 80.0 16.70 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l Unit  #	(5000/100ml) 48.0 75.0 80.0 16.70 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l Unit  #	(5000/100ml)  48.0 75.0 80.0 16.70  City Value  0.75 0.60	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	#/ml mg/l mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	(5000/100ml)  48.0 75.0 80.0 16.70  City Value  0.75 0.60	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	#/ml mg/l mg/l mg/l mg/l Unit  # # # # #	(5000/100ml)  48.0 75.0 80.0 16.70  City Value  0.75 0.60	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria	#/ml mg/l mg/l mg/l mg/l Unit  # # # # #	(5000/100ml)  48.0 75.0 80.0 16.70  City Value  0.75 0.60	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l mg/l  mg/l  ## # # # # # # # # # # # # # # # # #	(5000/100ml)  48.0  75.0  80.0  16.70  City Value  0.75  0.60  -  0.36	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l  mg/l  The state of	(5000/100ml) 48.0 75.0 80.0 16.70 City Value  0.75 0.60 - 0.36	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l  The state of	(5000/100ml) 48.0 75.0 80.0 16.70 City Value  0.75 0.60 - 0.36	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l mg/l  The state of	(5000/100ml) 48.0 75.0 80.0 16.70 City Value  0.75 0.60 - 0.36	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6

## 15. Negombo, Sri Lanka

Negombo		For All Surveyed Cities and Municipalities
Coordinator	Mr. S.A.D.L. Wasantha, Supervising Public Health Inspector (SPHI)	
Office	Municipal Council Negombo	<del>-</del>
Address	221/c/1, Seeduwa, Kodagoda, Negombo	-
Fax	0312222420	-
Telephone	0312222275 Ext. 224	-
E-mail address	wsolangarachchi@gmail.com	-

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2013)	#(000)	150.80	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	2.48	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	30.17	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	5.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	11.9	844.1	0 – 844.1	34.5
	Urban Poor	%	10.0	48.0	0 – 48.0	14.6
	City Area	ha (000)	3.1	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	-	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	_	59.7	0 – 59.7	13.5
	Urban Fringe	%	_	99.7	0 – 99.7	18.9
	Peri–Urban	%	_	98.5	0 – 98.5	34.9
	Slum Area	%	_	35.96	0 – 35.96	4.3
	Average City Density	#/ha	48.8	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	-	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	-	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	_	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	-	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
<b>Sanitation Covera</b>	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	3.09	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	_	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	89.9	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	150.84	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	88.9	100.0	0 – 100.0	31.5
	Central Water Supply System	%	88.8	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
•					_	
	I. Central Sewerage System	%	88.9	100.0	0.0–100.0	27.3
	I. Central Sewerage System II. Individual with Septic Tank	%	88.9	100.0	0.0–100.0 0.0–100.0	27.3 44.0
	II. Individual with Septic Tank III. Communal with Septic		88.9 - -			44.0
	II. Individual with Septic Tank III. Communal with Septic Tank	%		100.0 10.5	0.0–100.0 0.0–10.5	44.0 0.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine	% % %	- - -	100.0 10.5 59.9	0.0–100.0 0.0–10.5 0.0–59.9	44.0 0.9 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation	% % %	- - -	100.0 10.5 59.9 0.9	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9	44.0 0.9 13.9 0.0
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation	% % %	- - -	100.0 10.5 59.9	0.0–100.0 0.0–10.5 0.0–59.9	44.0 0.9 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System	% % % %	- - -	100.0 10.5 59.9 0.9 61.0	0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I	% % % %	- - - -	100.0 10.5 59.9 0.9 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0	44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia	% % % % %	- - - - - 88.9	100.0 10.5 59.9 0.9 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9	44.0 0.9 13.9 0.0 7.3 13.7 9.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II	% % % % %	- - - -	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa	% % % % % % % % % % %	- - - - - 88.9	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III	% % % % % % % % % % % % %	- - - - - 88.9	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % % %	- - - - - 88.9	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type IIIa Type IIIa	% % % % % % % % % % % % % % % % %	- - - - - 88.9 - - - - - - 6.0	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % % %	- - - - - 88.9	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	44.0 0.9 13.9 0.0

	Type VI & VIa	%	-	22.5	0–22.5	7.5
	Type VIb	%	_	12.0	0–12.0	0.4
Treatment Facility		Unit	City Value	Top Value	Range	Average
Waste Water Treatmen	t Plant					
Capacity (10,000 popul	lation)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	-	100.0	0–100.0	57.7
	National Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Septage Treatment Plar	nt					
Capacity		m3/d	_	135.0	50–135.0	6.2
	Provider					
	Local Government	%	_	100.0	0–100.0	57.7
	National Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Desludging Services						
Frequency	-	year	-	12.0	0–12.0	0.6
	Provider		-			
	Government	%	_	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
<b>Water Supply Facili</b>	ty	Unit	City Value	Top Value	Range	Average
Household Water Supp	ly Source					
Central Water Supply–I	ndividual	%	80.7	95.0	3.60–95.0	64.5
Central Water Supply–C	Communal	%	0	46.7	0.0-46.7	5.5
Borehole		%	1.9	54.5	0.0–54.5	14.1
Protected Spring/Well		%	6.4	96.4	0.0-96.4	10.3
Rainwater		%	0	20.0	0.0–20.0	8.1
Water Vendor		%	0	35.0	0.0–35.0	5.1
Population Buying Bottl	led Water	%	25	80.0	0-80.0	12.9
Average Water Consum	nption	lpcd	-	160.0	29–160.0	72.1
Water Treatment Facilit	ies	lpcd	-	321.5	1.5–321.5	55.6
Local Government		%	0	100.0	0–100.0	47.5
National Government		%	84	100.0	0–100.0	26.5
Private Concessionaire		0/				
		%	16	100.0	0–100.0	9.3
Organizational Arra	angement	% Unit	City Value	100.0 Top Value	0–100.0 <b>Range</b>	9.3 <b>Average</b>
Institutions Involved in						
Institutions Involved in						Average
Institutions Involved in	Sanitation	Unit	City Value	Top Value	Range	Average 0.5
Institutions Involved in	Sanitation  National Government	Unit #	City Value	Top Value	Range	0.5 1.3
Institutions Involved in	National Government Local Government	# #	City Value	Top Value  6 4	1-6 1-4	0.5 1.3
Institutions Involved in S Public Sector	National Government Local Government	# #	City Value	Top Value  6 4	1-6 1-4	0.5 1.3 0.5
Institutions Involved in S Public Sector	National Government Local Government State- Owned Utility	# # #	City Value	6 4 2	1-6 1-4 1-2	0.5 1.3 0.5
Institutions Involved in S Public Sector	National Government Local Government State- Owned Utility Water Utility	# # # #	City Value	6 4 2 2	1-6 1-4 1-2	0.5 1.3 0.5 0.1
Institutions Involved in S Public Sector	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise	# # # # # #	City Value  1 1	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	
Public Sector  Private Sector	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise	# # # # # #	City Value  1 1	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1
Public Sector  Private Sector  Number of Personnel Public Sector	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise	# # # # # #	City Value  1 1	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
Public Sector  Private Sector  Number of Personnel Public Sector	National Government Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization Total Personnel (per 10,000	# # # # # # # # # # # # # # # # # # #	1 1	6 4 2 2 1 1 2	1-6 1-4 1-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 9.0
Public Sector  Private Sector  Number of Personnel Public Sector	Sanitation  National Government  Local Government  State- Owned Utility  Water Utility  Enterprise  Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# # # # # # #	1 1 13.3	6 4 2 2 1 1 2 2 1.67	1-6 1-4 1-2 0-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1 9.0
Public Sector  Private Sector  Number of Personnel Public Sector	National Government Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # # # #	1 1 50	7 Top Value  6 4 2 2 1 1 2 2 1 1 2 1 1 1 1 1 1 1 1 1 1	1-6 1-4 1-2 0-2 0-2 0-2 0-2 5-100	0.5 1.3 0.5 0.1 0.1 0.1 9.0 11.8
Public Sector  Private Sector  Number of Personnel Public Sector	National Government Local Government State- Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # # # % %	1 1 1	7 Top Value  6 4 2 2 1 1 2 2 1.67 100 100	1-6 1-4 1-2 0-2 0-2 0-2 0-2 5-100 6-100	0.5 1.3 0.5 0.1

	Operations and Maintenance	%	_	_	_	_
Legal Framework	<u> </u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sa	nitation					
	Number of Laws on Sanitation					
	National	#	-	7	1–4	1.9
	Local	#	-	3	1–3	1.2
	Year Enacted					
	Oldest	year	_	2007	1947–2007	1985
	Latest	year	_	2007	1956–2007	1993
	Sanitation Service Charges	-				
	Law on Collecting Fees	Y/N	N	17	7–17	_
	Year Enacted	year		2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan			•		
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year		2007	2006–2011	2009
	New Sanitation Plan	yea.		2007	2000 2011	
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$		250	1.9–250.0	12.5
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.1
	Source of Fund	<b>э</b> /саріtа		702.7	0.7-702.7	32.1
Sanitation Problem	Major Sanitation Problem	No septage/sewag	ge treatment			
	Future Programs/Projects	facility  Construction of se	eptage/ sewage			
	Funding Amount	treatment plants \$/capita		24.1	0.96–24.1	1.0
		<b>У</b> Сарна		24.1	0.90-24.1	1.0
C:t   t	Funding Source	Unit		T W-I	D	A
Capital Investme		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment	¢ /:+-		160.0	0.5.160.0	10.2
	Annual Amount	\$/capita		168.0	0.5–168.0	10.3
	Source of Fund	0/		00.0	0.0.00.0	22.1
	National Government	%		90.0	0.0–90.0	22.1
	Local Government	%	_	100.0	0.0–100.0	18.5
	Loans	%	_	99.0	0.0–99.0	15.7
	Tariff Revenue	%	_	0	0–0	0
	Others	%		100.0	0.0–100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	_	8.3	0.01–8.3	0.7
	Source of Fund					
	National Government	%	-	47.0	0–47	4.9
	Local Government	%	-	100.0	0–100	40.7
	Loans	%	_	53.0	0–53	3.4
	Tariff Revenue	%	-	100.0	0–100	14.3
	Others	%	_	0	0	0
Revenues and Fed	es for Services	Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees					
	Total Revenue	\$/capita	-	15	0.3–15.0	0.9
	Sewered Area Charges					
	Connection Charge	\$/connection	_	110	0.6–110.0	20.0
	Tariff Rate	\$/m3	_	90	0.015–90	0.3
	Septic Tank Desludging Fee					
	Private	\$/ST	0.0	133	4–133	9.9
				i		

Government	\$/ST	10	100	0–100	23.9
Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	N			
Sources of Water Pollution					
Household Solid Waste	%	67	67	0–67	21.7
Household Liquid Waste	%	15	80	15–80	39.6
Industrial Waste	%	3	38	0–38	8.4
Commercial Waste	%	15	35	0–35	8.5
Hospital Waste	%	0	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	1	100	0–100	10.3
Central Sewer System	%	_	35	0–35	6.5
No Treatment	%	10	100	0–100	36.5
Others	%	_	50	0–50	10.4
Description		_			
Within River Basin	Y/N	Υ			
River Basin/Major River Nam	ne Maha Oya				
Basin Area	Ha		4,939,800	75.15–4,939,800	360,567.7
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	Range	Average
		<b>_</b>			
Water Quality – Surface Water					
Water Quality – Surface Water Total Coliform	#/ml	10200 MPN/100ml	22000#/	<1- 22000	
Total Coliform			100ml		10 7
Total Coliform BOD	mg/l	6.0	100ml 180	1.28–180.0	
Total Coliform  BOD  COD	mg/l mg/l		100ml 180 973	1.28–180.0 7.1–973.0	72.4
Total Coliform  BOD  COD  Total Suspended Solids	mg/l mg/l mg/l	6.0	100ml 180 973 261	1.28–180.0 7.1–973.0 1.0–261.0	72.4 49.6
Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals	mg/l mg/l mg/l mg/l	6.0 22.0 -	100ml 180 973 261 16.7	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics	mg/l mg/l mg/l	6.0	100ml 180 973 261	1.28–180.0 7.1–973.0 1.0–261.0	72.4 49.6 0.6
Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation—Related Diseases	mg/l mg/l mg/l mg/l	6.0 22.0 -	100ml 180 973 261 16.7	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)	mg/l mg/l mg/l mg/l <b>Unit</b>	6.0 22.0 - - - City Value	100ml 180 973 261 16.7 <b>Top Value</b>	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range	72.4 49.6 0.6 <b>Average</b>
Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	mg/l mg/l mg/l mg/l Unit	6.0 22.0 - - - City Value	100ml 180 973 261 16.7 <b>Top Value</b> 594.14	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b>	72.4 49.6 0.6 <b>Average</b>
Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	mg/l mg/l mg/l mg/l  Unit	6.0 22.0 - - - City Value	100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86	72.4 49.6 0.6 <b>Average</b> 50.1
Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	mg/l mg/l mg/l mg/l  mg/l  Unit	6.0 22.0 - - - City Value	100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86 0.00–294.55	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infectior	mg/l mg/l mg/l mg/l  Molt  Unit  # # # # #	6.0 22.0 - - - City Value	100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infectior  Measles	mg/l mg/l mg/l mg/l  Thit  # # # # # # # # # # # # # #	6.0 22.0 ————————————————————————————————	100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation- Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infectior  Measles  Malaria	mg/l mg/l mg/l mg/l  mg/l  Unit  # # # # # # #	6.0 22.0 - - - City Value	100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infectior Measles Malaria  Death (children under 5 years) (per 10,000 population)	mg/l mg/l mg/l mg/l  Unit  # # # # # # # # # # # # # # # # # #	6.0 22.0  City Value  3.30 0.66 0.13	100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infectior Measles Malaria  Death (children under 5 years) (per 10,000 population)	mg/l mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	6.0 22.0 ————————————————————————————————	100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation- Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infectior  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B	mg/l mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	6.0 22.0  City Value  3.30 0.66 0.13	100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 — 0.47 0.25	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation- Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	mg/l mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	6.0 22.0  City Value  3.30 0.66 0.13	100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
BOD COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infectior Measles Malaria  Death (children under 5 years) (per 10,000 populat Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infectior	mg/l mg/l mg/l mg/l  Unit  # # # # # # # # # # # # # # # # # #	6.0 22.0  City Value  3.30 0.66 0.13	100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0 6.3	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0 0.00–6.3	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	6.0 22.0  City Value  3.30 0.66 0.13	100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0

# 16. Banda Aceh, Indonesia

Banda Aceh		For All Surveyed Cities and Municipalities
Coordinator	Mr. Mirzayanto, ST	
Office	Sanitation and Beautification Department	
Address	Jl. Pocut Baren 30, Banda Aceh	
Fax	62651-21019	
Telephone	62651-31217	
E-mail address	mirza_dkp@yahoo.com	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2012)	#(000)	238.0	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	4.47	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	58.50	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	4.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	4.2	844.1	0 – 844.1	34.5
	Urban Poor	%	8.5	48.0	0 – 48.0	14.6
	City Area	ha (000)	6.1	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	0.03	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	0.3	59.7	0 – 59.7	13.5
	Urban Fringe	%	47.7	99.7	0 – 99.7	18.9
	Peri–Urban	%	48.5	98.5	0 – 98.5	34.9
	Slum Area	%	-	35.96	0 – 35.96	4.3
	Average City Density	#/ha	38.8	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	_	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	_	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	_	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	_	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	6.14	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	0	100.0	0.0 – 100.0	26.9
	Central Water Supply System	%	100.0	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	238.0	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	69.0	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
-	I. Central Sewerage System	%	0	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	97.0	100.0	0.0-100.0	44.0
	III. Communal with Septic	%	0.0	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	%	2.0	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%	0.0	0.9	0.0-0.9	0.0
	V. 200 Barmanor.				0.0–61.0	7.3
	VI. Open Defecation	%	1.0	l 61.0	U.I Ø-U.U	
	VI. Open Defecation  Toilet System	%	1.0	61.0	0.0-61.0	
	Toilet System	%	1.0	100.0	0.0-61.0	
	Toilet System Type I	%	1.0	100.0	0–100.0	13.7
	Toilet System  Type I  Type la	%	-	100.0 88.9	0–100.0 0–88.9	13.7
	Toilet System Type I	%	-	100.0	0–100.0	13.7 9.3 12.6
	Toilet System Type I Type la Type II Type IIa	% % %	- - 93.1	100.0 88.9 93.1	0–100.0 0–88.9 0–93.1	13.7 9.3 12.6 32.2
	Toilet System Type I Type la Type II Type IIa Type III	% % %	- - 93.1	100.0 88.9 93.1 100.0 2.0	0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	13.7 9.3 12.6 32.2 0.1
	Toilet System Type I Type la Type II Type IIa Type III Type III	% % % %	93.1 3.9 -	100.0 88.9 93.1 100.0 2.0 61.0	0-100.0 0-88.9 0-93.1 0-100.0	13.7 9.3 12.6 32.2 0.1 2.8
	Toilet System Type I Type la Type II Type IIa Type III Type IIII Type IIII Type IIIA	% % % % % %	93.1 3.9	100.0 88.9 93.1 100.0 2.0 61.0 59.9	0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	13.7 9.3 12.6 32.2 0.1 2.8 13.9
	Toilet System Type I Type la Type II Type IIa Type III Type III	% % % % %	93.1 3.9 - 0	100.0 88.9 93.1 100.0 2.0 61.0	0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	13.7 9.3 12.6 32.2

	Type VI & VIa	%	1.0	22.5	0–22.5	7.5
	Type VIb	%	0	12.0	0–12.0	0.4
Treatment Facility		Unit	City Value	Top Value	Range	Average
Waste Water Treatmen	t Plant					
Capacity (10,000 popu	lation)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	100	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Septage Treatment Pla	nt					
Capacity		m3/d	135	135.0	50–135.0	6.2
	Provider					
	Local Government	%	100	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	_	92.7	0-92.7	4.7
Desludging Services						
Frequency		year	-	12.0	0–12.0	0.6
	Provider					
	Government	%	-	100.0	0–100.0	8.7
	Private	%	-	92.7	0–92.7	4.7
Water Supply Facili	ity	Unit	City Value	Top Value	Range	Average
Household Water Supp	ly Source					
Central Water Supply–I	ndividual	%	69.0	95.0	3.60–95.0	64.5
Central Water Supply—	Communal	%	0	46.7	0.0–46.7	5.5
Borehole		%	31.0	54.5	0.0-54.5	14.1
Protected Spring/Well		%	.0	96.4	0.0–96.4	10.3
Rainwater		%	0	20.0	0.0–20.0	8.1
Water Vendor		%	_	35.0	0.0–35.0	5.1
Population Buying Bott	led Water	%	50.0	80.0	0-80.0	12.9
Average Water Consun	nption	lpcd	90.0	160.0	29–160.0	72.1
Water Treatment Facilit	ties	lpcd	27.0	321.5	1.5–321.5	55.6
Local Government		%	100.0	100.0	0–100.0	47.5
National Government		%	0	100.0	0–100.0	26.5
Private Concessionaire		%	0	100.0	0–100.0	9.3
Organizational Arra	angement	Unit	City Value	Top Value	Range	Average
Institutions Involved in	Capitation					
	Sariitation					
Public Sector	Saintation					
Public Sector	National Government	#	3	6	1–6	0.5
Public Sector		#	3	6	1–6 1–4	
Public Sector	National Government					1.3
Public Sector  Private Sector	National Government Local Government	#		4	1–4	1.3
	National Government Local Government	#		4	1–4	1.3 0.5
	National Government Local Government State- Owned Utility	#		2	1–4 1–2	1.3 0.5 0.1
	National Government  Local Government  State- Owned Utility  Water Utility	# # #		2	1–4 1–2 0–2	0.5 0.1 0.1
	National Government Local Government State- Owned Utility Water Utility Enterprise	# # #	1 - - -	2	1-4 1-2 0-2 0-2	0.5 0.1 0.1
Private Sector	National Government Local Government State- Owned Utility Water Utility Enterprise	# # #	1 - - -	2	1-4 1-2 0-2 0-2	0.5 0.1 0.1
Private Sector  Number of Personnel	National Government Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization Total Personnel (per 10,000	# # #	1 - - -	2	1-4 1-2 0-2 0-2	0.5 0.1 0.1 0.1
Private Sector  Number of Personnel	National Government  Local Government  State- Owned Utility  Water Utility  Enterprise  Nongovernment Organization	# # # # #	1 - - -	2 1 2	1–4 1–2 0–2 0–2 0–2	0.5 0.1 0.1 0.1 9.0
Private Sector  Number of Personnel	National Government Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# # # # #	2.14	2 2 1 2 21.67	1-4 1-2 0-2 0-2 0-2 0.4-21.67	1.3 0.5 0.1 0.1 0.1 9.0
Private Sector  Number of Personnel	National Government Local Government State- Owned Utility Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # #	2.14	2 1 2 2 21.67	1-4 1-2 0-2 0-2 0-2 0.4-21.67 5-100	0.5 1.3 0.5 0.1 0.1 0.1 9.0 11.8 8.9 23.6
Private Sector  Number of Personnel	National Government Local Government State- Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # # % %	2.14 100 100	2 2 1 2 21.67 100	1-4 1-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	1.3 0.5 0.1 0.1 0.1 9.0 11.8 8.9

	Operations and Maintenance	%	_	_	_	_
Legal Framework	<u> </u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sai	nitation					
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	_	3	1–3	1.2
	Year Enacted					
	Oldest	year	1947	2007	1947–2007	1985
	Latest	year	-	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Υ	17	7–17	_
	Year Enacted	year	1947	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	Plan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan	•				
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$		250	1.9–250.0	12.5
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.1
	Source of Fund	47 00 p. 10	_			
Sanitation Problem	Major Sanitation Problem	Disposal of wastes	s without			
Samuation 1 Toblem	-	treatment				
	Future Programs/Projects	Sanitation Master	Plan			
	Funding Amount	\$/capita	-	24.1	0.96–24.1	1.0
	Funding Source		-			
Capital Investmen		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	_	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	90	90.0	0.0–90.0	22.1
	Local Government	%	10	100.0	0.0-100.0	18.5
	Loans	%	0	99.0	0.0–99.0	15.7
	Tariff Revenue	%	0	0	0–0	0
	Others	%	_	100.0	0.0-100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	0.07	8.3	0.01–8.3	0.7
	Annual Amount Source of Fund	\$/capita	0.07	8.3	0.01–8.3	0.7
		\$/capita %	0.07	8.3 47.0	0.01–8.3	4.9
	Source of Fund	·				
	Source of Fund National Government	%	0	47.0	0–47	4.9
	Source of Fund  National Government  Local Government	% %	0	47.0 100.0	0–47 0–100	4.9
	Source of Fund National Government Local Government Loans	% % %	0 32 -	47.0 100.0 53.0	0–47 0–100 0–53	4.9 40.7 3.4
Revenues and Fee	Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others	% % %	0 32 - 68	47.0 100.0 53.0 100.0	0–47 0–100 0–53 0–100	4.9 40.7 3.4 14.3
Revenues and Fee	Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others	% % % %	0 32 - 68 0	47.0 100.0 53.0 100.0	0-47 0-100 0-53 0-100	4.9 40.7 3.4 14.3
Revenues and Fee	Source of Fund National Government Local Government Loans Tariff Revenue Others  es for Services	% % % %	0 32 - 68 0	47.0 100.0 53.0 100.0	0-47 0-100 0-53 0-100	4.9 40.7 3.4 14.3
Revenues and Fee	Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees	% % % % W	0 32 - 68 0 City Value	47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-47 0-100 0-53 0-100 0	4.9 40.7 3.4 14.3 0 <b>Average</b>
Revenues and Fee	Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue	% % % % W	0 32 - 68 0 City Value	47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-47 0-100 0-53 0-100 0	4.9 40.7 3.4 14.3 0 <b>Average</b>
Revenues and Fee	Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges	% % % % Unit \$/capita	0 32 - 68 0 <b>City Value</b>	47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-47 0-100 0-53 0-100 0 <b>Range</b>	4.9 40.7 3.4 14.3 0 <b>Average</b>
Revenues and Fee	Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	% % % % Unit \$/capita	0 32 - 68 0 <b>City Value</b>	47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-47 0-100 0-53 0-100 0 <b>Range</b> 0.3-15.0	4.9 40.7 3.4 14.3 0 <b>Average</b> 0.9
Revenues and Fee	Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	% % % % Unit \$/capita	0 32 - 68 0 <b>City Value</b>	47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-47 0-100 0-53 0-100 0 <b>Range</b> 0.3-15.0	4.9 40.7 3.4 14.3 0 <b>Average</b> 0.9

Government	\$/ST	7.5	100	0–100	23.9
Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Y			
Sources of Water Pollution					
Household Solid Waste	%	5	67	0–67	21.7
Household Liquid Waste	%	50	80	15–80	39.6
Industrial Waste	%	10	38	0–38	8.4
Commercial Waste	%	35	35	0–35	8.5
Hospital Waste	%	0	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	-	100	0–100	10.3
Central Sewer System	%	_	35	0–35	6.5
No Treatment	%	_	100	0–100	36.5
Others	%	_	50	0–50	10.4
Description	Through septic ta	nk			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Krueng Aceh				
Basin Area	ha	75.15	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Downstream		<u> </u>	•
Adjoining Town					
Pollution Load	vh–vl	Low			
ו טווענוטוז בטמע		LOVV			
	i/c	Individual			
Sanitation Work/Plan  Environmental Statistics		Individual	Top Value	Range	Average
Sanitation Work/Plan	i/c		Top Value	Range	Average
Sanitation Work/Plan  Environmental Statistics	i/c	Individual	22000#/ 100ml	<b>Range</b> <1- 22000	Average
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water	i/c <b>Unit</b>	Individual  City Value	22000#/		
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform	i/c Unit #/ml	City Value 1575 #/100ml	22000#/ 100ml	<1- 22000	18.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD	i/c Unit #/ml mg/l	Individual City Value  1575 #/100ml  9.9	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7 72.4
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml mg/l mg/l	1575 #/100ml 9.9 24.3	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4 49.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	#/ml mg/l mg/l mg/l	1575 #/100ml 9.9 24.3	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals	#/ml mg/l mg/l mg/l mg/l	1575 #/100ml 9.9 24.3 68.8	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l mg/l	1575 #/100ml 9.9 24.3 68.8	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	#/ml mg/l mg/l mg/l mg/l	1575 #/100ml 9.9 24.3 68.8	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6 <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l mg/l Unit	1575 #/100ml 9.9 24.3 68.8 — City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range	18.7 72.4 49.6 0.6 <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	#/ml mg/l mg/l mg/l mg/l mg/l tmg/l fmg/l	1575 #/100ml 9.9 24.3 68.8 — City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b> 50.1
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l mt  ## #	1575 #/100ml  9.9  24.3 68.8  — City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 Average 50.1 3.0 20.1
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l mg/l the state of t	1575 #/100ml  9.9 24.3 68.8 — City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	#/ml #/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	1575 #/100ml  9.9 24.3 68.8 — City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	#/ml mg/l mg/l mg/l mg/l mg/l  mt  ## # # # # #	1575 #/100ml  9.9 24.3 68.8  City Value  278.9 1,559.01	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	#/ml mg/l mg/l mg/l mg/l mg/l  mt  ## # # # # #	1575 #/100ml  9.9 24.3 68.8  City Value  278.9 1,559.01	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45</pre>	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l Unit  # # # # # # #	1575 #/100ml  9.9  24.3  68.8  —  City Value  278.9  —  1,559.01  — —	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea	#/ml #/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	1575 #/100ml  9.9  24.3  68.8  —  City Value  278.9  —  1,559.01  — —	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	0.75–594.14 0.13–6.86 0.00–294.55 0.00–3.54	18.7 72.4 49.6 0.6 Average 50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l mg/l  H # # # # # # # # # # # # # # # # # #	Individual   City Value   1575 #/100ml   9.9   24.3   68.8   -   City Value   278.9   -     1,559.01   -     -     -	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	Individual   City Value   1575 #/100ml   9.9   24.3   68.8   -   City Value   278.9   -     1,559.01   -     -	22000#/ 100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0  1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25</pre>	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0

# 17. Phine, Lao PDR

Phine		For All Surveyed Cities and Municipalities
Coordinator	Dr. Ounhuan Suthchalern, Head of Public Health	
Office	Head of Public Health	<del></del>
Address	Phine District, Savannakhet Province	<del></del>
Fax		<del></del>
Telephone	856-020-5642497, 856-020-2405453	<del></del>
E-mail address		

	Unit	City Value	Top Value	Range	Average
Population (2012)	#(000)	54.9	11,000.00	21.7 – 11,000.0	1200.3
Growth Rate	%	2.90	7.10	0.35 – 7.10	2.6
Number of Households	#(000)	8.32	2,301.30	2.86 – 2,301.26	256.4
Average Household Size	#	6.6	7.6	3.2 – 7.6	4.9
Floating Population	%	0	844.1	0 – 844.1	34.5
Urban Poor	%	23.0	48.0	0 – 48.0	14.6
City Area	ha (000)	26.9	2,101.20	2.7 – 2,101.2	114.6
Urban Core	%	20.0	94.5	0.3 – 94.5	21.6
Secondary Urban Core	%	36.0	59.7	0 – 59.7	13.5
Urban Fringe	%	10.0	99.7	0 – 99.7	18.9
Peri–Urban	%	39.0	98.5	0 – 98.5	34.9
Slum Area	%	-	35.96	0 – 35.96	4.3
Average City Density	#/ha	2.0	305.6	0.5 – 305.6	54.7
Urban Core	#/ha	6.0	426.0	6 – 426.0	73.5
Secondary Urban Core	#/ha	4.0	184.0	4.0 - 184.0	29.2
Urban Fringe	#/ha	3.0	133.0	3.0 – 133.0	17.3
Peri–Urban	#/ha	2.0	110.0	0.3 – 110.0	11.5
Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
ige	Unit	City Value	Top Value	Range	Average
	('000) ha	26.9	2,101.20	0.8 – 2,101.20	114.6
Central Sewerage System	%	20.0	100.0	0.0 - 100.0	26.9
Central Water Supply System	%	50.1	100.0	0.5 – 100.0	60.8
	('000) ha	54.96	11,000.0	21.7 – 11,000.00	1,181.3
Central Sewerage System	%	59.9	100.0	0 – 100.0	31.5
Central Water Supply System	%	80.0	99.7	3.6 – 99.7	70.9
Sanitation System Type	Unit	City Value	Top Value	Range	Average
I. Central Sewerage System	%	59.9	100.0	0.0–100.0	27.3
II. Individual with Septic Tank	%	32.5	100.0	0.0–100.0	44.0
III. Communal with Septic	%	-	10.5	0.0–10.5	0.9
	0/0		59.9	0.0–59.9	13.9
		_			0.0
					7.3
			01.0		
	%	41.5	100.0	0–100 0	13.7
					9.3
* *	%		93.1	0–93.1	12.6
Tyne II	9∕∩				12.0
Type II					32.2
Type IIa	%	32.5	100.0	0–100.0	
Type IIa Type III	%		100.0	0–100.0 0–2.0	0.1
Type IIa Type III Type IIIa	% % %	32.5	100.0 2.0 61.0	0–100.0 0–2.0 0–61.0	0.1 2.8
Type IIa Type III Type IIIa Type IV	% % %	32.5	100.0 2.0 61.0 59.9	0-100.0 0-2.0 0-61.0 0-59.9	0.1 2.8 13.9
Type IIa Type III Type IIIa	% % %	32.5	100.0 2.0 61.0	0–100.0 0–2.0 0–61.0	32.2 0.1 2.8 13.9 5.6 0.0
	Growth Rate Number of Households Average Household Size Floating Population Urban Poor City Area Urban Core Secondary Urban Core Urban Fringe Peri–Urban Slum Area Average City Density Urban Core Secondary Urban Core Urban Fringe Peri–Urban Slum Area Average System Central Sewerage System Central Water Supply System Central Water Supply System Sanitation System Type I. Central Sewerage System II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type I	Population (2012) #(000)  Growth Rate % Number of Households #(000)  Average Household Size # Floating Population % Urban Poor %  City Area ha (000)  Urban Core % Secondary Urban Core %  Urban Fringe % Peri-Urban %  Slum Area %  Average City Density #/ha Urban Core #/ha  Urban Fringe #/ha  Secondary Urban Core #/ha  Urban Fringe #/ha  Secondary Urban Core #/ha  Urban Fringe #/ha  Secondary Urban Core #/ha  Urban Fringe #/ha  Gentral Sewerage System %  Central Sewerage System %  Central Water Supply System %  Central Water Supply System %  Sanitation System Type Unit  I. Central Sewerage System %  II. Individual with Septic Tank %  III. Communal with Septic Tank  IV. Pit Latrine %  V. Eco Sanitation %  VI. Open Defecation %  Toilet System  Type I %  Type Ia	Population (2012) #(000) 54.9	Population (2012)         #(000)         54.9         11,000.00           Growth Rate         %         2.90         7.10           Number of Households         #(000)         8.32         2,301.30           Average Household Size         #         6.6         7.6           Floating Population         %         0         844.1           Urban Poor         %         23.0         48.0           City Area         ha (000)         26.9         2,101.20           Urban Core         %         20.0         94.5           Secondary Urban Core         %         36.0         59.7           Urban Fringe         %         10.0         99.7           Peri-Urban         %         39.0         98.5           Slum Area         %         -         35.96           Average City Density         #/ha         2.0         305.6           Urban Core         #/ha         4.0         184.0           Secondary Urban Core         #/ha         3.0         133.0           Peri-Urban Fringe         #/ha         3.0         133.0           Peri-Urban #/ha         3.0         133.0         133.0           Peri-Urban #/ha <td< td=""><td>Population (2012)         #(000)         54.9         11,000.00         21.7 - 11,000.0           Growth Rate         %         2.90         7.10         0.35 - 7.10           Number of Households         #(000)         8.32         2,301.30         2.86 - 2,301.26           Average Household Size         #         6.6         7.6         3.2 - 7.6           Floating Population         %         0         844.1         0 - 48.0           Urban Poor         %         23.0         48.0         0 - 48.0           City Area         ha (000)         26.9         2,101.20         2.7 - 2,101.2           Urban Core         %         20.0         94.5         0.3 - 94.5           Secondary Urban Core         %         36.0         59.7         0 - 59.7           Urban Fringe         %         10.0         99.7         0 - 99.7           Average City Density         #/ha         2.0         305.6         0.5 - 305.6           Jurban Core         #/ha         4.0         184.0         6 - 426.0           Secondary Urban Core         #/ha         4.0         184.0         6 - 426.0           Secondary Urban Core         #/ha         3.0         133.0         3.3.0</td></td<>	Population (2012)         #(000)         54.9         11,000.00         21.7 - 11,000.0           Growth Rate         %         2.90         7.10         0.35 - 7.10           Number of Households         #(000)         8.32         2,301.30         2.86 - 2,301.26           Average Household Size         #         6.6         7.6         3.2 - 7.6           Floating Population         %         0         844.1         0 - 48.0           Urban Poor         %         23.0         48.0         0 - 48.0           City Area         ha (000)         26.9         2,101.20         2.7 - 2,101.2           Urban Core         %         20.0         94.5         0.3 - 94.5           Secondary Urban Core         %         36.0         59.7         0 - 59.7           Urban Fringe         %         10.0         99.7         0 - 99.7           Average City Density         #/ha         2.0         305.6         0.5 - 305.6           Jurban Core         #/ha         4.0         184.0         6 - 426.0           Secondary Urban Core         #/ha         4.0         184.0         6 - 426.0           Secondary Urban Core         #/ha         3.0         133.0         3.3.0

Type VI & VIa	%	8.3	22.5	0–22.5	7.5
Type VIb	%	0	12.0	0-12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	_	100.0	0–100.0	57.7
National Government	%	_	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	-	135.0	50-135.0	6.2
Provider					
Local Government	%	-	100.0	0–100.0	57.7
National Government	%	-	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Desludging Services					
Frequency	year	_	12.0	0–12.0	0.6
Provider					
Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source		<u> </u>	•		
Central Water Supply–Individual	%	79.0	95.0	3.60–95.0	64.5
Central Water Supply–Communal	%	_	46.7	0.0–46.7	5.5
Borehole	%	21.0	54.5	0.0–54.5	14.1
Protected Spring/Well	%	_	96.4	0.0–96.4	10.3
Rainwater	%	20.0	20.0	0.0–20.0	8.1
Water Vendor	%		35.0	0.0–35.0	5.1
Population Buying Bottled Water	%	80.0	80.0	0–80.0	12.9
Average Water Consumption	lpcd	80.0	160.0	29–160.0	72.1
Water Treatment Facilities	lpcd	32.9	321.5	1.5–321.5	55.6
Local Government	%		100.0	0–100.0	47.5
National Government	%	100.0	100.0	0–100.0	26.5
Private Concessionaire	%		100.0	0–100.0	9.3
Organizational Arrangement	Unit		100.0	0 100.0	
		City Value	Top Value	Range	
		City Value	Top Value	Range	Average
Institutions Involved in Sanitation		City Value	Top Value	Range	
Public Sector		•	-	-	Average
Public Sector  National Government	#	-	6	1–6	Average
Public Sector  National Government  Local Government	#	•	6 4	1-6 1-4	0.5 1.3
Public Sector  National Government  Local Government  State- Owned Utility	#	-	6	1–6	0.5 1.3
Public Sector  National Government  Local Government  State- Owned Utility  Private Sector	# # #	_ _ 1 _	6 4 2	1-6 1-4 1-2	0.5 1.3 0.5
Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility	# # #	- 1 -	6 4 2	1-6 1-4 1-2	0.5 1.3 0.5
Public Sector  National Government  Local Government  State- Owned Utility  Private Sector  Water Utility  Enterprise	# # # # #	_ _ 1 _	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1
Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization	# # #	- 1 -	6 4 2	1-6 1-4 1-2	0.5 1.3 0.5 0.1
Public Sector  National Government Local Government State- Owned Utility  Private Sector Water Utility Enterprise Nongovernment Organization  Number of Personnel	# # # # #	- 1 -	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1
Public Sector  National Government  Local Government  State- Owned Utility  Private Sector  Water Utility  Enterprise Nongovernment Organization  Number of Personnel  Public Sector	# # # # #	- 1 - - -	6 4 2 2 1 2	1-6 1-4 1-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
Public Sector  National Government  Local Government  State- Owned Utility  Private Sector  Water Utility  Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000	# # # # #	- 1 -	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
Public Sector  National Government  Local Government  State- Owned Utility  Private Sector  Water Utility  Enterprise  Nongovernment Organization  Number of Personnel  Public Sector	# # # # #	- 1 - - -	6 4 2 2 1 2	1-6 1-4 1-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1 9.0
Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000 pop'n)	# # # # #	- 1 - - -	6 4 2 2 1 2 2 21.67	1-6 1-4 1-2 0-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1 9.0
Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # # # %	- 1 - - -	6 4 2 2 1 2 21.67	1-6 1-4 1-2 0-2 0-2 0-2 0-2 0.4-21.67	0.5 1.3 0.5 0.1 0.1 0.1 9.0 11.8 8.9
Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # # *	- 1 - - - -	2 2 1 2 2 2 1 1 2 2 1 1 0 0 1 1 0 0 1 0 0	1-6 1-4 1-2 0-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	0.5 1.3 0.5 0.1 0.1 0.1 9.0 11.8 8.9
Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction Operations and Maintenance	# # # # # *	- 1 - - - -	2 2 1 2 2 2 1 1 2 2 1 1 0 0 1 1 0 0 1 0 0	1-6 1-4 1-2 0-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	

	Operations and Maintenance	%	_	_	_	_
Legal Framework		Unit	City Value	Top Value	Range	Average
Legal Mandate of Sai	nitation					
	Number of Laws on Sanitation					
	National	#	2	7	1–4	1.9
	Local	#	_	3	1–3	1.2
	Year Enacted					
	Oldest	year	1991	2007	1947–2007	1985
	Latest	year	1999	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	-	17	7–17	_
	Year Enacted	year	-	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year		2007	2006–2011	2009
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	2020	2020	2015–2020	2018
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	_	762.7	0.7–762.7	32.1
	Source of Fund		_			
Sanitation Problem	Major Sanitation Problem	Uncontrolled disp	osal of waste			
	Future Programs/Projects	Improving access facilities				
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	Funding Source		-			
Capital Investmen	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	-	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	-	90.0	0.0-90.0	22.1
	Local Government	%	-	100.0	0.0-100.0	18.5
	Loans	%	-	99.0	0.0–99.0	15.7
	Tariff Revenue	%	_	0	0–0	0
	Others	%		100.0	0.0-100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
			,			,,,,,,,,,
	Annual O&M Cost			-		71101490
		\$/capita		8.3	0.01–8.3	
	Annual O&M Cost		-	-	-	
	Annual O&M Cost  Annual Amount		-	-	-	0.7
	Annual O&M Cost Annual Amount Source of Fund	\$/capita	-	8.3	0.01–8.3	0.7
	Annual O&M Cost Annual Amount Source of Fund National Government	\$/capita	-	8.3	0.01–8.3	0.7 4.9 40.7
	Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government	\$/capita  % %	-	8.3 47.0 100.0	0.01–8.3 0–47 0–100	0.7 4.9 40.7 3.4
	Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans	\$/capita  % % %	- - - -	8.3 47.0 100.0 53.0	0.01–8.3 0–47 0–100 0–53	0.7 4.9 40.7 3.4 14.3
Revenues and Fee	Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others	\$/capita  % % % %	- - - -	8.3 47.0 100.0 53.0 100.0	0.01–8.3 0–47 0–100 0–53 0–100	0.7 4.9 40.7 3.4 14.3
Revenues and Fee	Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others	\$/capita  % % % % % %	- - - - -	8.3 47.0 100.0 53.0 100.0	0.01–8.3 0–47 0–100 0–53 0–100	0.7 4.9 40.7 3.4 14.3
Revenues and Fee	Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Ses for Services	\$/capita  % % % % % Unit	- - - - -	8.3 47.0 100.0 53.0 100.0	0.01–8.3 0–47 0–100 0–53 0–100	0.7 4.9 40.7 3.4 14.3 0 <b>Average</b>
Revenues and Fee	Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  es for Services  Annual Revenues and Fees  Total Revenue	\$/capita  % % % % % %	- - - - -	8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.01–8.3  0–47  0–100  0–53  0–100  0  Range	0.7 4.9 40.7 3.4 14.3 0 <b>Average</b>
Revenues and Fee	Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Ses for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges	\$/capita  % % % % % Unit  \$/capita	- - - - -	8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.01–8.3  0–47  0–100  0–53  0–100  0  Range	0.7 4.9 40.7 3.4 14.3 0 <b>Average</b>
Revenues and Fee	Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  es for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges  Connection Charge	\$/capita  % % % % % Unit  \$/capita	- - - - City Value	8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.01–8.3  0–47  0–100  0–53  0–100  0  Range	0.7 4.9 40.7 3.4 14.3 0 Average
Revenues and Fee	Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  Ses for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges  Connection Charge  Tariff Rate	\$/capita  % % % % % Unit  \$/capita	- City Value	8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.01–8.3  0–47  0–100  0–53  0–100  0  Range	0.7 4.9 40.7 3.4 14.3 0 <b>Average</b>
Revenues and Fee	Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue  Others  es for Services  Annual Revenues and Fees  Total Revenue  Sewered Area Charges  Connection Charge	\$/capita  % % % % % Unit  \$/capita	- City Value	8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.01–8.3  0–47  0–100  0–53  0–100  0  Range	0.7 4.9 40.7 3.4 14.3 0 Average

Government	\$/ST	-	100	0–100	23.9
Other Fees	\$	_	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	50	67	0–67	21.7
Household Liquid Waste	%	50	80	15–80	39.6
Industrial Waste	%	-	38	0–38	8.4
Commercial Waste	%	_	35	0–35	8.5
Hospital Waste	%	_	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	N			
Current Wastewater Disposal					
Own Treatment Plant	%	-	100	0–100	10.3
Central Sewer System	%	_	35	0–35	6.5
No Treatment	%	_	100	0–100	36.5
Others	%	-	50	0–50	10.4
Description		_			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Sedon river				
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Upstream			
Adjoining Town					
Pollution Load	vh–vl	Medium			
Sanitation Work/Plan	i/c	_			
Samuelon Wond lan					
	Unit	City Value	Top Value	Range	Average
Environmental Statistics		City Value	Top Value	Range	Average
Environmental Statistics  Water Quality – Surface Water  Total Coliform		City Value	22000#/ 100ml	<1- 22000	
Environmental Statistics Water Quality – Surface Water	Unit	-	22000#/	<1- 22000 1.28-180.0	
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	Unit #/ml	< 1#/ ml	22000#/ 100ml	<1- 22000 1.28-180.0 7.1-973.0	18.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	#/ml mg/l	< 1#/ ml	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml mg/l mg/l	< 1#/ ml	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4 49.6 0.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l	< 1#/ ml	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	#/ml mg/l mg/l mg/l mg/l	< 1#/ ml <3.0 <50.0	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	#/ml mg/l mg/l mg/l mg/l	< 1#/ ml <3.0 <50.0	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range	18.7 72.4 49.6 0.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	#/ml mg/l mg/l mg/l mg/l	< 1#/ ml <3.0 <50.0	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b>
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l Unit	< 1#/ ml <3.0 <50.0  - City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l Thit	< 1#/ ml <3.0 <50.0  - City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l The mg/l mg/l mg/l mg/l # #	< 1#/ ml <3.0 <50.0  - City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	#/ml mg/l mg/l mg/l mg/l Unit  # #	< 1#/ ml <3.0 <50.0  - City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria	#/ml mg/l mg/l mg/l mg/l Unit  # # # # #	< 1#/ ml <3.0 <50.0  - City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population	#/ml mg/l mg/l mg/l mg/l Unit  # # # # #	< 1#/ ml <3.0 <50.0  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l Unit  # # # # #	< 1#/ ml <3.0 <50.0  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	0.75–594.14 0.13–6.86 0.00–2.45 0.0–0.47	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l  The state of the s	< 1#/ ml <3.0 <50.0  - City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	< 1#/ ml <3.0 <50.0  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	< 1#/ ml <3.0 <50.0  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l  The state of the s	< 1#/ ml <3.0 <50.0  - City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0</pre>	18.7 72.4 49.6 0.6

# 18. Sayabouly, Lao PDR

Sayabouly		For All Surveyed Cities and Municipalities
Coordinator	Mr. Laksana Keosengthith, Office Manager	
Office	Water Supply Office	
Address	Sayabouly Water Supply State Enterprise	
Fax	074-211056	<del></del>
Telephone	074-211056	
E-mail address		

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2012)	#(000)	75.2	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	2.80	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	12.53	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	6.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	0	844.1	0 – 844.1	34.5
	Urban Poor	%	22.40	48.0	0 – 48.0	14.6
	City Area	ha (000)	3.91	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	10.0	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	0.8	59.7	0 – 59.7	13.5
	Urban Fringe	%	15.0	99.7	0 – 99.7	18.9
	Peri–Urban	%	74.2	98.5	0 – 98.5	34.9
	Slum Area	%	-	35.96	0 – 35.96	4.3
	Average City Density	#/ha	19.2	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	_	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	-	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	_	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	_	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	_	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	3.91	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	50.0	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	84.2	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	75.20	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	59.9	100.0	0 – 100.0	31.5
	Central Water Supply System	%	79.9	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
-					J	
	I. Central Sewerage System	%	59.9	100.0	0.0–100.0	27.3
	I. Central Sewerage System II. Individual with Septic Tank	%	59.9 59.9	100.0	_	27.3 44.0
	II. Individual with Septic Tank III. Communal with Septic				0.0–100.0	44.0
	II. Individual with Septic Tank III. Communal with Septic Tank	%	59.9 _	100.0 10.5	0.0–100.0 0.0–100.0 0.0–10.5	44.0 0.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine	% %	59.9 - -	100.0 10.5 59.9	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9	44.0 0.9 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation	% % %	59.9 - - -	100.0 10.5 59.9 0.9	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9	44.0 0.9 13.9 0.0
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation	% %	59.9 - -	100.0 10.5 59.9	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9	44.0 0.9 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System	% % % %	59.9 - - -	100.0 10.5 59.9 0.9 61.0	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I	% % % %	59.9 - - -	100.0 10.5 59.9 0.9 61.0	0.0–100.0 0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia	% % % % %	59.9 - - 7.8	100.0 10.5 59.9 0.9 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9	44.0 0.9 13.9 0.0 7.3 13.7 9.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II	% % % % % % %	59.9  -  -  7.8  -  -  7.8	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa	% % % % % % % % %	59.9 - - 7.8	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III	% % % % % % % % % % % %	59.9  -  -  7.8  -  -  7.8	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % %	59.9  7.8  35.9	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	II. Individual with Septic Tank  III. Communal with Septic Tank  IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type II  Type IIa  Type III  Type IIIa  Type III  Type IIIa	% % % % % % % % % % % % % % % %	59.9  7.8  35.9 59.9	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % %	59.9  7.8  35.9	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	44.0 0.9 13.9 0.0

Type VI & VIa	%	7.8	22.5	0–22.5	7.5
Type VIb	%	_	12.0	0-12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	_	100.0	0–100.0	57.7
National Government	%	_	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	_	135.0	50–135.0	6.2
Provider					
Local Government	%	_	100.0	0–100.0	57.7
National Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Desludging Services					
Frequency	year	_	12.0	0-12.0	0.6
Provider					
Government	%	-	100.0	0–100.0	8.7
Private	%	-	92.7	0-92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source					
Central Water Supply–Individual	%	79.9	95.0	3.60-95.0	64.5
Central Water Supply–Communal	%	0	46.7	0.0-46.7	5.5
Borehole	%	-	54.5	0.0-54.5	14.1
Protected Spring/Well	%	12.6	96.4	0.0–96.4	10.3
Rainwater	%	7.0	20.0	0.0–20.0	8.1
Water Vendor	%	11.5	35.0	0.0–35.0	5.1
Population Buying Bottled Water	%	80.0	80.0	0-80.0	12.9
Average Water Consumption	lpcd	80.0	160.0	29–160.0	72.1
Water Treatment Facilities	lpcd	39.9	321.5	1.5–321.5	55.6
Local Government	%	_	100.0	0–100.0	47.5
National Government	%	100.0	100.0	0–100.0	26.5
Private Concessionaire	%	_	100.0	0–100.0	9.3
Organizational Arrangement	Unit	City Value	Top Value	Range	Average
Institutions Involved in Sanitation		<u> </u>	-		
Public Sector					
National Government	#	_	6	1–6	0.5
Local Government	#	2	4	1–4	1.3
State- Owned Utility	#	_	2	1–2	0.5
Private Sector					
Water Utility	#		2	0–2	0.1
Enterprise	#	_	1	0–2	0.1
Nongovernment Organization	#		2	0–2	0.1
Number of Personnel					
Public Sector					
Total Personnel (per 10,000 pop'n)	#	0.4	21.67	0.4–21.67	9.0
Planning and Monitoring	%		100	5–100	11.8
Construction	%	_	100	6–100	8.9
Operations and Maintenance	%	_	100	50-100.0	23.6
Private Sector					
Total Personnel (per 10,000 pop,n)	#	-	30.96	12.3–30.96	1.4

	Operations and Maintenance	%	_	_	_	_
Legal Framework	<u>'</u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sar	nitation					
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	1999	2007	1947–2007	1985
	Latest	year	2007	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	N	17	7–17	_
	Year Enacted	year	_	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan		-	-		
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year		2007	2006–2011	2009
	New Sanitation Plan	,				
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	Year	2020	2020	2015–2020	2018
	Estimated Cost	\$		250	1.9–250.0	12.5
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.1
	Source of Fund	<b>3</b> /Сарна		762.7	0.7-762.7	32.1
Canitatian Drahlam		N				
Sanitation Problem	Major Sanitation Problem	No wastewater sy	stem in the town			
	Future Programs/Projects	* · · ·		24.4	0.05.24.4	4.0
	Funding Amount	\$/capita		24.1	0.96–24.1	1.0
	Funding Source		_			
<b>Capital Investmer</b>	nt	Unit		Ion Value		
p.t investmen		- Cilit	City Value	Top Value	Range	Average
	Annual Capital Investment		-	-	-	
	Annual Capital Investment Annual Amount	\$/capita	-	168.0	0.5–168.0	
	Annual Capital Investment Annual Amount Source of Fund	\$/capita	-	168.0	0.5–168.0	10.3
	Annual Capital Investment Annual Amount Source of Fund National Government	\$/capita	-	168.0	0.5–168.0	10.3
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government	\$/capita  % %	_	90.0 100.0	0.5–168.0 0.0–90.0 0.0–100.0	10.3 22.1 18.5
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans	\$/capita  % % %	-	90.0 90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0	10.3 22.1 18.5 15.7
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue	\$/capita  % % % %	-	90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0	10.3 22.1 18.5 15.7
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	\$/capita  % % % % % %	- - - -	90.0 100.0 99.0 0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0	10.3 22.1 18.5 15.7
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  laintenance Expenditures	\$/capita  % % % %	- - - -	90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0	10.3 22.1 18.5 15.7 0
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	\$/capita  % % % % % %	- - - -	90.0 100.0 99.0 0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	10.3 22.1 18.5 15.7 0
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount	\$/capita  % % % % % %	- - - -	90.0 100.0 99.0 0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	10.3 22.1 18.5 15.7 0 9.0 <b>Average</b>
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost	\$/capita  % % % % % Unit	- - - -	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	10.3 22.1 18.5 15.7 0 9.0 <b>Average</b>
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount	\$/capita  % % % % % Unit	- - - -	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	10.3 22.1 18.5 15.7 0 9.0 Average
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund	\$/capita  % % % % % Unit  \$/capita	- - - -	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range	10.3 22.1 18.5 15.7 0 9.0 Average
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government	\$/capita  % % % % % W W W * * * * * * * * * * *	- - - - City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government	\$/capita  % % % % % W W Unit	- - - - City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9 40.7
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government	\$/capita  % % % % % Unit  \$/capita	- - - - City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Loans Tariff Revenue Others	\$/capita  % % % % % Unit  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0  100.0  53.0  100.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9 40.7 3.4 14.3
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Loans Tariff Revenue Others	\$/capita  % % % % % Unit  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Ses for Services	\$/capita  % % % % % Unit  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0	10.3  22.1  18.5  15.7  0  9.0  Average  0.7  4.9  40.7  3.4  14.3  0  Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Loans Tariff Revenue Others  Ses for Services Annual Revenues and Fees	\$/capita  % % % % % Unit  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3  22.1  18.5  15.7  0  9.0  Average  0.7  4.9  40.7  3.4  14.3  0  Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Fariff Revenue Others Ses for Services Annual Revenues and Fees Total Revenue Sewered Area Charges	\$/capita  % % % % % Unit  \$/capita	- City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9 40.7 3.4 14.3 0 Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	\$/capita  % % % % % % Unit  \$/capita	City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9 40.7 3.4 14.3 0 Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	\$/capita  % % % % % Unit  \$/capita	City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9 40.7 3.4 14.3 0 Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate Septic Tank Desludging Fee	\$/capita  % % % % % Whit  \$/capita  % % % Unit  \$/capita  \$/capita	City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	\$/capita  % % % % % % Unit  \$/capita	City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3

Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	50	67	0–67	21.7
Household Liquid Waste	%	50	80	15–80	39.6
Industrial Waste	%	_	38	0–38	8.4
Commercial Waste	%	_	35	0–35	8.5
Hospital Waste	%	_	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	_			
Current Wastewater Disposal					
Own Treatment Plant	%	-	100	0–100	10.3
Central Sewer System	%	-	35	0–35	6.5
No Treatment	%	-	100	0–100	36.5
Others	%	-	50	0–50	10.4
Description	List	-			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Huong river				
Basin Area	ha	-	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Upstream			
Adjoining Town					
Pollution Load	vh–vl	-			
Sanitation Work/Plan	i/c	-			
Environmental Statistics	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	5–10 #/ ml	22000#/	<1- 22000	
BOD	mg/l	<5.0	100ml 180	1.28–180.0	18.7
	mg/l		973	7.1–973.0	72.4
( ( 1) )		~50 O	3/3		
COD Total Suspended Solids		<50.0	261		
Total Suspended Solids	mg/l	<50.0 1.8	261	1.0–261.0	49.6
Total Suspended Solids Heavy Metals	mg/l mg/l	1.8	16.7	1.0–261.0 0.25–16.7	49.6 0.6
Total Suspended Solids Heavy Metals Health Statistics	mg/l			1.0–261.0	49.6
Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases	mg/l mg/l	1.8	16.7	1.0–261.0 0.25–16.7	49.6 0.6
Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)	mg/l mg/l <b>Unit</b>	1.8	16.7 Top Value	1.0–261.0 0.25–16.7 <b>Range</b>	49.6 0.6 <b>Average</b>
Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea	mg/l mg/l Unit	1.8  City Value	16.7 <b>Top Value</b> 594.14	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14	49.6 0.6 <b>Average</b> 50.1
Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B	mg/l mg/l Unit #	1.8	16.7 <b>Top Value</b> 594.14 6.83	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86	49.6 0.6 <b>Average</b> 50.1 3.0
Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l Unit # #	1.8  City Value	16.7 <b>Top Value</b> 594.14 6.83 294.55	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55	49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	mg/l mg/l Unit  # # #	1.8  City Value	16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles	mg/l mg/l Unit  # # # # #	1.8  City Value	16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	mg/l mg/l Unit  # # # # #	1.8  City Value	16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	1.8	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45	1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles  Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea	mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	1.8	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -	1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B	mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	1.8	16.7  Top Value  594.14  6.83  294.55  507.79  4.45  -  0.47  0.25	1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54  0.0-0.25	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	1.8	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47  0.25	1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.25 0-0	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	1.8	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47  0.25  0  6.3	1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0 0.00-6.3	49.6 0.6 Average 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	1.8	16.7 <b>Top Value</b> 594.14  6.83  294.55  507.79  4.45  -  0.47  0.25	1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.25 0-0	49.6 0.6

# 19. Xieng Ngeun, Lao PDR

Xieng Ngeun		For All Surveyed Cities and Municipalities
Coordinator	Mr. Kongsine Soulith, Toilet and water provider	
Office	District Public Health Office, (District Public Health)	
Address	Xieng Ngeun District, Luang Prabang Province	
Fax		<del></del>
Telephone	856-071-253589	
E-mail address		

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	35.8	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	2.80	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	5.97	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	6.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	0	844.1	0 - 844.1	34.5
	Urban Poor	%	28.17	48.0	0 – 48.0	14.6
	City Area	ha (000)	1.21	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	6.6	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	4.1	59.7	0 – 59.7	13.5
	Urban Fringe	%	2.5	99.7	0 – 99.7	18.9
	Peri–Urban	%	86.8	98.5	0 – 98.5	34.9
	Slum Area	%	_	35.96	0 – 35.96	4.3
	Average City Density	#/ha	29.6	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	-	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	-	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	-	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
<b>Sanitation Covera</b>	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	1.21	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	_	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	80.0	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	35.83	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	_	100.0	0 – 100.0	31.5
	Central Water Supply System	%	80.1	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	-	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	36.0	100.0	0.0-100.0	44.0
	III. Communal with Septic	%	-	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	0/				12.0
			59.9	59.9	∩ ∩_59 9	174
		%	59.9	59.9	0.0–59.9	
	V. Eco Sanitation	%	-	0.9	0.0-0.9	0.0
	V. Eco Sanitation VI. Open Defecation					0.0
	V. Eco Sanitation VI. Open Defecation Toilet System	%	2.6	0.9 61.0	0.0-0.9 0.0-61.0	0.0 7.3
	V. Eco Sanitation VI. Open Defecation  Toilet System  Type I	% %	2.6	0.9 61.0 100.0	0.0-0.9 0.0-61.0 0-100.0	0.0 7.3 13.7
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia	% % %	- 2.6 - -	0.9 61.0 100.0 88.9	0.0-0.9 0.0-61.0 0-100.0 0-88.9	0.0 7.3 13.7 9.3
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II	% % % % %	- 2.6 - - -	0.9 61.0 100.0 88.9 93.1	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1	0.0 7.3 13.7 9.3 12.6
	V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa	% % % % %	- 2.6 - - - - 36.0	0.9 61.0 100.0 88.9 93.1 100.0	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	0.0 7.3 13.7 9.3 12.6 32.2
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type la Type II Type IIa Type III	% % % % % %	- 2.6 - - - 36.0	0.9 61.0 100.0 88.9 93.1 100.0	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	0.0 7.3 13.7 9.3 12.6 32.2 0.1
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type III	% % % % % %	- 2.6 - - - 36.0 -	0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8
	V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type III  Type III  Type III	% % % % % % %	- 2.6 - - - 36.0	0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type III	% % % % % %	- 2.6 - - - 36.0 -	0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8

Type VI & VIa	%	2.6	22.5	0–22.5	7.5
Type VIb	%	-	12.0	0–12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	126.3	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	100	100.0	0–100.0	57.7
National Government	%	-	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	-	135.0	50-135.0	6.2
Provider					
Local Government	%	-	100.0	0–100.0	57.7
National Government	%	-	100.0	0-100.0	8.7
Private	%	-	92.7	0-92.7	4.7
Desludging Services					
Frequency	year	_	12.0	0–12.0	0.6
Provider					
Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source		-	-		
Central Water Supply–Individual	%	80.1	95.0	3.60–95.0	64.5
Central Water Supply–Communal	%	_	46.7	0.0–46.7	5.5
Borehole	%	0	54.5	0.0-54.5	14.1
Protected Spring/Well	%	_	96.4	0.0–96.4	10.3
Rainwater	%	19.0	20.0	0.0–20.0	8.1
Water Vendor	%	9.2	35.0	0.0–35.0	5.1
Population Buying Bottled Water	%	70	80.0	0–80.0	12.9
Average Water Consumption	lpcd	80	160.0	29–160.0	72.1
Water Treatment Facilities	lpcd	97.7	321.5	1.5–321.5	55.6
Local Government	%		100.0	0–100.0	47.5
National Government	%	100.0	100.0	0–100.0	26.5
Private Concessionaire	%	-	100.0	0–100.0	9.3
Organizational Arrangement	Unit	City Value	Top Value	Range	Average
Institutions Involved in Sanitation	Ome	City value	10p value	nange	Average
Public Sector					
National Government	#	_	6	1–6	0.5
Local Government	#	2	4	1–4	1.3
State– Owned Utility	#		2	1–2	0.5
Private Sector	π		2	1-2	0.5
Water Utility	#	_	2	0–2	0.1
Enterprise	#		1	0-2	0.1
Nongovernment Organization	#		2	0-2	0.1
Number of Personnel	π			0–2	0.1
Public Sector					
	#	17.4	21.67	0 4 34 67	0.0
Total Personnel (per 10,000 pop'n)	#	17.1	21.67	0.4–21.67	9.0
Planning and Monitoring	%		100	5–100	11.8
Construction	%	_	100	6–100	8.9
Operations and Maintenance	%	_	100	50-100.0	23.6
Private Sector					
Total Personnel (per 10,000 pop,n)	#	84.4	30.96	12.3–30.96	1.4
1 17 /					

	Operations and Maintenance	%	_	_	_	_
Legal Framework	<u> </u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sar	nitation					
	Number of Laws on Sanitation					
	National	#	_	7	1–4	1.9
	Local	#	_	3	1–3	1.2
	Year Enacted					
	Oldest	Year	-	2007	1947–2007	1985
	Latest	Year	-	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	N	17	7–17	_
	Year Enacted	year	-	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Υ	11	11–27	
	When Prepared	Year	2007	2007	2006–2011	2009
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	Year	_	2020	2015–2020	2018
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	_	762.7	0.7–762.7	32.1
	Source of Fund	47 00   11 00	_			
Sanitation Problem	Major Sanitation Problem	Uncontrolled disp	osal of waste			
	Future Programs/Projects	Improving access				
	Funding Amount	\$/capita	-	24.1	0.96–24.1	1.0
	Funding Source		_			
Capital Investmen	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	-	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	70	90.0	0.0–90.0	22.1
	Local Government	%	30	100.0	0.0-100.0	18.5
	Loans	%	0	99.0	0.0-99.0	15.7
	Loans Tariff Revenue	%	0	99.0 0	0.0–99.0 0–0	
	Tariff Revenue				0-0	0
Operations and M	Tariff Revenue Others	%	0	0	0-0 0.0-100.0	9.0
Operations and M	Tariff Revenue	%	0	0 100.0	0-0	0
Operations and N	Tariff Revenue Others  Taintenance Expenditures	% % Unit	0	0 100.0	0-0 0.0-100.0 <b>Range</b>	9.0 Average
Operations and M	Tariff Revenue Others  Naintenance Expenditures Annual O&M Cost	%	0 O City Value	0 100.0 <b>Top Value</b>	0-0 0.0-100.0	9.0 Average
Operations and M	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund	% % Unit  \$/capita	0 O City Value	0 100.0 <b>Top Value</b> 8.3	0-0 0.0-100.0 <b>Range</b>	0 9.0 <b>Average</b> 0.7
Operations and M	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government	% Unit  \$/capita	0 O City Value	0 100.0 <b>Top Value</b> 8.3	0-0 0.0-100.0 <b>Range</b> 0.01-8.3	0 9.0 <b>Average</b> 0.7
Operations and M	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government	% Wnit \$/capita % %	0 O City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0	0-0 0.0-100.0 <b>Range</b> 0.01-8.3 0-47 0-100	0 9.0 <b>Average</b> 0.7 4.9 40.7
Operations and M	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans	% Unit  \$/capita  % % %	0 O City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0-0 0.0-100.0 <b>Range</b> 0.01-8.3 0-47 0-100 0-53	0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4
Operations and N	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue	% Wnit \$/capita  % % % %	City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0	0-0 0.0-100.0 <b>Range</b> 0.01-8.3 0-47 0-100	0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	Tariff Revenue Others  **Taintenance Expenditures Annual O&M Cost Annual Amount  Source of Fund  National Government  Local Government  Loans  Tariff Revenue Others	% Wnit \$/capita  % % % % % % %	0 0 City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0	0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
Operations and M	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services	% Wnit \$/capita  % % % %	City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100	0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees	% Unit  \$/capita  % % % % % Unit Unit	0 0 City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range	0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3 0 <b>Average</b>
	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue	% Wnit \$/capita  % % % % % % %	0 0 City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0	0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3 0 <b>Average</b>
	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges	%	0 0 City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range	0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3 0 <b>Average</b>
	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	% Wnit  \$/capita  % % % % % Whit  \$/capita	City Value  City Value  City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range  0.3-15.0	0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3 0 <b>Average</b>
	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	%	City Value  City Value  City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range	0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	Tariff Revenue Others  Maintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	% Wnit  \$/capita  % % % % % Whit  \$/capita	City Value  City Value  City Value	0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range  0.3-15.0	9.0  Average  0.7  4.9  40.7  3.4  14.3  0  Average  0.9

Government	\$/ST	18	100	0–100	23.9
Other Fees	\$	-	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	_			
Sources of Water Pollution					
Household Solid Waste	%	50	67	0–67	21.7
Household Liquid Waste	%	50	80	15–80	39.6
Industrial Waste	%	0	38	0–38	8.4
Commercial Waste	%	0	35	0–35	8.5
Hospital Waste	%	_	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	-			
Current Wastewater Disposal					
Own Treatment Plant	%	_	100	0–100	10.3
Central Sewer System	%	_	35	0–35	6.5
No Treatment	%	_	100	0–100	36.5
Others	%	-	50	0–50	10.4
Description		_			
Within River Basin	Y/N	Y			
River Basin/Major River Name	Khan river				
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Upstream			
Adjoining Town					
Pollution Load	vh–vl	Medium			
Sanitation Work/Plan	i/c	Individual			
Environmental Statistics	Unit	City Value	Top Value	Range	Average
	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water Total Coliform	Unit #/ml	City Value	22000#/ 100ml	<1- 22000	
Water Quality – Surface Water Total Coliform BOD		<1 #/ml	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7
Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml	<1 #/ml	22000#/ 100ml	<1- 22000 1.28-180.0 7.1-973.0	18.7
Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	#/ml mg/l	<1 #/ml	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4
Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals	#/ml mg/l mg/l mg/l mg/l	<1 #/ml	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4 49.6 0.6
BOD COD Total Suspended Solids Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l	<1 #/ml	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6
Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	#/ml mg/l mg/l mg/l mg/l	<1 #/ml 5.0 50.0 -	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l Unit	<1 #/ml 5.0 50.0 -	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b>	18.7 72.4 49.6 0.6 <b>Average</b>
Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	#/ml mg/l mg/l mg/l mg/l mg/l tunit	<1 #/ml 5.0 50.0 -	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b>
Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l  mg/l  Unit	<1 #/ml 5.0 50.0	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86	18.7 72.4 49.6 0.6 <b>Average</b> 50.1
Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l mg/l tunit	<1 #/ml 5.0 50.0 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55	18.7 72.4 49.6 0.6 Average 50.1 3.0 20.1
Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	#/ml mg/l mg/l mg/l mg/l  mg/l  Unit	<1 #/ml 5.0 50.0 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles	#/ml mg/l mg/l mg/l mg/l  mg/l  thickness and the second s	<1 #/ml 5.0 50.0 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	#/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	<1 #/ml 5.0 50.0 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population	#/ml mg/l mg/l mg/l mg/l  Thit  # # # # # # # # # # # # # # # # # #	<1 #/ml 5.0 50.0 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea	#/ml mg/l mg/l mg/l mg/l  Thit  # # # # # # # # # # # # # # # # # #	<1 #/ml 5.0 50.0 City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54 0.0-0.47	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l  mg/l  **The state of the state	<1 #/ml 5.0 50.0	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6  Average  50.1 3.0 20.1 153.9 0.3 0.7
Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B Trachoma	#/ml mg/l mg/l mg/l mg/l  Thit  # # # # # # # # # # # # # # # # # #	<1 #/ml 5.0 50.0	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54  0.0-0.25  0-0	18.7 72.4 49.6 0.6  Average  50.1 3.0 20.1 153.9 0.3 0.7
Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	#/ml mg/l mg/l mg/l mg/l  Thit  # # # # # # # # # # # # # # # # # #	<1 #/ml 5.0 50.0	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0 6.3	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0 0.00-6.3</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0 0.0
Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B Trachoma	#/ml mg/l mg/l mg/l mg/l  Thit  # # # # # # # # # # # # # # # # # #	<1 #/ml 5.0 50.0	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54  0.0-0.25  0-0	18.7 72.4 49.6 0.6

# 20. Calbayog, Philippines

Calbayog		For All Surveyed Cities and Municipalities
Coordinator	Oscar M. Hugo, City Engineer	
Office	City Engineering Office	
Address	City Hall, JD Avelino St., Calbayog City, Philippines	
Fax	63552091725	
Telephone	63552094478	
E-mail address	omhugo_linaw@yahoo.com	<del></del>

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2007)	#(000)	169.8	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	1.79	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	28.91	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	5.2	7.6	3.2 – 7.6	4.9
	Floating Population	%	1.7	844.1	0 – 844.1	34.5
	Urban Poor	%	4.18	48.0	0 – 48.0	14.6
	City Area	ha (000)	90.30	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	51.4	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	46.63	59.7	0 – 59.7	13.5
	Urban Fringe	%	0	99.7	0 – 99.7	18.9
	Peri–Urban	%	2.00	98.5	0 – 98.5	34.9
	Slum Area	%	0.01	35.96	0 – 35.96	4.3
	Average City Density	#/ha	1.70	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	11.20	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	6.00	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	1.20	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	627.00	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	90.30	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	-	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	0.5	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	150.0	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	72.6	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	0	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	20.0	400.0		
	'	70	38.9	100.0	0.0-100.0	44.0
	III. Communal with Septic	%	38.9	100.0	0.0–100.0	0.9
	III. Communal with Septic Tank	%	0	10.5	0.0–10.5	0.9
	III. Communal with Septic Tank IV. Pit Latrine	%	0.1	10.5 59.9	0.0–10.5	0.9
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation	% % %	0 0.1 0	10.5 59.9 0.9	0.0–10.5 0.0–59.9 0.0–0.9	0.9 13.9 0.0
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation	%	0.1	10.5 59.9	0.0–10.5	0.9
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System	% % %	0 0.1 0	10.5 59.9 0.9 61.0	0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	0.9 13.9 0.0 7.3
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I	% % % %	0 0.1 0	10.5 59.9 0.9 61.0	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0	0.9 13.9 0.0 7.3
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I Type Ia	% % % %	0 0.1 0 61.0	10.5 59.9 0.9 61.0 100.0 88.9	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9	0.9 13.9 0.0 7.3 13.7 9.3
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II	% % % % %	0 0.1 0 61.0	10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0	0.9 13.9 0.0 7.3 13.7 9.3
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa	% % % % % %	0 0.1 0 61.0	10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I Type Ia Type II Type IIa Type III	% % % % % % % % % %	0 0.1 0 61.0 - - 0 38.9	10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type III	% % % % % % % % % % % %	0 0.1 0 61.0 - - 0 38.9 0	10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type IIII Type IIIa Type III	% % % % % % % % % % % % % %	0 0.1 0 61.0 - - 0 38.9 0 61 38.9	10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III Type III	% % % % % % % % % % % %	0 0.1 0 61.0 - - 0 38.9 0	10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	0.9 13.9 0.0 7.3 13.7 9.3 12.6

Type VI & VIa	%	61	22.5	0–22.5	7.5
Type VIb	%	0	12.0	0–12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	-	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	100	100.0	0–100.0	57.7
National Government	%	-	100.0	0–100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	_	135.0	50–135.0	6.2
Provider					
Local Government	%	100	100.0	0–100.0	57.7
National Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Desludging Services					
Frequency	year	_	12.0	0–12.0	0.6
Provider					
Government	%	_	100.0	0–100.0	8.7
Private	%		92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source		<b>-</b>			
Central Water Supply–Individual	%	25.9	95.0	3.60–95.0	64.5
Central Water Supply—Communal	%	46.7	46.7	0.0–46.7	5.5
Borehole	%	30.6	54.5	0.0–54.5	14.1
Protected Spring/Well	%	0	96.4	0.0–96.4	10.3
Rainwater	%	0	20.0	0.0–20.0	8.1
Water Vendor	%	0	35.0	0.0–35.0	5.1
Population Buying Bottled Water	%	10	80.0	0-80.0	12.9
Average Water Consumption	lpcd	75	160.0	29–160.0	72.1
Water Treatment Facilities	lpcd	1.5	321.5	1.5–321.5	55.6
Local Government	%	95	100.0	0–100.0	47.5
National Government	%	0	100.0	0–100.0	26.5
Private Concessionaire	%		100.0	0 100.0	20.5
Trivate Concessionalie		5 1	100.0	0_100.0	0.3
Organizational Arrangement		City Value	100.0	0–100.0	
Organizational Arrangement	Unit	5 City Value	100.0 Top Value	0–100.0 <b>Range</b>	9.3 <b>Average</b>
Institutions Involved in Sanitation					
Institutions Involved in Sanitation Public Sector	Unit	City Value	Top Value	Range	Average
Institutions Involved in Sanitation Public Sector National Government	Unit #	City Value	Top Value	Range	Average
Institutions Involved in Sanitation Public Sector  National Government Local Government	# #	City Value	Top Value  6 4	1-6 1-4	<b>Average</b> 0.5 1.3
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility	Unit #	City Value	Top Value	Range	0.5 0.3
Institutions Involved in Sanitation  Public Sector  National Government  Local Government  State— Owned Utility  Private Sector	# # #	City Value  - 3	6 4 2	1-6 1-4 1-2	0.5 1.3 0.5
Institutions Involved in Sanitation  Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility	# # # #	City Value	6 4 2 2	1-6 1-4 1-2	0.5 1.3 0.5
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise	# # # # # #	City Value  - 3	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization	# # # # # #	City Value  - 3	6 4 2 2	1-6 1-4 1-2	0.5 1.3 0.5 0.1
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel	# # # # # #	City Value  - 3	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector	# # # # # # # # # # # # # # # # # # #	- 3	6 4 2 2 1 1 2 2	1-6 1-4 1-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000	# # # # # #	City Value  - 3	6 4 2 2 1	1-6 1-4 1-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector	# # # # # # # # # # # # # # # # # # #	- 3	6 4 2 2 1 1 2 2	1-6 1-4 1-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 9.0
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000 pop'n)	######################################	- 3	6 4 2 2 1 1 2 2 1.67	1-6 1-4 1-2 0-2 0-2 0-2 0-2	0.5 1.3 0.5 0.1 0.1 0.1 9.0
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # # # # # # # # # # # # # # #	- 3	7 Top Value  6 4 2  2 1 2  21.67 100	1-6 1-4 1-2 0-2 0-2 0-2 0-2 5-100	0.5 1.3 0.5 0.1 0.1 0.1 1.8 8.9
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction Operations and Maintenance	# # # # # # # # % % %	- 3	7 Top Value  6 4 2 2 1 2 2 1 20 21.67 100 100	1-6 1-4 1-2 0-2 0-2 0-2 0-2 5-100 6-100	0.5 1.3 0.5 0.1 0.1 0.1 1.8 8.9
Institutions Involved in Sanitation  Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # # # # # % % %	- 3	7 Top Value  6 4 2 2 1 2 2 1 20 21.67 100 100	1-6 1-4 1-2 0-2 0-2 0-2 0-2 5-100 6-100	9.3 Average  0.5 1.3 0.5  0.1 0.1 0.1  9.0 11.8 8.9 23.6

Planning Strategic Sanitation Plan  Exis  With Wh New Head San  Exis  With And Sou Sanitation Problem Mai	mber of Laws on Sanitation tional tal ar Enacted dest	# # year year  Y/N year  Unit  Y/N year  Y/N year	2	7 3 2007 2007 17 2007 <b>Top Value</b> 11 2007	1-4 1-3 1947-2007 1956-2007 7-17 1947-2007 Range 11-27 2006-2011	1.9 1.2 1985 1993 1985 Average
Nur Nat Loc Yea Old Late San Law Yea Planning Strategic Sanitation Plan Exis Wit Wh New Will Prep Esti Am Sou Sanitation Problem Maj	mber of Laws on Sanitation tional tal ar Enacted dest test nitation Service Charges w on Collecting Fees ar Enacted  sting Sanitation Plan th Sanitation Plan then Prepared w Sanitation Plan Ill Prepare Sanitation Plan eparation Year imated Cost nount per Capita	# year year  Y/N year  Unit  Y/N year  Y/N year  \$		2007 2007 17 2007 <b>Top Value</b>	1–3  1947–2007 1956–2007  7–17 1947–2007  Range	1.2 1985 1993  1985 <b>Average</b>
Planning Strategic Sanitation Plan  Exis  Wit  Wh  New  Will  Prep  Esti  Am  Sou  Sanitation Problem  Maj	tional tal tal tar Enacted  dest dest dest est nitation Service Charges w on Collecting Fees ar Enacted  sting Sanitation Plan th Sanitation Plan men Prepared w Sanitation Plan Ill Prepare Sanitation Plan eparation Year imated Cost nount per Capita	# year year  Y/N year  Unit  Y/N year  Y/N year  \$		2007 2007 17 2007 <b>Top Value</b>	1–3  1947–2007 1956–2007  7–17 1947–2007  Range	1.2 1985 1993  1985 <b>Average</b>
Planning Strategic Sanitation Plan Exis With Wh New Will Prep Esti Am Sou Sanitation Problem Maj	dest dest dest dest dest dest dest dest	# year year  Y/N year  Unit  Y/N year  Y/N year  \$		2007 2007 17 2007 <b>Top Value</b>	1–3  1947–2007 1956–2007  7–17 1947–2007  Range	1.2 1985 1993  1985 <b>Average</b>
Planning Strategic Sanitation Plan Exis Wit Wh Nev Will Prep Esti Am Sou Sanitation Problem Maj	dest dest dest dest dest dest dest dest	year year  Y/N year  Unit  Y/N year  Y/N year  Y/N year	2000 2002 N — City Value	2007 2007 17 2007 <b>Top Value</b>	1947–2007 1956–2007 7–17 1947–2007 <b>Range</b>	1985 1993 - 1985 <b>Average</b>
Planning Strategic Sanitation Plan Exis Wit Wh Nev Will Prep Esti Am Sou Sanitation Problem Maj	dest est nitation Service Charges w on Collecting Fees ar Enacted  sting Sanitation Plan th Sanitation Plan nen Prepared w Sanitation Plan Ill Prepare Sanitation Plan eparation Year imated Cost nount per Capita	year  Y/N year  Unit  Y/N year  Y/N year  Y/N year	N - City Value	2007 17 2007 <b>Top Value</b>	1956–2007 7–17 1947–2007 Range	1993 - 1985 <b>Average</b>
Planning Strategic Sanitation Plan Exis With Wh New Will Prep Esti Am Sou Sanitation Problem Maj	initation Service Charges  w on Collecting Fees ar Enacted  sting Sanitation Plan th Sanitation Plan nen Prepared w Sanitation Plan Ill Prepare Sanitation Plan eparation Year imated Cost nount per Capita	year  Y/N year  Unit  Y/N year  Y/N year  Y/N year	N - City Value	2007 17 2007 <b>Top Value</b>	1956–2007 7–17 1947–2007 Range	1993 - 1985 <b>Average</b>
San Law Yea Planning Strategic Sanitation Plan Exis Wit Wh Nev Will Prep Esti Am Sou Sanitation Problem Maj	nitation Service Charges w on Collecting Fees ar Enacted  sting Sanitation Plan th Sanitation Plan nen Prepared w Sanitation Plan Ill Prepare Sanitation Plan eparation Year imated Cost nount per Capita	Y/N year Unit  Y/N year  Y/N year  Y/N year	N City Value  N -	17 2007 <b>Top Value</b>	7–17 1947–2007 <b>Range</b>	1985 Average
Planning Strategic Sanitation Plan Exis Wit Wh Nev Will Prep Esti Am Sou Sanitation Problem Maj	sting Sanitation Plan th Sanitation Plan the Prepared w Sanitation Plan Ill Prepare Sanitation Plan eparation Year imated Cost nount per Capita	year Unit  Y/N year  Y/N year  \$	City Value  N -	2007 Top Value	1947–2007 <b>Range</b> 11–27	Average
Planning Strategic Sanitation Plan Exis Wit Wh Nev Will Prep Esti Am Sou Sanitation Problem Maj	sting Sanitation Plan th Sanitation Plan nen Prepared w Sanitation Plan Ill Prepare Sanitation Plan eparation Year imated Cost nount per Capita	year Unit  Y/N year  Y/N year  \$	City Value  N -	2007 Top Value	1947–2007 <b>Range</b> 11–27	Average
Planning Strategic Sanitation Plan Exis Wit Wh Nev Will Prep Esti Am Sou Sanitation Problem Maj	sting Sanitation Plan th Sanitation Plan nen Prepared w Sanitation Plan III Prepare Sanitation Plan eparation Year imated Cost nount per Capita	Y/N year  Y/N year  \$	City Value  N -	Top Value	<b>Range</b> 11–27	Average
Strategic Sanitation Plan  Exis  Wit  Wh  Nev  Will  Prep Esti  Am Sou  Sanitation Problem Maj	th Sanitation Plan nen Prepared w Sanitation Plan III Prepare Sanitation Plan eparation Year imated Cost nount per Capita	Y/N year  Y/N year \$	N -	11	11–27	
Exis  Wit  Wh  Nev  Will  Prep  Esti  Am  Sou  Sanitation Problem  Maj	th Sanitation Plan nen Prepared w Sanitation Plan III Prepare Sanitation Plan eparation Year imated Cost nount per Capita	year  Y/N year  \$	-			2009
Wit Wh Nev Will Prep Esti Am Sou Sanitation Problem Maj	th Sanitation Plan nen Prepared w Sanitation Plan III Prepare Sanitation Plan eparation Year imated Cost nount per Capita	year  Y/N year  \$	-			2009
Wit Wh Nev Will Prep Esti Am Sou Sanitation Problem Maj	th Sanitation Plan nen Prepared w Sanitation Plan III Prepare Sanitation Plan eparation Year imated Cost nount per Capita	year  Y/N year  \$	-			2009
Nev Will Prep Esti Am Sou Sanitation Problem Maj	W Sanitation Plan  Il Prepare Sanitation Plan eparation Year imated Cost nount per Capita	Y/N year \$	_	2007	2006–2011	2009
Nev Will Prep Esti Am Sou Sanitation Problem Maj	W Sanitation Plan  Il Prepare Sanitation Plan eparation Year imated Cost nount per Capita	Y/N year \$				
Will Prep Esti Am Sou Sanitation Problem Maj	Il Prepare Sanitation Plan eparation Year imated Cost nount per Capita	year \$				
Prej Esti Am Sou Sanitation Problem Maj	eparation Year imated Cost nount per Capita	year \$				
Esti Am Sou Sanitation Problem Maj	imated Cost nount per Capita	\$		2020	2015–2020	2018
Am Sou Sanitation Problem Maj	nount per Capita		_	250	1.9–250.0	12.5
Sou Sanitation Problem Maj		\$/capita	0.7	762.7	0.7–762.7	32.1
Sanitation Problem Maj	arce or rana	·	ity Government	702.7	0.7 702.7	32.1
	ijor Sanitation Problem		lies of water (e.g.,			
Futi	ijor samtation i robiem	rivers, sea, swar	nps) of wastewater			
	ure Programs/Projects	North Dhaka Ea treatment plant works				
Fun	nding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	nding Source		_			
Capital Investment		Unit	City Value	Top Value	Range	Average
	nual Capital Investment		<u> </u>	•		
	nual Amount	\$/capita	_	168.0	0.5–168.0	10.3
Sou	urce of Fund	· · · · · · · · · · · · · · · · · · ·				
Nat	tional Government	%		90.0	0.0–90.0	22.1
	cal Government	%		100.0	0.0–100.0	18.5
Loa		%	_	99.0	0.0–99.0	15.7
	riff Revenue	%		0	0-0	0
	hers	%		100.0	0.0–100.0	9.0
Operations and Mainte		Unit	City Value	Top Value	Range	Average
· •	nual O&M Cost		city raide	Top raide	ge	71101490
	nual Amount	\$/capita		8.3	0.01–8.3	0.7
	urce of Fund	<b>У</b> Сарта		0.3	0.01 0.3	
	tional Government	%		47.0	0–47	4.9
	cal Government	%	_	100.0	0–100	40.7
Loa		%		53.0	0–53	3.4
	iff Revenue	%		100.0	0–100	14.3
	hers	%		0	0-100	14.3
Revenues and Fees for		Unit	City Value	Top Value	Range	
	nual Revenues and Fees	Oint	City value	10p value	Nariye	Average
		¢/capita		15	0.3–15.0	0.9
	tal Revenue	\$/capita	_	15	0.3-15.0	0.9
	wered Area Charges	φ/ ··		440	0.6.440.6	20.2
	nnection Charge	\$/connection		110	0.6–110.0	20.0
	riff Rate otic Tank Desludging Fee	\$/m3		90	0.015–90	0.3

Private	\$/ST	_	133	4–133	9.9
Government	\$/ST	_	100	0–100	23.9
Other Fees	\$	_	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	N			
Sources of Water Pollution					
Household Solid Waste	%	45	67	0–67	21.7
Household Liquid Waste	%	35	80	15–80	39.6
Industrial Waste	%	2	38	0–38	8.4
Commercial Waste	%	15	35	0–35	8.5
Hospital Waste	%	3	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	_			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	0	35	0–35	6.5
No Treatment	%	99	100	0–100	36.5
Others	%	1	50	0–50	10.4
Description	anaerobic baff	led reactor			
Within River Basin	Y/N	N			
River Basin/Major River Name		_			
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	_			
Adjoining Town					
Pollution Load	vh–vl	Medium			
Sanitation Work/Plan	i/c	_			
Environmental Statistics	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	_	22000#/	<1- 22000	
			400		
BOD	mg/l	168.0	100ml 180		18 7
BOD	mg/l	168.0 973.0	180	1.28–180.0	
COD	mg/l	973.0	180 973	1.28–180.0 7.1–973.0	72.4
COD Total Suspended Solids	mg/l mg/l		180 973 261	1.28–180.0 7.1–973.0 1.0–261.0	72.4 49.6
COD Total Suspended Solids Heavy Metals	mg/l mg/l mg/l	973.0 75.0	180 973 261 16.7	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals Health Statistics	mg/l mg/l	973.0 75.0	180 973 261	1.28–180.0 7.1–973.0 1.0–261.0	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases	mg/l mg/l mg/l	973.0 75.0	180 973 261 16.7	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases	mg/l mg/l mg/l	973.0 75.0 – City Value	180 973 261 16.7 <b>Top Value</b>	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range	72.4 49.6 0.6 <b>Average</b>
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea	mg/l mg/l mg/l Unit	973.0 75.0	180 973 261 16.7 <b>Top Value</b> 594.14	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b>	72.4 49.6 0.6 <b>Average</b>
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)	mg/l mg/l mg/l <b>Unit</b>	973.0 75.0 – <b>City Value</b> 27.67	180 973 261 16.7 <b>Top Value</b> 594.14 6.83	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86	72.4 49.6 0.6 <b>Average</b> 50.1
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma	mg/l mg/l mg/l  Unit  # #	973.0 75.0 — City Value 27.67	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	mg/l mg/l mg/l  Unit  # # #	973.0 75.0 — City Value 27.67 0	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles	mg/l mg/l mg/l  Unit  # #	973.0 75.0 — City Value 27.67 0 0 46.13	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation- Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	mg/l mg/l mg/l  Unit  # # # # #	973.0 75.0 — City Value 27.67 0 0 46.13	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Total Suspended Solids Heavy Metals  Health Statistics Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	mg/l mg/l mg/l  Unit  # # # # #	973.0 75.0 — City Value 27.67 0 0 46.13	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria Death (children under 5 years) (per 10,000 population	mg/l mg/l mg/l  Unit  # # # # # #	973.0 75.0	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 -	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B	mg/l mg/l mg/l  Unit  # # # # # # # # # # # # # # # # # #	973.0 75.0 — City Value 27.67 0 0 46.13 0	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	973.0 75.0 75.0  — City Value  27.67 0 46.13 0 0 0 0.47 0 0	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B	mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	973.0 75.0  City Value  27.67 0 0 46.13 0 0 0 0.47	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 –	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9 0.3 0.7  0.0 0.0 0.0 0.0 0.0

# 21. Makati, Philippines

Makati		For All Surveyed Cities and Municipalities
Coordinator	Diana Jocelyn L. Vaño, M.D. (Makati Health Department) Danilo V. Villas (Department of Environmental Services) Officer-In-Charge	
Office	Makati Health Department	
Address	7/F New Makati City Hall Bldg., Jp Rizal St., Makati City	
Fax	632-8998916 / 8701783	
Telephone	632-8958962	
E–mail address	health@makati.gov.ph upd@makati.gov.ph des_makati@yahoo.com	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	537.5	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	1.60	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	123.98	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	4.2	7.6	3.2 – 7.6	4.9
	Floating Population	%	844.1	844.1	0 - 844.1	34.5
	Urban Poor	%	0.30	48.0	0 - 48.0	14.6
	City Area	ha (000)	2.7	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	21.8	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	16.6	59.7	0 – 59.7	13.5
	Urban Fringe	%	61.3	99.7	0 – 99.7	18.9
	Peri–Urban	%	0.0	98.5	0 – 98.5	34.9
	Slum Area	%	0.16	35.96	0 – 35.96	4.3
	Average City Density	#/ha	196.4	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha		426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	_	184.0	4.0 – 184.0	29.2
	Urban Fringe	#/ha	_	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	_	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	1,519.4	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	2.74	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	21.7	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	99.9	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	537.5	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	22.5	100.0	0 – 100.0	31.5
	Central Water Supply System	%	99.7	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
•	I. Central Sewerage System	%	8.92	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	90.7	100.0	0.0-100.0	44.0
	III. Communal with Septic Tank	%	0.3	10.5	0.0–10.5	0.9
	IV. Pit Latrine	%	0	59.9	0.0-59.9	13.9
	V. Eco Sanitation	%	0	0.9	0.0-0.9	0.0
	VI. Open Defecation	%	0	61.0	0.0-61.0	7.3
	Toilet System					
	Type I	%	8.7	100.0	0-100.0	13.7
	Type la	%	0.2	88.9	0-88.9	9.3
	Type II	%	11.5	93.1	0–93.1	12.6
	Type Ila	%	79.2	100.0	0–100.0	32.2
	Type III	%	0.3	2.0	0–2.0	0.1
		0/		61.0	0–61.0	2.8
	Type Illa	%	_	01.0	0 01.0	2.0

Type IVa		%	-	31.9	0–31.9	5.6
Type V		%	-	_	-	0.0
Type Va		%	-	40.6	0–40.6	1.4
Type VI & VIa		%	-	22.5	0–22.5	7.5
Type VIb		%	-	12.0	0–12.0	0.4
Treatment Facility		Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant						
Capacity (10,000 population)		m3/d	_	1,190.0	0.4 – 1,190.0	201.3
Provider						
Local Governm	nent	%	_	100.0	0–100.0	57.7
National Gove	rnment	%		100.0	0–100.0	8.7
Private		%	92.7	92.7	0–92.7	4.7
Septage Treatment Plant						
Capacity		m3/d		135.0	50–135.0	6.2
Provider						
Local Governm	 nent	%	_	100.0	0–100.0	57.7
National Gove	 rnment	%	_	100.0	0–100.0	8.7
Private		%	92.7	92.7	0–92.7	4.7
Desludging Services						
Frequency		year		12.0	0–12.0	0.6
Provider		,				
Government		%		100.0	0–100.0	8.7
Private		%	92.7	92.7	0–92.7	4.7
Water Supply Facility		Unit	City Value	Top Value	Range	Average
Household Water Supply Source		<b></b>	City Funds	Top Funds	90	71001490
Central Water Supply–Individual		%	97.7	95.0	3.60–95.0	64.5
Central Water Supply–Communal		%	2.1	46.7	0.0–46.7	5.5
Borehole		%	0	54.5	0.0–54.5	14.1
Protected Spring/Well		%	0.3	96.4	0.0–96.4	10.3
Rainwater		%	8.4	20.0	0.0–20.0	8.1
Water Vendor		%	100	35.0	0.0–35.0	5.1
Population Buying Bottled Water		%		80.0	0-80.0	12.9
Average Water Consumption		lpcd			0 00.0	
Water Treatment Facilities			_	160.0	29–160.0	72 1
Water freatment racings				160.0 321.5	29–160.0 1 5–321 5	72.1 55.6
Local Government		lpcd	- -	321.5	1.5–321.5	55.6
Local Government		lpcd %	-	321.5 100.0	1.5–321.5 0–100.0	55.6 47.5
National Government		lpcd %	- - -	321.5 100.0 100.0	1.5–321.5 0–100.0 0–100.0	55.6 47.5 26.5
National Government Private Concessionaire		lpcd % % %	- - -	321.5 100.0 100.0 100.0	1.5–321.5 0–100.0 0–100.0 0–100.0	55.6 47.5 26.5 9.3
National Government Private Concessionaire  Organizational Arrangement		lpcd %	- - -	321.5 100.0 100.0	1.5–321.5 0–100.0 0–100.0	55.6 47.5 26.5
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation		lpcd % % %	- - -	321.5 100.0 100.0 100.0	1.5–321.5 0–100.0 0–100.0 0–100.0	55.6 47.5 26.5 9.3
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation Public Sector	rnment	lpcd % % % Unit	- - - City Value	321.5 100.0 100.0 100.0 <b>Top Value</b>	1.5–321.5 0–100.0 0–100.0 0–100.0 <b>Range</b>	55.6 47.5 26.5 9.3 <b>Average</b>
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Gove		lpcd	- - - City Value	321.5 100.0 100.0 100.0 <b>Top Value</b>	1.5–321.5 0–100.0 0–100.0 0–100.0 <b>Range</b>	55.6 47.5 26.5 9.3 <b>Average</b>
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Gove Local Government	nent	lpcd	- - - City Value	321.5 100.0 100.0 100.0 <b>Top Value</b>	1.5–321.5 0–100.0 0–100.0 0–100.0 Range	55.6 47.5 26.5 9.3 <b>Average</b> 0.5
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation  Public Sector  National Government  State— Owned	nent	lpcd	- - - City Value	321.5 100.0 100.0 100.0 <b>Top Value</b>	1.5–321.5 0–100.0 0–100.0 0–100.0 <b>Range</b>	55.6 47.5 26.5 9.3 <b>Average</b> 0.5
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Gove Local Governm State- Owned  Private Sector	nent	lpcd	City Value	321.5 100.0 100.0 100.0 <b>Top Value</b> 6 4	1.5–321.5 0–100.0 0–100.0 0–100.0 Range	55.6 47.5 26.5 9.3 <b>Average</b> 0.5 1.3
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Gove Local Governm State- Owned  Private Sector  Water Utility	nent	lpcd	- - - - City Value	321.5 100.0 100.0 100.0 <b>Top Value</b> 6 4 2	1.5–321.5 0–100.0 0–100.0 0–100.0 Range	55.6 47.5 26.5 9.3 <b>Average</b> 0.5 1.3 0.5
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation  Public Sector  National Government State—Owned  Private Sector  Water Utility Enterprise	nent I Utility	lpcd	City Value	321.5 100.0 100.0 100.0 <b>Top Value</b> 6 4 2	1.5–321.5 0–100.0 0–100.0 0–100.0 Range 1–6 1–4 1–2 0–2 0–2	55.6 47.5 26.5 9.3 <b>Average</b> 0.5 1.3 0.5
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government State—Owned  Private Sector  Water Utility Enterprise Nongovernment	nent	lpcd	- - - - City Value	321.5 100.0 100.0 100.0 <b>Top Value</b> 6 4 2	1.5–321.5 0–100.0 0–100.0 0–100.0 Range	55.6 47.5 26.5 9.3 <b>Average</b> 0.5 1.3 0.5
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Gove Local Governm State— Owned  Private Sector  Water Utility Enterprise Nongovernme Number of Personnel	nent I Utility	lpcd	- - - - City Value	321.5 100.0 100.0 100.0 <b>Top Value</b> 6 4 2	1.5–321.5 0–100.0 0–100.0 0–100.0 Range 1–6 1–4 1–2 0–2 0–2	55.6 47.5 26.5 9.3 <b>Average</b> 0.5 1.3 0.5
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Gove Local Governm State— Owned  Private Sector  Water Utility Enterprise Nongovernme  Number of Personnel Public Sector	nent I Utility ent Organization	lpcd	- City Value  3 2	321.5 100.0 100.0 100.0 <b>Top Value</b> 6 4 2 2 1 2	1.5–321.5 0–100.0 0–100.0 0–100.0 Range  1–6  1–4  1–2  0–2  0–2  0–2	55.6 47.5 26.5 9.3 <b>Average</b> 0.5 1.3 0.5 0.1 0.1
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Gove Local Governm State— Owned  Private Sector  Water Utility Enterprise Nongovernme  Number of Personnel Public Sector  Total Personne pop'n)	ent Organization	lpcd	- - - - City Value	321.5 100.0 100.0 100.0 <b>Top Value</b> 6 4 2	1.5–321.5 0–100.0 0–100.0 0–100.0 Range 1–6 1–4 1–2 0–2 0–2	55.6 47.5 26.5 9.3 <b>Average</b> 0.5 1.3 0.5 0.1 0.1
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation  Public Sector  National Government State—Owned  Private Sector  Water Utility Enterprise Nongovernment  Number of Personnel  Public Sector  Total Personne	ent Organization	lpcd	- City Value  3 2	321.5 100.0 100.0 100.0 <b>Top Value</b> 6 4 2 2 1 2	1.5–321.5 0–100.0 0–100.0 0–100.0 Range  1–6  1–4  1–2  0–2  0–2  0–2	55.6 47.5 26.5 9.3 <b>Average</b> 0.5 1.3 0.5 0.1 0.1 9.0
National Government Private Concessionaire  Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Gove Local Governm State— Owned  Private Sector  Water Utility Enterprise Nongovernme  Number of Personnel Public Sector  Total Personne pop'n)	ent Organization	# # # # # # #	- City Value  3 2	321.5 100.0 100.0 100.0 <b>Top Value</b> 6 4 2 2 1 2 2 1 2	1.5–321.5 0–100.0 0–100.0 0–100.0 Range  1–6  1–4  1–2  0–2  0–2  0–2  0.4–21.67	55.6 47.5 26.5 9.3

Private Sector						
	Total Personnel (per 10,000	#	30.96	30.96	12.3–30.96	1.4
	pop,n) Operations and Maintenance	%				
Legal Framework	Operations and Maintenance	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sar	nitation	Offic	City value	10p value	nariye	Average
Legal Maridate Of Sar	Number of Laws on Sanitation					
	National	#	7	7	1–4	1.9
	Local	#	2	3	1–3	1.2
	Year Enacted	"		,		
	Oldest	Year	1974	2007	1947–2007	1985
	Latest	year	2011	2007	1956–2007	1993
	Sanitation Service Charges	,				
	Law on Collecting Fees	Y/N	Y	17	7–17	
	Year Enacted	year	1997	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan				<b>y</b> -	
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Y	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan	,				
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	_	762.7	0.7–762.7	32.1
	Source of Fund	· · · · · · · · · · · · · · · · · · ·	_			
Sanitation Problem	Major Sanitation Problem	Lack of understandi appreciation of loca laws.				
	Future Programs/Projects	Capacity building of barangay officials	deputized			
	Funding Amount	\$/capita	-	24.1	0.96–24.1	1.0
	Funding Source		-			
Capital Investmer	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	-	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	-	90.0	0.0–90.0	22.1
	Local Government	%	-	100.0	0.0–100.0	18.5
	Loans	%	_	99.0	0.0–99.0	15.7
	Tariff Revenue	%	_	0	0–0	(
	Others	%	_	100.0	0.0–100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	_	8.3	0.01–8.3	0.7
	Source of Fund					
	National Government	%	-	47.0	0–47	4.9
	Local Government	%	_	100.0	0–100	40.7
	Loans	%	-	53.0	0–53	3.4
	Tariff Revenue	%	-	100.0	0–100	14.3
	Others	%	-	0	0	(
Revenues and Fee		Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees					
	Total Revenue	\$/capita	_	15	0.3–15.0	0.9
	Sewered Area Charges					

	Connection Charge	\$/connection	_	110	0.6–110.0	20.0
	Tariff Rate	\$/m3	_	90	0.015–90	0.3
	Septic Tank Desludging Fee					
	Private	\$/ST	_	133	4–133	9.9
	Government	\$/ST	_	100	0–100	23.9
	Other Fees	\$	_	30	0–30	3.6
Environmental S		Unit	City Value	Top Value	Range	Average
Water Quality and P	Pollution					
	Water Quality Monitored	Y/N	Υ			
Sources of Water Po	ollution					
	Household Solid Waste	%	5	67	0–67	21.7
	Household Liquid Waste	%	71	80	15–80	39.6
	Industrial Waste	%	<1	38	0–38	8.4
	Commercial Waste	%	20	35	0–35	8.5
	Hospital Waste	%	<1	17	0–17	2.5
Polluter to Treat On	vn Wastewater	Y/N	Υ			
Current Wastewater	r Disposal					
	Own Treatment Plant	%	87	100	0–100	10.3
	Central Sewer System	%	12	35	0–35	6.5
	No Treatment	%	<1	100	0–100	36.5
	Others	%	0	50	0–50	10.4
	Description	Through septic tanl	=	30	0 30	10.4
Within River Basin	Description	Y/N	Y			
Willim River Dasin	River Basin/Major River Name	Pamarisan river	· · · · · · · · · · · · · · · · · · ·			
	Basin Area	Ha	556	4,939,800	75.15–4,939,800	360,567.7
				4,939,600	75.15-4,959,600	300,307.7
Autotata a Tarra	City Location	u,m,d	Midstream			
Adjoining Town	D. H. et al.					
	Pollution Load	vh–vl	Medium			
	Sanitation Work/Plan	i/c	Cooperative			_
Environmental S		Unit	City Value	Top Value	Range	Average
Water Quality – Surf						
	Total Coliform	#/ml	_	22000#/ 100ml	<1- 22000	
	BOD	mg/l		180	1.28–180.0	18.7
	COD	mg/l		973	7.1–973.0	72.4
	Total Suspended Solids	mg/l		261	1.0–261.0	49.6
	Heavy Metals	mg/l		16.7		
Health Statistics			_	In/	U / 5- In /	0.6
		=	City Value		0.25-16.7	
		Unit	City Value	Top Value	Range	0.6 Average
Sanitation– Related	Diseases	=	City Value			
Sanitation—Related Reported Cases (per	Diseases r 10,000 population)	Unit	-	Top Value	Range	Average
Sanitation – Related Reported Cases (per	Diseases 10,000 population) iarrhea	Unit #	4.71	<b>Top Value</b> 594.14	<b>Range</b> 0.75–594.14	Average 50.1
Sanitation—Related Reported Cases (per	Diseases r 10,000 population) iarrhea epatitis A & B	# #	-	594.14 6.83	0.75–594.14 0.13–6.86	<b>Average</b> 50.1 3.0
Sanitation— Related Reported Cases (per D H	Diseases r 10,000 population) iarrhea epatitis A & B rachoma	# # #	4.71 0.13	594.14 6.83 294.55	0.75–594.14 0.13–6.86 0.00–294.55	50.1 3.0 20.1
Sanitation—Related Reported Cases (per D H Tr	Diseases r 10,000 population) iarrhea epatitis A & B rachoma cute Lower Respiratory Infection	# # # # #	4.71	594.14 6.83 294.55 507.79	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	50.1 3.0 20.1 153.9
Sanitation— Related Reported Cases (per D H: Tr A	Diseases r 10,000 population) iarrhea epatitis A & B rachoma cute Lower Respiratory Infection leasles	# # # # # #	4.71 0.13 - 78.78	594.14 6.83 294.55	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	50.1 3.0 20.1 153.9 0.3
Sanitation— Related Reported Cases (per D H Tr A M	Diseases r 10,000 population) iarrhea epatitis A & B rachoma cute Lower Respiratory Infection fleasles falaria	# # # # # # # # # # # # # # # # # # #	4.71 0.13	594.14 6.83 294.55 507.79	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	50.1 3.0 20.1 153.9 0.3
Sanitation— Related Reported Cases (per D H Tr A M D Death (children und	Diseases r 10,000 population) iarrhea epatitis A & B rachoma cute Lower Respiratory Infection fleasles falaria er 5 years) (per 10,000 population	# # # # # # # # # # # # # #	4.71 0.13 - 78.78 - 9.07	594.14 6.83 294.55 507.79 4.45	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	50.1 3.0 20.1 153.9 0.3
Sanitation—Related Reported Cases (per D H Tr A M D Death (children und	Diseases r 10,000 population) iarrhea epatitis A & B rachoma cute Lower Respiratory Infection leasles lalaria er 5 years) (per 10,000 population iarrhea	# # # # # # # # # # # # # # # # # # #	4.71 0.13 - 78.78 - 9.07	594.14 6.83 294.55 507.79 4.45 —	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	50.1 3.0 20.1 153.9 0.3 0.7
Sanitation— Related Reported Cases (per D H Tr A M Death (children und	Diseases r 10,000 population) iarrhea epatitis A & B rachoma cute Lower Respiratory Infection fleasles flalaria er 5 years) (per 10,000 population iarrhea epatitis A & B	# # # # # # # # # # # # # #	4.71 0.13 - 78.78 - 9.07 0.11	594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.47	50.1 3.0 20.1 153.9 0.3 0.7
Sanitation- Related Reported Cases (per D H Tr A M D Death (children und D H Tr	Diseases r 10,000 population) iarrhea epatitis A & B rachoma cute Lower Respiratory Infection leasles lalaria er 5 years) (per 10,000 population iarrhea epatitis A & B rachoma	# # # # # # # # # # # # # # # # # # #	4.71 0.13 - 78.78 - 9.07 0.11 0	594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.25 0-0	50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Sanitation— Related  Reported Cases (per D H Tr A M Death (children und D H Tr	Diseases r 10,000 population) iarrhea epatitis A & B rachoma cute Lower Respiratory Infection leasles lalaria er 5 years) (per 10,000 population iarrhea epatitis A & B rachoma cute Lower Respiratory Infection	# # # # # # # # # # # # # # # # # # #	4.71 0.13 - 78.78 - 9.07 0.11	594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0 6.3	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.47 0.0–0.25 0–0 0.00–6.3	50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0
Sanitation— Related Reported Cases (per D H Tr A M Death (children und D H Tr A	Diseases r 10,000 population) iarrhea epatitis A & B rachoma cute Lower Respiratory Infection leasles lalaria er 5 years) (per 10,000 population iarrhea epatitis A & B rachoma	# # # # # # # # # # # # # # # # # # #	4.71 0.13 - 78.78 - 9.07 0.11 0	594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.25 0-0	50.1 3.0 20.1 153.9 0.3 0.7

# 22. San Fernando, Philippines

San Fernando		For All Surveyed Cities and Municipalities
Coordinator	Valmar M. Valdez / Dr. Eduardo Posadas, City Environment and Natural Resources Officer	
Office	City Environment and Natural Resources Office	
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Demographics		Unit	City Value	Top Value	Range	Average
	Population (2007)	#(000)	114.8	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	1.63	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	24.85	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	4.6	7.6	3.2 – 7.6	4.9
	Floating Population	%	25.0	844.1	0 – 844.1	34.5
	Urban Poor	%	32.84	48.0	0 – 48.0	14.6
	City Area	ha (000)	10.5	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	21.5	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	0.0	59.7	0 – 59.7	13.5
	Urban Fringe	%	0.0	99.7	0 – 99.7	18.9
	Peri–Urban	%	78.5	98.5	0 – 98.5	34.9
	Slum Area	%	-	35.96	0 – 35.96	4.3
	Average City Density	#/ha	10.9	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	37.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	-	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	4.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	10.53	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	_	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	25.7	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	114.81	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	47.9	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	0	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	47.1	100.0	0.0–100.0	44.0
	III. Communal with Septic Tank	%	10.5	10.5	0.0–10.5	0.9
	IV. Pit Latrine	%	41.2	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%	0.9	0.9	0.0-0.9	0.0
	VI. Open Defecation	%	0	61.0	0.0–61.0	7.3
	Toilet System					
	Type I	%	-	100.0	0–100.0	13.7
	Type la	%	-	88.9	0–88.9	9.3
	Type II	%	0	93.1	0–93.1	12.6
	Type lla	%	47.1	100.0	0–100.0	32.2
	Type III	%	0	2.0	0–2.0	0.1
	Type Illa	%	10.5	61.0	0–61.0	2.8
	Type IV	%	33.7	59.9	0–59.9	13.9
	Type IVa	%	7.74	31.9	0–31.9	5.6
	Type IVa					

Ty	pe Va	%	0	40.6	0-40.6	1.4
Ty	rpe VI & VIa	%	0	22.5	0–22.5	7.5
	/pe VIb	%	0	12.0	0–12.0	0.4
Treatment Facility		Unit	City Value	Top Value	Range	Average
Waste Water Treatment F	Plant					
Capacity (10,000 populat	ion)	m3/d	17.4	1,190.0	0.4 – 1,190.0	201.3
Pr	ovider					
Lc	ocal Government	%	100.0	100.0	0–100.0	57.7
N.	ational Government	%		100.0	0–100.0	8.7
Pr	ivate	%	_	92.7	0–92.7	4.7
Septage Treatment Plant						
Capacity		m3/d		135.0	50-135.0	6.2
Pr	ovider					
Lc	ocal Government	%	100.0	100.0	0–100.0	57.7
N.	ational Government	%		100.0	0–100.0	8.7
Pr	rivate	%	_	92.7	0–92.7	4.7
Desludging Services						
Frequency		year	_	12.0	0–12.0	0.6
	ovider	,				
	overnment	%	100.0	100.0	0–100.0	8.7
	ivate	%		92.7	0–92.7	4.7
Water Supply Facility		Unit	City Value	Top Value	Range	Average
Household Water Supply					<b>y</b> -	
Central Water Supply–Ind		%	47.9	95.0	3.60–95.0	64.5
Central Water Supply–Co		%	0	46.7	0.0–46.7	5.5
Borehole		%	49.2	54.5	0.0–54.5	14.1
Protected Spring/Well		%	3	96.4	0.0–96.4	10.3
Rainwater		%	0	20.0	0.0–20.0	8.1
Water Vendor		%	0	35.0	0.0–35.0	5.1
Population Buying Bottled	l Water	%		80.0	0-80.0	12.9
Average Water Consumption		lpcd	_	160.0	29–160.0	72.1
Water Treatment Facilities		lpcd		321.5	1.5–321.5	55.6
Local Government	)	%		100.0	0–100.0	47.5
National Government		%		100.0	0–100.0	26.5
Private Concessionaire		%		100.0	0–100.0	9.3
Organizational Arran	gement	Unit	City Value	Top Value	Range	Average
Institutions Involved in Sa		O.I.I.C	City value	10p value	- Harige	Aveluge
Public Sector	madon					
	ational Government	#		6	1–6	0.5
	ocal Government	#	4	4	1–4	1.3
	ate– Owned Utility	#	·	2	1–2	0.5
Private Sector	ate owned ounty	"				
	/ater Utility	#	_	2	∩_2	∩ 1
W	ater Utility	#		2	0–2 0–2	
W Er	nterprise	#	-	1	0–2	0.1
V. Er No			_			0.1
W Er No Number of Personnel	nterprise	#	_	1	0–2	0.1
Working Er No Number of Personnel Public Sector	nterprise ongovernment Organization	#	-	1 2	0–2 0–2	0.1
Number of Personnel Public Sector	onterprise ongovernment Organization otal Personnel (per 10,000 op/n)	# # #	_	1	0-2 0-2 0.4-21.67	0.1
Number of Personnel Public Sector	ongovernment Organization  otal Personnel (per 10,000	#	-	1 2	0–2 0–2	9.0
Number of Personnel  Public Sector  To po	onterprise ongovernment Organization otal Personnel (per 10,000 op/n)	# # #	-	21.67	0-2 0-2 0.4-21.67	9.0 11.8
Number of Personnel Public Sector  To po Pl Co	onterprise ongovernment Organization otal Personnel (per 10,000 op'n) anning and Monitoring	# # # # %	2.09	21.67	0-2 0-2 0.4-21.67 5-100	9.0 11.8 8.9
Number of Personnel Public Sector  To po Pl Co	onterprise ongovernment Organization ontal Personnel (per 10,000 op'n) anning and Monitoring onstruction	# # # % %	2.09	21.67 100 100	0-2 0-2 0.4-21.67 5-100 6-100	9.0 11.8 8.9 23.6

	pop,n)					
	Operations and Maintenance	%	_	-	_	-
Legal Framework		Unit	City Value	Top Value	Range	Average
Legal Mandate of Sai	nitation					
	Number of Laws on Sanitation					
	National	#	4	7	1–4	1.
	Local	#	2	3	1–3	1.
	Year Enacted					
	Oldest	year	1972	2007	1947–2007	198
	Latest	year	2006	2007	1956–2007	199
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	N	17	7–17	
	Year Enacted	year	_	2007	1947–2007	198
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Υ	11	11–27	
	When Prepared	year	-	2007	2006–2011	200
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N				
	Preparation Year	year	_	2020	2015–2020	201
	Estimated Cost	\$	_	250	1.9–250.0	12.
	Amount per Capita	\$/capita	_	762.7	0.7–762.7	32.
	Source of Fund		_			
Sanitation Problem	Major Sanitation Problem	Contamination of and coastal water				
	Future Programs/Projects	Provision of sanita	ary toilets and			
	Funding Amount	\$/capita	0.96	24.1	0.96–24.1	1.
	Funding Source	City government	and loan			
Capital Investme	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	1.2	168.0	0.5–168.0	10.
	Source of Fund					
	National Government	%	0	90.0	0.0-90.0	22.
	Local Government	%	100	100.0	0.0-100.0	18.
	Loans	%	0	99.0	0.0–99.0	15.
	Tariff Revenue	%	0	0	0–0	
	Others	%	0	100.0	0.0-100.0	9.
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	0.1	8.3	0.01–8.3	0.
	Source of Fund					
	National Government	%	0	47.0	0–47	4.
			100	100.0	0–100	40.
	Local Government	%	100			
	Local Government Loans	%	0	53.0	0–53	,3.
	Loans	%		53.0		
	Loans Tariff Revenue		0		0–53 0–100 0	14.
Revenues and Fee	Loans Tariff Revenue Others	% % %	0 0 0	53.0 100.0 0	0–100	14.
Revenues and Fee	Loans Tariff Revenue Others es for Services	%	0	53.0 100.0	0–100	14.
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees	% % W Unit	0 0 0	53.0 100.0 0 <b>Top Value</b>	0–100 0 <b>Range</b>	14.
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue	% % %	0 0 City Value	53.0 100.0 0	0–100	14.
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges	% % Unit \$/capita	0 0 City Value	53.0 100.0 0 <b>Top Value</b>	0–100 0 <b>Range</b>	Average  0.0
Revenues and Fee	Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue	% % W Unit	0 0 City Value	53.0 100.0 0 <b>Top Value</b>	0–100 0 <b>Range</b>	3. 14. Average 0. 20. 0.

Private	\$/ST	133	133	4–133	9.9
Government	\$/ST	_	100	0–100	23.9
Other Fees	\$	_	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	_	67	0–67	21.7
Household Liquid Waste	%	-	80	15–80	39.6
Industrial Waste	%	-	38	0–38	8.4
Commercial Waste	%	-	35	0–35	8.5
Hospital Waste	%	_	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	-	100	0–100	10.3
Central Sewer System	%	-	35	0–35	6.5
No Treatment	%	-	100	0–100	36.5
Others	%	-	50	0–50	10.4
Description		-			
Within River Basin	Y/N	N			
River Basin/Major River Name		-			
Basin Area	ha	-	4,939,800	75.15–4,939,800	360,567.7
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	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	-	22000#/	<1- 22000	
BOD	mg/l		100ml 180		18.7
DOD	1119/1			1 22_120 0	
COD	ma/l			1.28–180.0	
COD Total Suspended Solids	mg/l	<u>-</u>	973	7.1–973.0	72.4
Total Suspended Solids	mg/l	-	973 261	7.1–973.0 1.0–261.0	72.4 49.6
Total Suspended Solids Heavy Metals	mg/l mg/l	-	973 261 16.7	7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
Total Suspended Solids Heavy Metals Health Statistics	mg/l		973 261	7.1–973.0 1.0–261.0	72.4 49.6
Total Suspended Solids Heavy Metals  Health Statistics Sanitation– Related Diseases	mg/l mg/l	-	973 261 16.7	7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
Total Suspended Solids Heavy Metals  Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)	mg/l mg/l <b>Unit</b>	- City Value	973 261 16.7 <b>Top Value</b>	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b>	72.4 49.6 0.6 <b>Average</b>
Total Suspended Solids Heavy Metals  Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea	mg/l mg/l Unit	- City Value	973 261 16.7 <b>Top Value</b> 594.14	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b>	72.4 49.6 0.6 <b>Average</b>
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B	mg/l mg/l Unit #	- City Value  58.88 2.35	973 261 16.7 <b>Top Value</b> 594.14 6.83	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86	72.4 49.6 0.6 <b>Average</b> 50.1
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma	mg/l mg/l Unit # # #		973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55	72.4 49.6 0.6 <b>Average</b> 50.1 3.0
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	mg/l mg/l Unit # # # # #	58.88 2.35 0 250.84	973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles	mg/l mg/l Unit  # # # #	58.88 2.35 0 250.84 0.61	973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria	mg/l mg/l Unit  # # # # #	58.88 2.35 0 250.84	973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria Death (children under 5 years) (per 10,000 population	mg/l mg/l Unit  # # # # # # #	58.88 2.35 0 250.84 0.61	973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria Death (children under 5 years) (per 10,000 population	mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	58.88 2.35 0 250.84 0.61	973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 -	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals  Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B	# # # # # # # # # # # # # # # # # # #	58.88 2.35 0 250.84 0.61 0	973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 — 0.47 0.25	7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.25	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	58.88 2.35 0 250.84 0.61	973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 — 0.47 0.25	7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.47 0.0–0.25 0–0	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation- Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	# # # # # # # # # # # # # # # # # # #	58.88 2.35 0 250.84 0.61 0	973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0 6.3	7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0 0.00–6.3	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7  0.0 0.0 0.0 0.0
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B  Trachoma	mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	58.88 2.35 0 250.84 0.61 0	973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 — 0.47 0.25	7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7  0.0 0.0

# 23. Cam Ranh, Vietnam

Cam Ranh		For All Surveyed Cities and Municipalities
Coordinator	Bui Ngoc Phuc, General Director	
Office	Cam Ranh Urban Works Join Stock Company	
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Fax	84 583 855510	
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E-mail address	cadoco@gmail.com	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2010)	#(000)	215.8	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	1.80	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	47.96	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	4.5	7.6	3.2 – 7.6	4.9
	Floating Population	%	0	844.1	0 - 844.1	34.5
	Urban Poor	%	15.03	48.0	0 – 48.0	14.6
	City Area	ha (000)	31.6	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	30.0	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	-	59.7	0 – 59.7	13.5
	Urban Fringe	%	_	99.7	0 – 99.7	18.9
	Peri–Urban	%	70.0	98.5	0 – 98.5	34.9
	Slum Area	%	-	35.96	0 – 35.96	4.3
	Average City Density	#/ha	6.8	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	13.2	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	-	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	4.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	nge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	31.6	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	-	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	50.0	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	215.82	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	41.0	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	0.0	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	62.0	100.0	0.0-100.0	44.0
	III. Communal with Septic Tank	%	0.0	10.5	0.0–10.5	0.9
	IV. Pit Latrine	%	25.0	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%	0.0	0.9	0.0-0.9	0.0
	VI. Open Defecation	%	13.0	61.0	0.0–61.0	7.3
	Toilet System					
	Type I	%	-	100.0	0-100.0	13.7
	Type la	%	-	88.9	0-88.9	9.3
	Type II	%	0	93.1	0-93.1	12.6
	. )			100.0	0–100.0	32.2
	Type Ila	%	62	100.0	0-100.0	
	* *	%	62	2.0	0-100.0	
	Type Ila					0.1
	Type IIa Type III	%	_	2.0	0–2.0	0.1 2.8 13.9
	Type IIa Type III Type IIIa	%	_	2.0 61.0	0–2.0 0–61.0	0.1

	Type Va	%	-	40.6	0–40.6	1.4
	Type VI & VIa	%	12	22.5	0–22.5	7.5
	Type VIb	%	0	12.0	0–12.0	0.4
Treatment Facilit	у	Unit	City Value	Top Value	Range	Average
Waste Water Treatm	ent Plant					
Capacity (10,000 por	pulation)	m3/d	0.4	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	100.0	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Septage Treatment P	Plant					
Capacity		m3/d	_	135.0	50–135.0	6.2
	Provider					
	Local Government	%	100.0	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Desludging Services						
Frequency		year	_	12.0	0–12.0	0.6
	Provider	,				
	Government	%	100.0	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Water Supply Fac		Unit	City Value	Top Value	Range	Average
Household Water Su	·		<u> </u>	•		
Central Water Supply		%	40.0	95.0	3.60–95.0	64.5
Central Water Supply		%	8.0	46.7	0.0–46.7	5.5
Borehole	,	%	40.0	54.5	0.0–54.5	14.1
Protected Spring/We	II	%	-	96.4	0.0–96.4	10.3
Rainwater		%		20.0	0.0–20.0	8.1
Water Vendor		%	12.0	35.0	0.0–35.0	5.1
Population Buying Bo	ottled Water	%		80.0	0-80.0	12.9
Average Water Cons		lpcd	100.0	160.0	29–160.0	72.1
Water Treatment Fac	•	lpcd	139.0	321.5	1.5–321.5	55.6
Local Government	- Time S	%	0.0	100.0	0–100.0	47.5
National Governmen	†	%	100.0	100.0	0–100.0	26.5
Private Concessionair		%	0.0	100.0	0–100.0	9.3
Organizational A		Unit	City Value	Top Value	Range	Average
Institutions Involved				15 <b>p</b> 2mm	9-	711-11-11-11
Public Sector						
	National Government	#	_	6	1–6	0.5
	Local Government	#		4	1–4	1.3
	State– Owned Utility	#	1	2	1–2	0.5
Private Sector				_	<u>-</u>	
				1		
	Water Utility	#	_	2	0–2	0.1
	Water Utility Enterprise	#		2		0.1
	Enterprise	#	-	1	0–2	0.1
Number of Personne	Enterprise  Nongovernment Organization		- - -			
Number of Personne	Enterprise  Nongovernment Organization	#	- - -	1	0–2	0.1
Number of Personne Public Sector	Enterprise Nongovernment Organization	#	- - -	1 2	0–2 0–2	0.1
	Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# #	-	21.67	0-2 0-2 0.4-21.67	9.0
	Enterprise Nongovernment Organization  Total Personnel (per 10,000	#	-	1 2	0–2 0–2	9.0
	Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# #	-	21.67	0-2 0-2 0.4-21.67 5-100 6-100	9.0 11.8 8.9
	Enterprise  Nongovernment Organization  Total Personnel (per 10,000 pop'n)  Planning and Monitoring	# # # %	- - - - -	21.67 100	0-2 0-2 0.4-21.67 5-100	9.0 11.8
	Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # % %	- - - - - -	21.67 100 100	0-2 0-2 0.4-21.67 5-100 6-100	9.0 11.8 8.9

	pop,n)					
	Operations and Maintenance	%	_	_	_	_
Legal Framework	<u>'</u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sa			<u> </u>	•		
	Number of Laws on Sanitation					
	National	#	2	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	2003	2007	1947–2007	1985
	Latest	year	2006	2007	1956–2007	1993
	Sanitation Service Charges	,				
	Law on Collecting Fees	Y/N	Υ	17	7–17	
	Year Enacted	year	2003 & 2004	2007	1947–2007	1985
Planning	rear Enacted	Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan		City Funds	10p taide	90	71101490
Strategic Samuation i	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year		2007	2006–2011	2009
	New Sanitation Plan	yeai		2007	2000-2011	2009
	Will Prepare Sanitation Plan	Y/N				
	Preparation Year		2015	2020	2015–2020	2018
	·	year				
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	_	762.7	0.7–762.7	32.1
<u> </u>	Source of Fund	D. II. c	_			
Sanitation Problem	Major Sanitation Problem	Pollution due to duntreated wastes	isposal of			
	Future Programs/Projects		_			
	Funding Amount	\$/capita		24.1	0.96–24.1	1.0
	Funding Source					
Capital Investme		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita		168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	60	90.0	0.0–90.0	22.1
	Local Government	%	40	100.0	0.0–100.0	18.5
	Loans	%	-	99.0	0.0–99.0	15.7
	Tariff Revenue	%	-	0	0–0	0
	Others	%	-	100.0	0.0-100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	_	8.3	0.01–8.3	0.7
	Source of Fund					
	National Government	%	30	47.0	0–47	4.9
	Local Government	%	70	100.0	0–100	40.7
	Loans	%	-	53.0	0–53	3.4
	Tariff Revenue	%	-	100.0	0–100	14.3
	Others	%	_	0	0	0
Revenues and Fee	es for Services	Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees					
		<i>*</i>	_	15	0.3–15.0	0.9
	Total Revenue	\$/capita				
	Total Revenue Sewered Area Charges	\$/capita				
		\$/capita \$/connection	100.0	110	0.6–110.0	20.0
	Sewered Area Charges	·				20.0

Private	\$/ST	25	133	4–133	9.9
Government	\$/ST	0	100	0–100	23.9
Other Fees	\$	0	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Y			
Sources of Water Pollution					
Household Solid Waste	%	10	67	0–67	21.7
Household Liquid Waste	%	32	80	15–80	39.6
Industrial Waste	%	12	38	0–38	8.4
Commercial Waste	%	20	35	0–35	8.5
Hospital Waste	%	10	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Y			
Current Wastewater Disposal					
Own Treatment Plant	%	_	100	0–100	10.3
Central Sewer System	%	35	35	0–35	6.5
No Treatment	%	22	100	0–100	36.5
Others	%	43	50	0–50	10.4
Description	Through septic tank				
Within River Basin	Y/N	N			
River Basin/Major River Name		_			
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	_			
Adjoining Town					
Pollution Load	vh–vl	_			
Sanitation Work/Plan	i/c	_			
Environmental Statistics	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	14/ 100ml	22000#/	<1- 22000	
200					
ROD	ma/l	1.28	100ml 180	1.28–180.0	18.7
BOD COD	mg/l ma/l	1.28	180	1.28–180.0 7.1–973.0	18.7 72.4
COD	mg/l	1.28	180 973	7.1–973.0	18.7 72.4 49.6
COD Total Suspended Solids	mg/l mg/l	_	180		72.4 49.6
COD Total Suspended Solids Heavy Metals	mg/l		180 973 261	7.1–973.0 1.0–261.0	72.4
COD Total Suspended Solids Heavy Metals Health Statistics	mg/l mg/l mg/l	-	180 973 261 16.7	7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases	mg/l mg/l mg/l	-	180 973 261 16.7	7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases	mg/l mg/l mg/l	-	180 973 261 16.7	7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)	mg/l mg/l mg/l Unit	- - City Value	180 973 261 16.7 <b>Top Value</b>	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b>	72.4 49.6 0.6 <b>Average</b>
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	mg/l mg/l mg/l Unit	- City Value	180 973 261 16.7 <b>Top Value</b> 594.14	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b>	72.4 49.6 0.6 <b>Average</b> 50.1
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B	mg/l mg/l mg/l Unit #	- City Value - -	180 973 261 16.7 <b>Top Value</b> 594.14 6.83	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma	mg/l mg/l mg/l Unit # #	- City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	mg/l mg/l mg/l  Unit  # # #	- City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	mg/l mg/l mg/l  mg/l  Unit  # # # # #	- City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation- Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	mg/l mg/l mg/l  mg/l  Unit  # # # # #	- City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population	mg/l mg/l mg/l Unit  # # # # # # #	- City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria Death (children under 5 years) (per 10,000 population	mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	- City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 –	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B	mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	- City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 -	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54  0.0–0.47	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea Hepatitis A & B Trachoma	mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	- City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7

# 24. Ho Chi Minh, Vietnam

Ho Chi Minh		For All Surveyed Cities and Municipalities
Coordinator	Nguyen Van Phuoc, Vice Director	
Office	Department of Natural Resources and Environment	
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Demographics		Unit	City Value	Top Value	Range	Average
	Population (2007)	#(000)	6,651.0	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	3.20	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	1,602.64	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	4.2	7.6	3.2 – 7.6	4.9
	Floating Population	%	0	844.1	0 – 844.1	34.5
	Urban Poor	%	3.75	48.0	0 – 48.0	14.6
	City Area	ha (000)	209.5	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	23.4	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	0	59.7	0 – 59.7	13.5
	Urban Fringe	%	0	99.7	0 – 99.7	18.9
	Peri–Urban	%	76.4	98.5	0 – 98.5	34.9
	Slum Area	%	0.16	35.96	0 – 35.96	4.3
	Average City Density	#/ha	31.7	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	108.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	_	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	7.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	732.0	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	nge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	209.50	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	31.0	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	45.6	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	6,651.00	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	-	100.0	0 – 100.0	31.5
	Central Water Supply System	%	37.5	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
•	I. Central Sewerage System	%	0	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	0	100.0	0.0–100.0	44.0
	III. Communal with Septic	%	0	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	%	0	59.9	0.0–59.9	13.9
						0.0
	V Eco Sanitation	%	0	() 9	() ()–() 9	
	V. Eco Sanitation VI. Open Defecation	%	0	0.9 61.0	0.0-0.9	
	VI. Open Defecation	%	0	61.0	0.0–61.0	7.3
	VI. Open Defecation  Toilet System	%		61.0	0.0–61.0	7.3
	VI. Open Defecation  Toilet System  Type I	%	0	61.0	0.0-61.0	7.3
	VI. Open Defecation  Toilet System  Type I  Type Ia	% % %		61.0 100.0 88.9	0.0-61.0 0-100.0 0-88.9	7.3 13.7 9.3
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II	% % %	0	100.0 88.9 93.1	0.0-61.0 0-100.0 0-88.9 0-93.1	7.3 13.7 9.3 12.6
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa	% % % %	- - -	61.0 100.0 88.9 93.1 100.0	0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	7.3 13.7 9.3 12.6 32.2
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III	% % % %	- - -	100.0 88.9 93.1 100.0 2.0	0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	7.3 13.7 9.3 12.6 32.2 0.1
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type III	% % % % %	- - -	100.0 88.9 93.1 100.0 2.0 61.0	0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	7.3 13.7 9.3 12.6 32.2 0.1 2.8
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type IIII  Type IIII  Type IIII  Type III	% % % % % % % % %	- - - -	61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type III	% % % % %	- - - -	100.0 88.9 93.1 100.0 2.0 61.0	0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	7.3 13.7 9.3 12.6 32.2

Type VI & VIa	%	_	22.5	0–22.5	7.5
Type VIb	%	-	12.0	0–12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	212	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	100	100.0	0–100.0	57.7
National Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	_	135.0	50–135.0	6.2
Provider					
Local Government	%	100	100.0	0–100.0	57.7
National Government	%		100.0	0–100.0	8.7
Private	%		92.7	0–92.7	4.7
Desludging Services					
Frequency	year		12.0	0–12.0	0.6
Provider					· · · · · · · · · · · · · · · · · · ·
Government	%	100	100.0	0–100.0	8.7
Private	%		92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source					
Central Water Supply–Individual	%	37.5	95.0	3.60–95.0	64.5
Central Water Supply–Communal	%	_	46.7	0.0–46.7	5.5
Borehole	%	-	54.5	0.0-54.5	14.1
Protected Spring/Well	%	-	96.4	0.0–96.4	10.3
Rainwater	%	-	20.0	0.0–20.0	8.1
Water Vendor	%	-	35.0	0.0–35.0	5.1
Population Buying Bottled Water	%	-	80.0	0.08-0	12.9
Average Water Consumption	Lpcd	150.0	160.0	29–160.0	72.1
Water Treatment Facilities	lpcd	18.6	321.5	1.5–321.5	55.6
Local Government	%	-	100.0	0–100.0	47.5
National Government	%	-	100.0	0–100.0	26.5
Private Concessionaire	%	-	100.0	0–100.0	9.3
Organizational Arrangement	Unit	City Value	Top Value	Range	Average
Institutions Involved in Sanitation					
Public Sector					
National Government	#	6	6	1–6	0.5
Local Government	#	1	4	1–4	1.3
State- Owned Utility	#	-	2	1–2	0.5
Private Sector					
Water Utility	#	-	2	0–2	0.1
Enterprise	#	-	1	0–2	0.1
Nongovernment Organization	#		2	0–2	0.1
Number of Personnel					
Public Sector					
Total Personnel (per 10,000 pop'n)	#	-	21.67	0.4–21.67	9.0
Planning and Monitoring	%	_	100	5–100	11.8
Construction	%	_	100	6–100	8.9
Operations and Maintenance	%		100	50–100.0	23.6
Private Sector				<u> </u>	
Total Personnel (per 10,000 pop,n)	#	_	30.96	12.3–30.96	1.4

	Operations and Maintenance	%	_	_	_	_
Legal Framework		Unit	City Value	Top Value	Range	Average
Legal Mandate of Sar	nitation					
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	3	3	1–3	1.2
	Year Enacted					
	Oldest	year	2006	2007	1947–2007	1985
	Latest	year	2007	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Υ	17	7–17	_
	Year Enacted	year	2003	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan		<del>-</del>	-		
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Υ	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan	•			<u> </u>	
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$		250	1.9–250.0	12.5
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.1
	Source of Fund	ф/сарта	_	702.7	0.7 702.7	32.1
Sanitation Problem	Major Sanitation Problem	Wastewater disch	argod into canals			
Samuation Problem	Major Samation Froblem	and rivers	arged frito Cariais			
	Future Programs/Projects		_			
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	Funding Source		_			
Capital Investmen	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	_	168.0	0.5–168.0	10.3
	Source of Fund			İ		
	Source of Fund					
	National Government	%	0	90.0	0.0–90.0	22.1
		%	0	90.0	0.0–90.0 0.0–100.0	22.1
	National Government					
	National Government Local Government	%	0	100.0	0.0–100.0	18.5
	National Government  Local Government  Loans	%	0	100.0 99.0	0.0–100.0 0.0–99.0	18.5 15.7
Operations and M	National Government  Local Government  Loans  Tariff Revenue	% % %	0 0	100.0 99.0 0	0.0–100.0 0.0–99.0 0–0	18.5 15.7 0
Operations and N	National Government Local Government Loans Tariff Revenue Others	% % %	0 0 0 100	100.0 99.0 0 100.0	0.0–100.0 0.0–99.0 0–0 0.0–100.0	18.5 15.7 0 9.0
Operations and N	National Government Local Government Loans Tariff Revenue Others  laintenance Expenditures	% % %	0 0 0 100	100.0 99.0 0 100.0	0.0–100.0 0.0–99.0 0–0 0.0–100.0	18.5 15.7 0 9.0
Operations and N	National Government Local Government Loans Tariff Revenue Others  laintenance Expenditures Annual O&M Cost	% % % Unit	0 0 0 100 City Value	100.0 99.0 0 100.0 <b>Top Value</b>	0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	18.5 15.7 0 9.0 <b>Average</b>
Operations and M	National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount	% % % Unit	0 0 0 100 City Value	100.0 99.0 0 100.0 <b>Top Value</b>	0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	18.5 15.7 0 9.0 <b>Average</b>
Operations and N	National Government Local Government Loans Tariff Revenue Others laintenance Expenditures Annual O&M Cost Annual Amount Source of Fund	% % % Wnit \$/capita	0 0 100 City Value	100.0 99.0 0 100.0 <b>Top Value</b>	0.0–100.0 0.0–99.0 0–0 0.0–100.0 <b>Range</b>	18.5 15.7 0 9.0 <b>Average</b>
Operations and M	National Government  Local Government  Loans  Tariff Revenue Others  laintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government	% % % Unit \$/capita	0 0 100 City Value	100.0 99.0 0 100.0 <b>Top Value</b> 8.3	0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9
Operations and N	National Government Local Government Loans Tariff Revenue Others laintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans	% % % Wnit \$/capita % %	0 0 100 City Value 0.9	100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.0–100.0 0.0–99.0 0–0 0.0–100.0 <b>Range</b> 0.01–8.3  0–47 0–100 0–53	18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7
Operations and M	National Government  Local Government  Loans  Tariff Revenue  Others  Iaintenance Expenditures  Annual O&M Cost  Annual Amount  Source of Fund  National Government  Local Government	% % % % Unit \$/capita	0 0 100 City Value 0.9	100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0	0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range 0.01–8.3	18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9
Operations and M	National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	% % % Wnit \$/capita  % % %	0 0 100 City Value 0.9 0 100 0	100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  Is for Services	% % % Unit  \$/capita  % % %	0 0 100 City Value 0.9 0 100 0	100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0	18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  Ses for Services Annual Revenues and Fees	% % Wnit \$/capita  % % % Unit Unit	0 0 100 City Value 0.9 0 100 0	100.0 99.0 0 100.0  Top Value  8.3  47.0 100.0 53.0 100.0 0 Top Value	0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0  Range	18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average
	National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  Is for Services Annual Revenues and Fees Total Revenue	% % % Unit  \$/capita  % % %	0 0 100 City Value 0.9 0 100 0	100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0	18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges	% % % Unit  \$/capita  % % % Unit  \$/capita	0 0 100 City Value 0.9 0 100 0	100.0 99.0 0 100.0 Top Value  8.3  47.0 100.0 53.0 100.0 0 Top Value	0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0 Range	18.5 15.7 0 9.0  Average  0.7  4.9 40.7 3.4 14.3 0  Average
	National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	%     %     %     Unit  \$/capita  %     %     %     %     W     w Unit  \$/capita	0 0 100 City Value 0.9 0 100 0 City Value	100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.0-100.0 0.0-99.0 0-0 0.0-100.0  Range  0.01-8.3 0-47 0-100 0-53 0-100 0  Range  0.3-15.0	18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9
	National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Is for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	% % % Unit  \$/capita  % % % Unit  \$/capita	0 0 100 City Value 0.9 0 100 0 City Value	100.0 99.0 0 100.0 Top Value  8.3  47.0 100.0 53.0 100.0 0 Top Value	0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0 Range	18.5 15.7 0 9.0  Average  0.7  4.9 40.7 3.4 14.3 0  Average
	National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	%     %     %     Unit  \$/capita  %     %     %     %     W     w Unit  \$/capita	0 0 100 City Value 0.9 0 100 0 City Value	100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.0-100.0 0.0-99.0 0-0 0.0-100.0  Range  0.01-8.3 0-47 0-100 0-53 0-100 0  Range  0.3-15.0	18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9

Government	\$/ST		100	0–100	23.9
Other Fees	\$		30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	5	67	0–67	21.7
Household Liquid Waste	%	60	80	15–80	39.6
Industrial Waste	%	25	38	0–38	8.4
Commercial Waste	%	5	35	0–35	8.5
Hospital Waste	%	5	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	80	100	0–100	10.3
Central Sewer System	%	0	35	0–35	6.5
No Treatment	%	20	100	0–100	36.5
Others	%	0	50	0–50	10.4
Description					
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Sai Gon– Do	ong Nai			
Basin Area	ha	4,826,800	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Downstream			
Adjoining Town					
Pollution Load	vh–vl	Heavy			
Pollution Load Sanitation Work/Plan	vh–vl i/c	Heavy Individual			
		,	Top Value	Range	Average
Sanitation Work/Plan	i/c	Individual	Top Value	Range	Average
Sanitation Work/Plan  Environmental Statistics	i/c	Individual	22000#/ 100ml	<b>Range</b> <1- 22000	Average
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water	i/c <b>Unit</b>	Individual  City Value	22000#/		
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform	i/c <b>Unit</b> #/ml	Individual  City Value  22000 MPN/100ml	22000#/ 100ml	<1- 22000	18.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD	i/c Unit #/ml mg/l	Individual City Value 22000 MPN/100ml 4.5	22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7 72.4
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml mg/l mg/l	City Value  22000 MPN/100ml  4.5  10.8	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4 49.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	#/ml mg/l mg/l mg/l	City Value  22000 MPN/100ml  4.5  10.8	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals	#/ml mg/l mg/l mg/l mg/l	22000 MPN/100ml 4.5 10.8 261.0	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l mg/l	22000 MPN/100ml 4.5 10.8 261.0	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	#/ml mg/l mg/l mg/l mg/l	22000 MPN/100ml 4.5 10.8 261.0	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6 <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l mg/l Unit	22000 MPN/100ml  4.5 10.8 261.0 — City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b>	18.7 72.4 49.6 0.6 <b>Average</b>
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population) Diarrhea	#/ml mg/l mg/l mg/l mg/l mg/l the mg/l file file file file file file file fil	22000 MPN/100ml  4.5  10.8  261.0  City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b> 50.1
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l mt  ##	Individual   City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 Average 50.1 3.0 20.1
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml #/ml mg/l mg/l mg/l Unit # # # #	Individual   City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	#/ml #/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	City Value  22000 MPN/100ml  4.5  10.8  261.0  -  City Value  10.10  0.22  0.30  507.79	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	#/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	City Value  22000 MPN/100ml  4.5  10.8  261.0  -  City Value  10.10  0.22  0.30  507.79	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	#/ml mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	City Value  22000 MPN/100ml  4.5  10.8  261.0  -  City Value  10.10  0.22  0.30  507.79	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml #/ml mg/l mg/l mg/l mg/l  H # # # # # #	Individual   City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water Total Coliform  BOD COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population) Diarrhea	#/ml #/ml mg/l mg/l mg/l mg/l  ## # # # # # # # # # # # # # # # # #	City Value  22000 MPN/100ml  4.5  10.8  261.0  — City Value  10.10  0.22  0.30  507.79  0  0.09	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<pre></pre>	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9 0.3 0.7
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l mg/l  mg/l  # # # # # # # # # # # # # # # # # # #	City Value  22000 MPN/100ml  4.5 10.8 261.0  — City Value  10.10 0.22 0.30 507.79 0 0.09	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Sanitation Work/Plan  Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l mg/l  ## # # # # # # # # # # # # # # # # #	City Value  22000 MPN/100ml  4.5 10.8 261.0  City Value  10.10 0.22 0.30 507.79 0 0.09	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54  0.0-0.25  0-0	18.7 72.4 49.6 0.6 Average  50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0

# 25. Hue, Vietnam

Hue		For All Surveyed Cities and Municipalities
Coordinator	Nguyen Nhien, Director of BOFA	
Office	BOFA	
Address	01 Le Hong Phong	
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Demographics		Unit	City Value	Top Value	Range	Average
	Population (2007)	#(000)	327.8	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	1.25	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	64.20	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	5.1	7.6	3.2 – 7.6	4.9
	Floating Population	%	20.0	844.1	0 – 844.1	34.5
	Urban Poor	%	30.0	48.0	0 – 48.0	14.6
	City Area	ha (000)	7.1	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	69.7	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	14.1	59.7	0 – 59.7	13.5
	Urban Fringe	%	9.1	99.7	0 – 99.7	18.9
	Peri–Urban	%	6.4	98.5	0 – 98.5	34.9
	Slum Area	%	0.70	35.96	0 – 35.96	4.3
	Average City Density	#/ha	46.1	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	60.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	50.0	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	20.0	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	30.0	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	40.0	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	209.50	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	31.0	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	45.6	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	6,651.00	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	_	100.0	0 – 100.0	31.5
	Central Water Supply System	%	37.5	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	50.0	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	50.0 37.6	100.0 100.0	0.0–100.0 0.0–100.0	27.3 44.0
	II. Individual with Septic Tank III. Communal with Septic					
	II. Individual with Septic Tank III. Communal with Septic Tank	%	37.6 0.1	100.0 10.5	0.0–100.0 0.0–10.5	44.0 0.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine	% %	37.6 0.1 0.0	100.0 10.5 59.9	0.0–100.0 0.0–10.5 0.0–59.9	44.0 0.9 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation	% % %	37.6 0.1 0.0 0.0	100.0 10.5 59.9 0.9	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9	44.0 0.9 13.9 0.0
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation	% %	37.6 0.1 0.0	100.0 10.5 59.9	0.0–100.0 0.0–10.5 0.0–59.9	44.0 0.9 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System	% % % %	37.6 0.1 0.0 0.0 12.0	100.0 10.5 59.9 0.9 61.0	0.0–100.0 0.0–10.5 0.0–59.9 0.0–0.9 0.0–61.0	44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I	% % % %	37.6 0.1 0.0 0.0 12.0	100.0 10.5 59.9 0.9 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0	44.0 0.9 13.9 0.0 7.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia	% % % % %	37.6 0.1 0.0 0.0 12.0	100.0 10.5 59.9 0.9 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9	44.0 0.9 13.9 0.0 7.3 13.7 9.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia Type II	% % % % % % %	37.6 0.1 0.0 0.0 12.0 24 26	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa	% % % % % % % % %	37.6 0.1 0.0 0.0 12.0 24 26 15 22.6	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia Type II Type IIa Type III	% % % % % % % % % % % %	37.6 0.1 0.0 0.0 12.0 24 26 15 22.6 0.1	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % %	37.6 0.1 0.0 0.0 12.0 24 26 15 22.6 0.1	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type II Type IIa Type III Type IIII Type IIIa Type III	% % % % % % % % % % % % % % % %	37.6 0.1 0.0 0.0 12.0 24 26 15 22.6 0.1	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	II. Individual with Septic Tank III. Communal with Septic Tank IV. Pit Latrine V. Eco Sanitation VI. Open Defecation  Toilet System Type I  Type Ia  Type II  Type IIa  Type III  Type IIIa	% % % % % % % % % % % % % %	37.6 0.1 0.0 0.0 12.0 24 26 15 22.6 0.1 0	100.0 10.5 59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-100.0 0.0-10.5 0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	44.0 0.9 13.9 0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8

Master Mater Teatment Plant   Capacity (10,000 population)   m3rd   -   1,190.0   0.4 - 1,190.0   2.9						
Treatment Pacifity	Type VI & VIa	%	0	22.5	0–22.5	7.5
Waste Water Treatment Plant	Type VIb	%	12	12.0	0-12.0	0.4
Capacity (10,000 population)   m3/d	Treatment Facility	Unit	City Value	Top Value	Range	Average
Provider	Waste Water Treatment Plant					
Local Government   %   -   100.0   0-100.0     National Government   %   -   100.0   0-100.0     Private   %   -   92.7   0-92.7     Provider	Capacity (10,000 population)	m3/d	-	1,190.0	0.4 – 1,190.0	201.3
National Government   %   -   100.0   0-100.0	Provider					
Private   %   -   92.7   0-92.7	Local Government	%	-	100.0	0–100.0	57.7
Septage Treatment Plant         Capacity         m3/d         —         135.0         50-135.0           Provider           Local Government         %         —         100.0         0-100.0           National Government         %         —         100.0         0-100.0           Private         %         —         92.7         0-92.7           Desiudging Services         —         1         100.0         0-102.0           Frequency         year         —         100.0         0-102.0           Provider         —         —         92.7         0-92.7           Private         %         —         92.7         0-92.7           Water Supply Facility         Unit         City Value         Top Value         Range         Aver           Household Water Supply-Communal         %         91.9         95.0         3.60-95.0         —           Central Water Supply-Communal         %         9.9         9.9         5.0         3.60-95.0         —           Borchole         %         9.9         9.9         5.0         3.60-95.0         —           Borchole         %         9.1         9.0         9.6         0.0-96.0	National Government	%	-	100.0	0–100.0	8.7
Provider    Private	%	-	92.7	0–92.7	4.7	
Provider	Septage Treatment Plant					
Local Government	Capacity	m3/d	-	135.0	50–135.0	6.2
National Government   %   -   100.0   0-100.0   Private   %   -   92.7   0-92.7   0-92.7	Provider					
Private   %	Local Government	%	_	100.0	0–100.0	57.7
Provider    National Government	%	_	100.0	0–100.0	8.7	
Provider    Private	%	_	92.7	0–92.7	4.7	
Provider   Government   %   -   100.0   0-100.0   0-100.0     Private   %   -   92.7   0-92.7     Water Supply Facility   Unit   City Value   Range   Average   Aver	Desludging Services					
Government   %   -   100.0   0-100.0   Private   %   -   92.7   0-92.7     Private   Range   Aver.   Private   Range   Aver.   Private   Supply Facility   Unit   City Value   Top Value   Range   Aver.   Private   Supply Four   Supply Four	Frequency	year	-	12.0	0–12.0	0.6
Private         %         —         92.7         0-92.7           Water Supply Facility         Unit         City Value         Top Value         Range         Aver           Household Water Supply-Individual         %         91.9         95.0         3.60-95.	Provider					
Mater Supply Facility   Unit   City Value   Range   Average   Average Water Supply-Communal   Mater Supply-Supp	Government	%	_	100.0	0–100.0	8.7
Household Water Supply Source   Central Water Supply Individual   %   91.9   95.0   3.60-95.0   6.00   6.	Private	%		92.7	0–92.7	4.7
Central Water Supply-Individual   %   91.9   95.0   3.60-95.0   Central Water Supply-Communal   %   6.1   46.7   0.0-46.7	Water Supply Facility	Unit	City Value	Top Value	Range	Average
Central Water Supply-Communal   %   6.1   46.7   0.0-46.7	Household Water Supply Source		-	-	-	
Central Water Supply—Communal   %   6.1   46.7   0.0–46.7	Central Water Supply–Individual	%	91.9	95.0	3.60–95.0	64.5
Borehole	11.5	%	6.1	46.7	0.0–46.7	5.5
Rainwater	11.5	%	2	54.5	0.0–54.5	14.1
Rainwater	Protected Spring/Well	%	0	96.4	0.0–96.4	10.3
Water Vendor         %         0         35.0         0.0-35.0           Population Buying Bottled Water         %         15         80.0         0-80.0           Average Water Consumption         Ipcd         —         160.0         29-160.0           Water Treatment Facilities         Ipcd         45.8         321.5         1.5-321.5           Local Government         %         —         100.0         0-100.0           National Government         %         —         100.0         0-100.0           Private Concessionaire         %         —         100.0         0-100.0           Organizational Arrangement         Unit         City Value         Top Value         Range         Average		%	0	20.0	0.0–20.0	8.1
Population Buying Bottled Water   %   15   80.0   0-80.0     Average Water Consumption   Ipcd   -   160.0   29-160.0     Water Treatment Facilities   Ipcd   45.8   321.5   1.5-321.5     Local Government   %   -   100.0   0-100.0     National Government   %   -   100.0   0-100.0     Private Concessionaire   %   -   100.0   0-100.0     Organizational Arrangement   Unit   City Value   Top Value   Range   Average   Average Value   Range   Average   Ave	Water Vendor	%	0	35.0	0.0–35.0	5.1
Average Water Consumption         Ipcd         —         160.0         29-160.0           Water Treatment Facilities         Ipcd         45.8         321.5         1.5-321.5           Local Government         %         —         100.0         0-100.0           National Government         %         —         100.0         0-100.0           Private Concessionaire         %         —         100.0         0-100.0           Organizational Arrangement         Unit         City Value         Top Value         Range         Average Average           Institutions Involved in Sanitation         Full         —         6         1-6         1-6           Public Sector         National Government         #         —         6         1-6         1-6           Local Government         #         —         —         6         1-6         1		%	15	80.0	0–80.0	12.9
Water Treatment Facilities         Ipcd         45.8         321.5         1.5-321.5           Local Government         %         -         100.0         0-100.0           National Government         %         -         100.0         0-100.0           Private Concessionaire         %         -         100.0         0-100.0           Organizational Arrangement         Unit         City Value         Top Value         Range         Averal Institutions Involved in Sanitation           Public Sector           National Government         #         -         6         1-6         1-6           Local Government         #         1         4         1-4		lpcd	_	160.0	29–160.0	72.1
Local Government   %			45.8	321.5		55.6
National Government   %			_			47.5
Private Concessionaire         %         -         100.0         0-100.0           Organizational Arrangement         Unit         City Value         Top Value         Range         Average           Institutions Involved in Sanitation         Public Sector           National Government         #         -         6         1-6 <td< td=""><td>National Government</td><td>%</td><td>_</td><td></td><td></td><td>26.5</td></td<>	National Government	%	_			26.5
Organizational Arrangement         Unit         City Value         Top Value         Range         Average           Institutions Involved in Sanitation         Public Sector           National Government         #         -         6         1-6         -         -         -         1-6         -	Private Concessionaire	%	_	100.0	0–100.0	9.3
National Government # - 6 1-6 1-6			City Value			Average
Public Sector         National Government         #         -         6         1-6           Local Government         #         1         4         1-4           State- Owned Utility         #         1         2         1-2           Private Sector           Water Utility         #         -         2         0-2           Enterprise         #         -         1         0-2           Nongovernment Organization         #         -         2         0-2           Number of Personnel           Public Sector           Total Personnel (per 10,000 pop'n)         #         36.3         21.67         0.4-21.67           Planning and Monitoring         %         43.7         100         5-100           Construction         %         -         100         6-100           Operations and Maintenance         %         -         100         50-100.0			•	•		
National Government #						
Local Government # 1 4 1-4     State- Owned Utility # 1 2 1-2     Private Sector		#	_	6	1–6	0.5
Private Sector         4         1         2         1-2           Water Utility         #         -         2         0-2           Enterprise         #         -         1         0-2           Number of Personnel         -         2         0-2           Public Sector         -         2         0.4-21.67           Planning and Monitoring pop'n)         36.3         21.67         0.4-21.67           Planning and Monitoring Planning and Monitoring %         43.7         100         5-100           Construction         %         -         100         50-100.0		#	1	4	1–4	1.3
Private Sector           Water Utility         #         -         2         0-2           Enterprise         #         -         1         0-2           Nongovernment Organization         #         -         2         0-2           Number of Personnel         Public Sector           Total Personnel (per 10,000 pop'n)         #         36.3 pop'n         21.67 pop'n         0.4-21.67 pop'n           Planning and Monitoring         %         43.7 pop'n         100 pop'n         5-100 pop'n           Construction         %         -         100 pop'n         50-100.0			1		1–2	0.5
Water Utility         #         -         2         0-2           Enterprise         #         -         1         0-2           Nongovernment Organization         #         -         2         0-2           Number of Personnel         Public Sector           Total Personnel (per 10,000 pop'n)         #         36.3 pop'n         21.67 pop'n         0.4-21.67 pop'n           Planning and Monitoring         %         43.7 pop'n         100 pop'n         5-100 pop'n           Construction         %         -         100 pop'n         50-100.0	-					
Enterprise		#	_	2	0–2	0.1
Nongovernment Organization         #         -         2         0-2           Number of Personnel         Public Sector           Total Personnel (per 10,000 # 36.3 pop'n)         36.3 21.67 0.4-21.67           Planning and Monitoring % 43.7 100 5-100           Construction % - 100 50-100.0           Operations and Maintenance % - 100 50-100.0						0.1
Number of Personnel           Public Sector           Total Personnel (per 10,000 # 36.3 pop'n)         36.3 21.67 0.4–21.67           Planning and Monitoring % 43.7 100 5–100         5–100           Construction % - 100 6–100         6–100           Operations and Maintenance % - 100 50–100.0         50–100.0	•		_			0.1
Public Sector           Total Personnel (per 10,000 pop'n)         #         36.3 pop'n         21.67 pop'n         0.4–21.67           Planning and Monitoring         %         43.7 pop'n         100 pop'n         5–100           Construction         %         -         100 pop'n         5–100           Operations and Maintenance         %         -         100 pop'n         50–100.0		**		_		
Total Personnel (per 10,000 # pop'n)       36.3       21.67       0.4–21.67         Planning and Monitoring %       43.7       100       5–100         Construction %       -       100       6–100         Operations and Maintenance %       -       100       50–100.0						
pop'n)         43.7         100         5–100           Construction         %         -         100         6–100           Operations and Maintenance         %         -         100         50–100.0		#	36.3	21.67	0 Δ <u></u> 21 67	9.0
Construction         %         -         100         6-100           Operations and Maintenance         %         -         100         50-100.0	pop'n)					
Operations and Maintenance % – 100 50–100.0	Planning and Monitoring	%	43.7	100	5–100	11.8
				100		8.9
Private Sector	Operations and Maintenance	%		100	50–100.0	23.6
1	Private Sector					
Total Personnel (per 10,000 # – 30.96 12.3–30.96 pop,n)		#	-	30.96	12.3–30.96	1.4

	Operations and Maintenance	%	_	_	_	_
Legal Framework	<u> </u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sai	nitation		<del>-</del>	-		
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	-	3	1–3	1.2
	Year Enacted					
	Oldest	year	2005	2007	1947–2007	1985
	Latest	year	2005	2007	1956–2007	1993
	Sanitation Service Charges	•				
	Law on Collecting Fees	Y/N	Υ	17	7–17	_
	Year Enacted	year	2007	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan			•		
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year		2007	2006–2011	2009
	New Sanitation Plan	yea.				
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	Year		2020	2015–2020	2018
	Estimated Cost	\$	250.0	250	1.9–250.0	12.5
	Amount per Capita		762.7	762.7	0.7–762.7	32.1
	Source of Fund	\$/capita	JBIC	702.7	0.7-762.7	32.1
Camitatian Dualdana						
Sanitation Problem	Major Sanitation Problem	Rivers/lakes water	poliution			
	Future Programs/Projects	<i>*</i> / :		24.4	0.06.24.4	1.0
	Funding Amount	\$/capita		24.1	0.96–24.1	1.0
	Funding Source		-	_ ,, ,		_
Capital Investme		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	A 1.A .	#1 11	2.7	160.0	0.5.160.0	40.2
	Annual Amount	\$/capita	3.7	168.0	0.5–168.0	10.3
	Source of Fund	•				
	Source of Fund National Government	%	0	90.0	0.0–90.0	22.1
	Source of Fund  National Government  Local Government	%	0	90.0	0.0–90.0 0.0–100.0	22.1 18.5
	Source of Fund National Government Local Government Loans	% % %	0 0	90.0 100.0 99.0	0.0–90.0 0.0–100.0 0.0–99.0	22.1 18.5 15.7
	Source of Fund National Government Local Government Loans Tariff Revenue	% % % %	0 0 0	90.0 100.0 99.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0	22.1 18.5 15.7
	Source of Fund National Government Local Government Loans Tariff Revenue Others	% % % %	0 0 0 0 100	90.0 100.0 99.0 0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	22.1 18.5 15.7 0 9.0
Operations and M	Source of Fund National Government Local Government Loans Tariff Revenue Others  laintenance Expenditures	% % % %	0 0 0	90.0 100.0 99.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0	22.1 18.5 15.7
Operations and M	Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost	% % % % % Unit	0 0 0 0 100 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 0 9.0 <b>Average</b>
Operations and N	Source of Fund National Government Local Government Loans Tariff Revenue Others  laintenance Expenditures Annual O&M Cost Annual Amount	% % % %	0 0 0 0 100	90.0 100.0 99.0 0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	22.1 18.5 15.7 0 9.0 <b>Average</b>
Operations and N	Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund	% % % % % Unit	0 0 0 0 100 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 0 9.0 <b>Average</b>
Operations and N	Source of Fund National Government Local Government Loans Tariff Revenue Others  laintenance Expenditures Annual O&M Cost Annual Amount	% % % % % Unit	0 0 0 0 100 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 0 9.0 <b>Average</b>
Operations and N	Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund	% % % % Unit \$/capita	0 0 0 0 100 <b>City Value</b>	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9
Operations and N	Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans	% % % % Unit \$/capita	0 0 0 0 100 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range 0.01–8.3	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7
Operations and M	Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government	% % % % White  ### Comparison   0 0 0 0 100 City Value 3.7	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range 0.01–8.3	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7	
Operations and M	Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans	% % % % Whit  \$/capita  % % %	0 0 0 0 100 <b>City Value</b> 3.7	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0	0.0-90.0 0.0-100.0 0.0-99.0 0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7
Operations and N	Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	% % % % Unit \$/capita	0 0 0 100 City Value 3.7	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	22.1 18.5 15.7 0 9.0 <b>Average</b> 0.7 4.9 40.7 3.4 14.3
	Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	% % % White % Unit \$/capita % % % % % % % % % % %	0 0 0 100 City Value 3.7 10 10 50 30	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3
	Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services	% % % White % Unit \$/capita % % % % % % % % % % %	0 0 0 100 City Value 3.7 10 10 50 30	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100	22.1 18.5 15.7 0 9.0 Average  0.7 4.9 40.7 3.4 14.3 0 Average
	Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees	% % % % Unit  \$/capita  % % % Unit	0 0 0 100 City Value 3.7 10 10 50 30 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0  100.0  53.0  100.0  0 <b>Top Value</b>	0.0-90.0 0.0-100.0 0.0-99.0 0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range	22.1 18.5 15.7 0 9.0 Average  0.7 4.9 40.7 3.4 14.3 0 Average
	Source of Fund National Government Local Government Loans Tariff Revenue Others Isintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue	% % % % Unit  \$/capita  % % % Unit	0 0 0 100 City Value 3.7 10 10 50 30 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0  100.0  53.0  100.0  0 <b>Top Value</b>	0.0-90.0 0.0-100.0 0.0-99.0 0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average
	Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges	% % % % Wnit  \$/capita  % % % Unit  \$/capita	0 0 0 100 City Value 3.7 10 10 50 30 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0  100.0  53.0  100.0 <b>Top Value</b>	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3 0–47 0–100 0–53 0–100 0  Range	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9
	Source of Fund National Government Local Government Loans Tariff Revenue Others Itaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	%    %    %    %    Wnit  \$/capita  %    %    %    %    %    W    W    W	0 0 0 100 City Value 3.7 10 10 50 30 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.0-90.0 0.0-100.0 0.0-99.0 0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range  0.3-15.0	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9
	Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	%    %    %    %    Wnit  \$/capita  %    %    %    %    %    W    W    W	0 0 0 100 City Value 3.7 10 10 50 30 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3  47.0 100.0 53.0 100.0 0 <b>Top Value</b>	0.0-90.0 0.0-100.0 0.0-99.0 0-0 0.0-100.0  Range  0.01-8.3  0-47 0-100 0-53 0-100 0  Range  0.3-15.0	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3
	Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others es for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate Septic Tank Desludging Fee	% % % % Wnit  \$/capita  % % % Unit  \$/capita  \$/capita	0 0 0 100 City Value 3.7 10 10 50 30 0 City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3  47.0 100.0 53.0 100.0 0 Top Value	0.0–90.0 0.0–100.0 0.0–99.0 0-0 0.0–100.0  Range  0.01–8.3  0–47 0–100 0–53 0–100 0  Range  0.3–15.0  0.6–110.0 0.015–90	22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9  20.0 0.3

Other Fees	\$	_	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	50	67	0–67	21.7
Household Liquid Waste	%	36	80	15–80	39.6
Industrial Waste	%	5	38	0–38	8.4
Commercial Waste	%	5	35	0–35	8.5
Hospital Waste	%	4	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	7	100	0–100	10.3
Central Sewer System	%	23	35	0–35	6.5
No Treatment	%	60	100	0–100	36.5
Others	%	10	50	0–50	10.4
Description		_			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Perfume river				
Basin Area	На	5,000	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Midstream			
Adjoining Town					
Pollution Load	vh–vl	-			
Sanitation Work/Plan	i/c	-			
Environmental Statistics	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	5000 MPN/100ml	22000#/	<1- 22000	
BOD	no a /l	15.0	100ml 180	1.28–180.0	18.7
COD	mg/l	7.1	973	7.1–973.0	72.4
Total Suspended Solids	mg/l		261	1.0–261.0	49.6
	mg/l	60.0	16.7	0.25–16.7	
Heavy Metals Health Statistics	mg/l	0.03	10.7	0.25-16.7	0.6
nealth Statistics	Harit	City Value	Tan Value	Dames	A
	Unit	City Value	Top Value	Range	Average
Sanitation- Related Diseases	Unit	City Value	Top Value	Range	Average
Sanitation— Related Diseases Reported Cases (per 10,000 population)		-	·		
Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	#	7.23	594.14	0.75–594.14	50.1
Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#	7.23 6.86	594.14 6.83	0.75–594.14 0.13–6.86	50.1
Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	# # #	7.23 6.86 3.51	594.14 6.83 294.55	0.75–594.14 0.13–6.86 0.00–294.55	50.1 3.0 20.1
Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	# # # #	7.23 6.86 3.51 3.23	594.14 6.83 294.55 507.79	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	50.1 3.0 20.1 153.9
Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	# # # # # #	7.23 6.86 3.51 3.23 4.45	594.14 6.83 294.55	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	50.1 3.0 20.1 153.9 0.3
Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	# # # # # #	7.23 6.86 3.51 3.23	594.14 6.83 294.55 507.79	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	50.1 3.0 20.1 153.9 0.3
Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population	# # # # #	7.23 6.86 3.51 3.23 4.45 3.54	594.14 6.83 294.55 507.79 4.45	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	50.1 3.0 20.1 153.9 0.3 0.7
Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea	# # # # #	7.23 6.86 3.51 3.23 4.45 3.54	594.14 6.83 294.55 507.79 4.45 –	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	50.1 3.0 20.1 153.9 0.3 0.7
Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B	# # # # # ))	7.23 6.86 3.51 3.23 4.45 3.54	594.14 6.83 294.55 507.79 4.45 — 0.47 0.25	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.47	50.1 3.0 20.1 153.9 0.3 0.7
Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea Hepatitis A & B Trachoma	# # # # # )	7.23 6.86 3.51 3.23 4.45 3.54 0.03 0	594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.47 0.0–0.25	50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	# # # # # # #	7.23 6.86 3.51 3.23 4.45 3.54 0.03 0	594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.47 0.0–0.25 0–0	50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea Hepatitis A & B Trachoma	# # # # # )	7.23 6.86 3.51 3.23 4.45 3.54 0.03 0	594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.47 0.0–0.25	50.1 3.0 20.1 153.9 0.3 0.7  0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

### 26. Song Cau, Vietnam

Song Cau		For All Surveyed Cities and Municipalities
Coordinator	Nguyen Phu, General Director, PMU Manager	
Office	Phu Yen Water Supply and Drainage OMLL Company	
Address	Highway no.25, Binh Ngoc commune, Tuy Hoa city, Phu Yen, Vietnam	
Fax	84 57 828388	
Telephone	84 57 825710/ 827058/ 823000	<del></del>
E-mail address	bqlpy@yahoo.vn	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	125.3	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	1.40	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	25.00	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	5.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	0	844.1	0 - 844.1	34.5
	Urban Poor	%	1.66	48.0	0 – 48.0	14.6
	City Area	ha (000)	42.2	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	40.3	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	-	59.7	0 – 59.7	13.5
	Urban Fringe	%	-	99.7	0 – 99.7	18.9
	Peri–Urban	%	59.7	98.5	0 – 98.5	34.9
	Slum Area	%	-	35.96	0 – 35.96	4.3
	Average City Density	#/ha	2.7	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	-	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	-	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	-	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
Sanitation Cove	erage	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	46.25	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	61.9	100.0	0.0 – 100.0	26.9
	Central Water Supply System	%	50.0	100.0	0.5 – 100.0	60.8
Population Covera	ge	('000) ha	125.31	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	70.0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	65.8	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	70.0	100.0	0.0–100.0	27.3
	II. Individual with Septic Tank	%	70.0	100.0	0.0–100.0	44.0
	III. Communal with Septic Tank	%	0.0	10.5	0.0–10.5	0.9
	IV. Pit Latrine	%	25.0	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%	0.0	0.9	0.0-0.9	0.0
	VI. Open Defecation	%	5.0	61.0	0.0–61.0	7.3
	Toilet System					
	Type I	%	-	100.0	0–100.0	13.7
	Type la	%	-	88.9	0–88.9	9.3
	Type II	%	70.0	93.1	0–93.1	12.6
		0.1	_	100.0	0-100.0	32.2
	Type lla	%	_			
	Type IIa Type III	%		2.0	0–2.0	0.1
	* *					
	Type III	%	_	2.0	0–2.0	2.8
	Type III Type IIIa	%	-	2.0 61.0	0–2.0 0–61.0	0.1 2.8 13.9 5.6

	Type Va	%	-	40.6	0–40.6	1.4
	Type VI & VIa	%	5.0	22.5	0–22.5	7.5
	Type VIb	%	0	12.0	0–12.0	0.4
Treatment Facility	y	Unit	City Value	Top Value	Range	Average
Waste Water Treatme	ent Plant					
Capacity (10,000 pop	oulation)	m3/d	_	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	50	100.0	0–100.0	57.7
	National Government	%		100.0	0–100.0	8.7
	Private	%	20	92.7	0–92.7	4.7
Septage Treatment P	lant					
Capacity		m3/d		135.0	50-135.0	6.2
	Provider					
	Local Government	%	50	100.0	0–100.0	57.7
	National Government	%		100.0	0–100.0	8.7
	Private	%	20	92.7	0–92.7	4.7
Desludging Services						
Frequency		Year	5	12.0	0–12.0	0.6
	Provider		<u> </u>			
	Government	%	50	100.0	0–100.0	8.7
	Private	%	20	92.7	0–92.7	4.7
Water Supply Fac		Unit	City Value	Top Value	Range	Average
Household Water Su	•		<u> </u>	•		
Central Water Supply		%	65.8	95.0	3.60–95.0	64.5
Central Water Supply		%	0	46.7	0.0–46.7	5.5
Borehole		%	34.2	54.5	0.0–54.5	14.1
Protected Spring/Wel		%		96.4	0.0–96.4	10.3
Rainwater		%		20.0	0.0–20.0	8.1
Water Vendor		%		35.0	0.0–35.0	5.1
Population Buying Bo	ottled Water	%	_	80.0	0-80.0	12.9
Average Water Cons		lpcd	80	160.0	29–160.0	72.1
Water Treatment Fac	•	lpcd	23.9	321.5	1.5–321.5	55.6
Local Government		%	100	100.0	0–100.0	47.5
National Governmen	 †	%		100.0	0–100.0	26.5
Private Concessionair		%	0	100.0	0–100.0	9.3
Organizational A		Unit	City Value	Top Value	Range	Average
Institutions Involved i					<b>y</b> -	
Public Sector	T Sumadon					
. 45.110 500101	National Government	#		6	1–6	0.5
	Local Government	#			1–4	1.3
	Local Government State- Owned Utility	#	_ 1	4	1–4 1–2	
Private Sector	Local Government State- Owned Utility	#	- 1		1–4 1–2	
Private Sector	State– Owned Utility		- 1	4		
Private Sector	State– Owned Utility  Water Utility	#	_ 1 	2	1–2	0.5
Private Sector	State- Owned Utility  Water Utility  Enterprise	# # #	- 1	2 2	1–2 0–2 0–2	0.5 0.1 0.1
	State— Owned Utility  Water Utility  Enterprise  Nongovernment Organization	#	- 1 - -	2	1–2	0.5 0.1 0.1
Number of Personnel	State— Owned Utility  Water Utility  Enterprise  Nongovernment Organization	# # #	- 1	2 2	1–2 0–2 0–2	0.5
	State— Owned Utility  Water Utility  Enterprise  Nongovernment Organization	# # # #	- - -	2 1 2	0-2 0-2 0-2 0-2	0.5 0.1 0.1 0.1
Number of Personnel	State— Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# # # #	- 1 - - -	2 2 1 2 21.67	0-2 0-2 0-2 0-2	0.5 0.1 0.1 0.1 9.0
Number of Personnel	State— Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # %	- - -	2 1 2	0-2 0-2 0-2 0-2 0.4-21.67	0.5 0.1 0.1 0.1 9.0
Number of Personnel	State— Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # % %	- - - 16	2 2 1 2 21.67 100	0-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	0.5 0.1 0.1 0.1 9.0 11.8 8.9
Number of Personnel	State— Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # %	- - - 16	2 1 2 2 21.67	0-2 0-2 0-2 0-2 0.4-21.67	0.5 0.1 0.1 0.1 9.0 11.8 8.9
Number of Personnel	State— Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # % %	- - - 16 10 30	2 2 1 2 21.67 100	0-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	0.1

	pop,n)					
	Operations and Maintenance	%	_	_	_	_
Legal Framework		Unit	City Value	Top Value	Range	Average
Legal Mandate of Sa	nitation			-	-	
	Number of Laws on Sanitation					
	National	#	2	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	2003	2007	1947–2007	1985
	Latest	year	2007	2007	1956–2007	1993
	Sanitation Service Charges	-				
	Law on Collecting Fees	Y/N	Υ	17	7–17	_
	Year Enacted	year	2003	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan		<b>,</b>		9-	
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year		2007	2006–2011	2009
	New Sanitation Plan	yeui		2007	2000 2011	
	Will Prepare Sanitation Plan	Y/N				
	Preparation Year			2020	2015–2020	2018
	Estimated Cost	year \$		250	1.9–250.0	12.5
				762.7	0.7–762.7	32.1
	Amount per Capita  Source of Fund	\$/capita		762.7	0.7-762.7	32.1
Carathantian Brahlana			_			
Sanitation Problem	Major Sanitation Problem	Uncontrolled disp				
	Future Programs/Projects	Improving access facilities	to sanitation			
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	Funding Source		_			
Capital Investme	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	_	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	_	90.0	0.0–90.0	22.1
	Local Government	%	_	100.0	0.0–100.0	18.5
	Loans	%	_	99.0	0.0–99.0	15.7
	Tariff Revenue	%		0	0–0	C
	Others	%		100.0	0.0–100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
•	Annual O&M Cost			•		
	Annual Amount	\$/capita		8.3	0.01–8.3	0.7
	Source of Fund	47.00[0.00				
	National Government	%	30	47.0	0–47	4.9
	Local Government	%	70	100.0	0–100	40.7
	Loans	%		53.0	0–53	3.4
	Tariff Revenue	%		100.0	0–100	14.3
	Others	%		0	0-100	0
Revenues and Fee		% Unit	City Value	Top Value	Range	Average
nevenues and rec	Annual Revenues and Fees	Oint	City value	10p value	Nange	Average
	Total Revenue	¢/capita		15	02150	0.0
		\$/capita	_	15	0.3–15.0	0.9
	Sewered Area Charges	¢/	44.5	440	0.6.440.5	20.0
	Connection Charge	\$/connection	110	110	0.6–110.0	20.0
	Tariff Rate	\$/m3	0.015	90	0.015–90	0.3
	Septic Tank Desludging Fee					

Private	\$/ST	25.0	133	4–133	9.9
Government	\$/ST		100	0–100	23.9
Other Fees	\$		30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Y			
Sources of Water Pollution					
Household Solid Waste	%	10	67	0–67	21.7
Household Liquid Waste	%	32	80	15–80	39.6
Industrial Waste	%	20	38	0–38	8.4
Commercial Waste	%	10	35	0–35	8.5
Hospital Waste	%	10	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	35	100	0–100	10.3
Central Sewer System	%	0	35	0–35	6.5
No Treatment	%	22	100	0–100	36.5
Others	%	43	50	0–50	10.4
Description	Through septic tank				
Within River Basin	Y/N	N			
River Basin/Major River Name		_			
Basin Area	ha	_	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	-			
Adjoining Town					
Pollution Load	vh–vl	_			
Sanitation Work/Plan	i/c	-			
Environmental Statistics	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	_	22000#/	<1- 22000	
BOD	mg/l	1.28	100ml 180	1.28–180.0	18.7
COD	mg/l	1.20	973	7.1–973.0	72.4
	IIIU/I				
Total Suspended Solids	mg/l	_	261	1.0–261.0	49.6
Total Suspended Solids Heavy Metals	mg/l	_	261 16.7	1.0–261.0 0.25–16.7	49.6 0.6
Total Suspended Solids Heavy Metals Health Statistics	mg/l		261	1.0–261.0	49.6
Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases	mg/l	_	261 16.7	1.0–261.0 0.25–16.7	49.6 0.6
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)	mg/l mg/l <b>Unit</b>	City Value	261 16.7 <b>Top Value</b>	1.0–261.0 0.25–16.7 <b>Range</b>	49.6 0.6 <b>Average</b>
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	mg/l mg/l Unit	City Value	261 16.7 <b>Top Value</b> 594.14	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14	49.6 0.6 <b>Average</b> 50.1
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	mg/l mg/l Unit #	City Value	261 16.7 <b>Top Value</b> 594.14 6.83	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86	49.6 0.6 <b>Average</b> 50.1 3.0
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l Unit # #	City Value	261 16.7 <b>Top Value</b> 594.14 6.83 294.55	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55	49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	mg/l mg/l Unit # # # # #	City Value	261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	mg/l mg/l Unit  # # # # #	City Value	261 16.7 <b>Top Value</b> 594.14 6.83 294.55	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection Measles Malaria	mg/l mg/l Unit  # # # # #	City Value	261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)	mg/l mg/l Unit  # # # # # #	City Value	261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	49.6 0.6 Average 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation- Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea	mg/l mg/l Unit  # # # # # # #	City Value	261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea Hepatitis A & B	mg/l mg/l Unit  # # # # # # # #	City Value	261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 — 0.47 0.25	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54  0.0–0.25	49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l Unit  # # # # # # # # # # # # #	City Value	261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 — 0.47 0.25	1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0	49.6 0.6 Average 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0
Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea Hepatitis A & B	mg/l mg/l Unit  # # # # # # # #	City Value	261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 — 0.47 0.25	1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45  0.0–3.54  0.0–0.25	49.6 0.6 <b>Average</b> 50.1  3.0  20.1  153.9  0.3  0.7  0.0  0.0

#### 27. Thap Cham, Vietnam

Thap Cham		For All Surveyed Cities and Municipalities
Coordinator	Pham Hong Chau, General Director	
Office	Ninh Thuan Water Supply Company	
Address	23 Nguyen Trai Str., Phan Rang-Thap Cham, Ninh Thuan, Vietnam	
Fax	84 68 820350	
Telephone	84 68 820350/ 822568	
E-mail address	bqldant@hcmc.vnn.vn	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2011)	#(000)	161.7	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	1.50	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	32.35	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	5.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	0	844.1	0 – 844.1	34.5
	Urban Poor	%	10.36	48.0	0 – 48.0	14.6
	City Area	ha (000)	7.9	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	94.5	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	-	59.7	0 – 59.7	13.5
	Urban Fringe	%	_	99.7	0 – 99.7	18.9
	Peri–Urban	%	5.7	98.5	0 – 98.5	34.9
	Slum Area	%	_	35.96	0 – 35.96	4.3
	Average City Density	#/ha	20.5	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	20.5	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	_	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	_	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	20.5	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha		1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	age	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	7.89	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	98.0	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	90.0	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	161.78	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	100.0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	69.9	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	-	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	29.9	100.0	0.0-100.0	44.0
	III. Communal with Septic Tank	%	-	10.5	0.0–10.5	0.9
	IV. Pit Latrine	%	50.0	59.9	0.0–59.9	13.9
	V. Eco Sanitation	%	-	0.9	0.0-0.9	0.0
	VI. Open Defecation	%	20.0	61.0	0.0-61.0	7.3
	Toilet System					
	Type I	%	_	100.0	0–100.0	13.7
	Type i					
	Type Ia	%	_	88.9	0–88.9	9.3
			- 29.9	88.9 93.1	0–88.9 0–93.1	
	Type la	%				12.6
	Type Ia Type II	%	29.9	93.1	0–93.1	12.6 32.2
	Type Ia Type II Type IIa	% % %	29.9	93.1 100.0	0–93.1 0–100.0	12.6 32.2 0.1
	Type la Type II Type IIa Type III	% % %	29.9 - -	93.1 100.0 2.0	0–93.1 0–100.0 0–2.0	9.3 12.6 32.2 0.1 2.8 13.9
	Type la Type II Type IIa Type III Type III	% % % %	29.9 - - -	93.1 100.0 2.0 61.0	0–93.1 0–100.0 0–2.0 0–61.0	12.6 32.2 0.1 2.8

	Type Va	%	-	40.6	0–40.6	1.4
	Type VI & VIa	%	20.0	22.5	0–22.5	7.5
	Type VIb	%	_	12.0	0–12.0	0.4
Treatment Facilit	ty	Unit	City Value	Top Value	Range	Average
Waste Water Treatm	nent Plant					
Capacity (10,000 pc	pulation)	m3/d	217.3	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	50	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	20	92.7	0–92.7	4.7
Septage Treatment	Plant					
Capacity		m3/d		135.0	50-135.0	6.2
	Provider					
	Local Government	%	50	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	20	92.7	0–92.7	4.7
Desludging Services						
Frequency		year	_	12.0	0–12.0	0.6
	Provider	•				
	Government	%	50	100.0	0–100.0	8.7
	Private	%	20	92.7	0–92.7	4.7
Water Supply Fa		Unit	City Value	Top Value	Range	Average
Household Water Su	·				<b>y</b> -	
Central Water Suppl		%	69.9	95.0	3.60–95.0	64.5
Central Water Suppl		%	0	46.7	0.0–46.7	5.5
Borehole	.,	%	25.0	54.5	0.0–54.5	14.1
Protected Spring/We	ااد	%		96.4	0.0–96.4	10.3
Rainwater		%		20.0	0.0–20.0	8.1
Water Vendor		%	5.0	35.0	0.0–35.0	5.1
Population Buying B	ottled Water	%		80.0	0-80.0	12.9
Average Water Cons		lpcd	120.0	160.0	29–160.0	72.1
Water Treatment Fa	·	lpcd	321.5	321.5	1.5–321.5	55.6
Local Government	Circies	%	100	100.0	0–100.0	47.5
National Governmen	nt .	%	0	100.0	0–100.0	26.5
Private Concessional		%	0	100.0	0–100.0	9.3
Organizational A		Unit	City Value	Top Value	Range	Average
Institutions Involved		- Oilit	city value	Top value	nange	Average
Public Sector	iii Sainadoii					
Tublic Sector	National Government	#	_	6	1–6	0.5
	rational Government	"				
	Local Government	#	_	4	1_4	1 3
	Local Government State Owned Utility	#	_ 1	4	1–4	
Private Sector	Local Government State– Owned Utility	#	1	2	1–4	
Private Sector	State– Owned Utility	#	1	2	1–2	0.5
Private Sector	State– Owned Utility  Water Utility	#		2	1–2	0.5
Private Sector	State– Owned Utility  Water Utility  Enterprise	# # #	- 1 - 1	2 2 1	1–2 0–2 0–2	0.5 0.1 0.1
	State– Owned Utility  Water Utility  Enterprise  Nongovernment Organization	#		2	1–2	0.5
Number of Personne	State– Owned Utility  Water Utility  Enterprise  Nongovernment Organization	# # #		2 2 1	1–2 0–2 0–2	0.5 0.1 0.1
	State– Owned Utility  Water Utility Enterprise Nongovernment Organization	# # # #	- 1 -	2 1 2	0-2 0-2 0-2 0-2	0.5 0.1 0.1 0.1
Number of Personne	State– Owned Utility  Water Utility Enterprise Nongovernment Organization el  Total Personnel (per 10,000 pop'n)	# # # #		2 2 1	0-2 0-2 0-2 0-2	0.5 0.1 0.1 0.1 9.0
Number of Personne	State– Owned Utility  Water Utility Enterprise Nongovernment Organization  Total Personnel (per 10,000	# # # # # %	- 1 -	2 1 2	0-2 0-2 0-2 0-2	0.5 0.1 0.1 0.1 9.0
Number of Personne	State– Owned Utility  Water Utility Enterprise Nongovernment Organization el  Total Personnel (per 10,000 pop'n)	# # # #	10.5	2 1 2 2 2 2 2 1.67	0-2 0-2 0-2 0-2	0.5 0.1 0.1 0.1 9.0
Number of Personne	State- Owned Utility  Water Utility Enterprise Nongovernment Organization  el  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # %	10.5	2 2 1 2 2 21.67	0-2 0-2 0-2 0-2 0.4-21.67 5-100	0.1 0.1 0.1 9.0
Number of Personne	State— Owned Utility  Water Utility Enterprise Nongovernment Organization  el  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # % %	10.5 10 30	2 1 2 2 21.67 100	0-2 0-2 0-2 0-2 0.4-21.67 5-100 6-100	0.5 0.1 0.1 0.1 9.0 11.8 8.9

	pop,n)					
	Operations and Maintenance	%	-	_	_	-
Legal Framework		Unit	City Value	Top Value	Range	Average
Legal Mandate of Sa						
	Number of Laws on Sanitation					
	National	#	2	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	2003	2007	1947–2007	1985
	Latest	year	2007	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Υ	17	7–17	
	Year Enacted	year	2003	2007	1947–2007	198
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	N	11	11–27	
	When Prepared	year	-	2007	2006–2011	200
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	201
	Estimated Cost	\$	_	250	1.9–250.0	12.
	Amount per Capita	\$/capita	_	762.7	0.7–762.7	32.
	Source of Fund	<u> </u>	_			
Sanitation Problem	Major Sanitation Problem	Unhygienic sanita	ary facilities			
Sanitation Problem	Future Programs/Projects	North Dhaka East treatment plant a works	Sewerage			
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	Funding Source		_			
Capital Investme	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	_	168.0	0.5–168.0	10.
	Source of Fund					
	National Government	%	60	90.0	0.0–90.0	22.
	Local Government	%	40	100.0	0.0-100.0	18.
	Loans	%	_	99.0	0.0–99.0	15.
	Tariff Revenue	%	_	0	0–0	
	Others	%	_	100.0	0.0-100.0	9.
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
•	Annual O&M Cost		•	-		
	Annual Amount	\$/capita	_	8.3	0.01–8.3	0.
	Source of Fund	4				
	National Government	%	30	47.0	0–47	4.
	Local Government	%	70	100.0	0–100	40.
	Loans	%		53.0	0–53	3.
	Tariff Revenue	%	_	100.0	0–100	14.
	Others	%		0	0	14.
		Unit	City Value	Top Value	Range	Average
Revenues and For		VIII C	City value	10p value	nange	Averag
Revenues and Fe	Annual Revenues and Fees			1		
Revenues and Fe	Annual Revenues and Fees	\$/capita		1 🗆	∩ ⊃ 1E ∩	^
Revenues and Fe	Total Revenue	\$/capita	_	15	0.3–15.0	0.
Revenues and Fe	Total Revenue Sewered Area Charges					0.5
Revenues and Fe	Total Revenue	\$/capita \$/connection \$/m3	110.0 0.015	15 110 90	0.3–15.0 0.6–110.0 0.015–90	20.

Septic Tank Desludging Fee					
Private	\$/ST	25	133	4–133	9.9
Government	\$/ST	_	100	0–100	23.9
Other Fees	\$	0	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	26	67	0–67	21.7
Household Liquid Waste	%	30	80	15–80	39.6
Industrial Waste	%	13	38	0–38	8.4
Commercial Waste	%	31	35	0–35	8.5
Hospital Waste	%	0	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	35	35	0–35	6.5
No Treatment	%	65	100	0–100	36.5
Others	%	0	50	0–50	10.4
Description	Through septic tank				
Within River Basin	Y/N	Υ			
River Basin/Major River Name		_			
Basin Area	ha	-	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	-			
Adjoining Town					
Pollution Load	vh–vl	Low			
Sanitation Work/Plan	i/c	Individual			
Environmental Statistics	Unit	City Value	Top Value	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	-	22000#/ 100ml	<1- 22000	
BOD	mg/l	_	180	1.28–180.0	18.7
COD	mg/l	-	973	7.1–973.0	72.4
Total Suspended Solids	mg/l	_	261	1.0–261.0	49.6
Heavy Metals	mg/l	_	16.7	0.25–16.7	0.6
Health Statistics	Unit	City Value	Top Value	Range	Average
Sanitation – Related Diseases					
Reported Cases (per 10,000 population)					
Diarrhea	#	_	594.14	0.75–594.14	50.1
Hepatitis A & B	#	_	6.83	0.13–6.86	3.0
Trachoma	#	_	294.55	0.00–294.55	20.1
Acute Lower Respiratory Infection	#	_	507.79	0.32–507.79	153.9
Measles	#	_	4.45	0.00–4.45	0.3
Malaria	#	_	_	0.0–3.54	0.7
Death (children under 5 years) (per 10,000 population	)				
beauti (crimareti ariaer 5 years) (per 10,000 population			0.47	0.0-0.47	0.0
Diarrhea	#	_	0.47	0.0-0.47	
		-	0.47	0.0-0.47	
Diarrhea	#				0.0
Diarrhea Hepatitis A & B	#		0.25	0.0–0.25	0.0
Diarrhea Hepatitis A & B Trachoma	# # #	-	0.25	0.0–0.25 0–0	0.0 0.0 0.2 0.0

## 28. Jinghong, PR China

Jinghong		For All Surveyed Cities and Municipalities
Coordinator		
Office	Jinghong Urban Investment Company	
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Fax	866912123563	
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Demographics		Unit	City Value	Top Value	Range	Average
	Population (2007)	#(000)	376.0	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	0.40	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	125.33	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	3.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	10.6	844.1	0 - 844.1	34.5
	Urban Poor	%	0	48.0	0 – 48.0	14.6
	City Area	ha (000)	700.3	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	0.3	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	0.0	59.7	0 – 59.7	13.5
	Urban Fringe	%	99.7	99.7	0 – 99.7	18.9
	Peri–Urban	%	0.0	98.5	0 – 98.5	34.9
	Slum Area	%	-	35.96	0 – 35.96	4.3
	Average City Density	#/ha	0.5	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	76.7	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	-	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	0.3	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	nge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	700.31	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	0.3	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	0.3	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	376.0	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	3.6	100.0	0 – 100.0	31.5
	Central Water Supply System	%	3.6	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	4	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	0	100.0	0.0-100.0	44.0
	III. Communal with Septic Tank	%	0	10.5	0.0–10.5	0.9
	IV. Pit Latrine	%	0	59.9	0.0-59.9	13.9
	V. Eco Sanitation	%	0	0.9	0.0-0.9	0.0
	v. LCO Janitation	70	U	0.5		
	VI. Open Defecation	%	0	61.0	0.0-61.0	7.3
					0.0–61.0	7.3
	VI. Open Defecation				0.0-61.0	
	VI. Open Defecation  Toilet System	%	0	61.0		13.7
	VI. Open Defecation  Toilet System  Type I	%	0	61.0	0–100.0	13.7
	VI. Open Defecation  Toilet System  Type I  Type Ia	% % %	0 0 4	61.0 100.0 88.9	0–100.0 0–88.9	13.7 9.3 12.6
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II	% % %	0 0 4 47	61.0 100.0 88.9 93.1	0–100.0 0–88.9 0–93.1	13.7 9.3 12.6 32.2
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa	% % % %	0 0 4 47	61.0 100.0 88.9 93.1 100.0	0-100.0 0-88.9 0-93.1 0-100.0	13.7 9.3 12.6 32.2 0.1
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III	% % % %	0 0 4 47 -	61.0 100.0 88.9 93.1 100.0 2.0	0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type IIII	% % % % %	0 0 4 47 - -	61.0 100.0 88.9 93.1 100.0 2.0 61.0	0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	13.7 9.3 12.6 32.2 0.1 2.8

	Type Va	%	-	40.6	0–40.6	1.4
	Type VI & VIa	%	5	22.5	0–22.5	7.5
	Type VIb	%	_	12.0	0–12.0	0.4
Treatment Facilit	ty	Unit	City Value	Top Value	Range	Average
Waste Water Treatm	nent Plant					
Capacity (10,000 po	pulation)	m3/d	664.9	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	100	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Septage Treatment F	Plant					
Capacity		m3/d	_	135.0	50–135.0	6.2
	Provider					
	Local Government	%	100	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Desludging Services						
Frequency		year	_	12.0	0–12.0	0.6
	Provider	,				
	Government	%	100	100.0	0–100.0	8.7
	Private	%	_	92.7	0–92.7	4.7
Water Supply Fac		Unit	City Value	Top Value	Range	Average
Household Water Su					<b>y</b> -	
Central Water Suppl		%	3.6	95.0	3.60–95.0	64.5
Central Water Suppl		%	0	46.7	0.0–46.7	5.5
Borehole	,	%	0	54.5	0.0–54.5	14.1
Protected Spring/We		%	96.4	96.4	0.0–96.4	10.3
Rainwater		%	0	20.0	0.0–20.0	8.1
Water Vendor		%	0	35.0	0.0–35.0	5.1
Population Buying B	ottled Water	%		80.0	0-80.0	12.9
Average Water Cons		lpcd		160.0	29–160.0	72.1
Water Treatment Fac	•	Ipcd	13.3	321.5	1.5–321.5	55.6
Local Government	cincics —	%	100.0	100.0	0–100.0	47.5
National Governmen	n†	%	0	100.0	0–100.0	26.5
Private Concessionai		%	0	100.0	0–100.0	9.3
Organizational A		Unit	City Value	Top Value	Range	Average
Institutions Involved		- Cilit	city value	Top value	nange	Aveluge
Public Sector	III Salitation					
- Tublic Sector	National Government	#	_	6	1–6	0.5
	Local Government	#	1	4	1–4	1.3
	State– Owned Utility	#	2	2	1–2	0.5
Private Sector	State Office Office	"				0.5
vate sector						
	Water Htility	#		2	0–2	0.1
	Water Utility	#		2	0-2	0.1
	Enterprise	#		1	0–2	0.1
Number of Personne	Enterprise  Nongovernment Organization		- - -			
Number of Personne	Enterprise  Nongovernment Organization	#	- - -	1	0–2	0.1
Number of Personne Public Sector	Enterprise Nongovernment Organization	#	- - - 9 76	1 2	0–2 0–2	0.1
	Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# #	9.76	1	0-2 0-2 0-2	0.1 0.1 9.0
	Enterprise Nongovernment Organization  El  Total Personnel (per 10,000	# # # %	9.76	1 2	0–2 0–2	9.0
	Enterprise Nongovernment Organization  Total Personnel (per 10,000 pop'n)	# #		21.67	0-2 0-2 0-2	9.0 11.8
	Enterprise  Nongovernment Organization  El  Total Personnel (per 10,000 pop'n)  Planning and Monitoring	# # # %		21.67 100	0-2 0-2 0.4-21.67 5-100	0.1
	Enterprise Nongovernment Organization  I  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # % %	23.4	21.67 100 100	0-2 0-2 0.4-21.67 5-100 6-100	9.0 11.8 8.9

	pop,n)					
	Operations and Maintenance	%	_	_	_	_
Legal Framework	<u>'</u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sa			•	•		
	Number of Laws on Sanitation					
	National	#	3	7	1–4	1.9
	Local	#	_	3	1–3	1.2
	Year Enacted					
	Oldest	year	2001	2007	1947–2007	1985
	Latest	year	2005	2007	1956–2007	1993
	Sanitation Service Charges	,				
	Law on Collecting Fees	Y/N	N	17	7–17	
	Year Enacted	year	_	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan			156 541145	9-	711-11-9-
January Communication 1	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Y	11	11–27	
	When Prepared	year	<u>-</u>	2007	2006–2011	2009
	New Sanitation Plan	year		2007	2000 2011	2003
	Will Prepare Sanitation Plan	Y/N				
	Preparation Year			2020	2015–2020	2018
	Estimated Cost	year \$		250	1.9–250.0	12.5
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.1
	Source of Fund	<b>Ъ</b> /Сарна		762.7	0.7-762.7	32.1
Canitation Bucklana		la annua de la alludi				
Sanitation Problem	Major Sanitation Problem	Increase in pollution	on due to			
	Future Programs/Projects		-			
	Funding Amount	\$/capita	_	24.1	0.96–24.1	1.0
	Funding Source		_			
Capital Investmen	nt	Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	_	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	_	90.0	0.0–90.0	22.1
	Local Government	%	_	100.0	0.0-100.0	18.5
	Loans	%	60	99.0	0.0–99.0	15.7
	Tariff Revenue	%		0	0–0	0
	Others	%		100.0	0.0–100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
•	Annual O&M Cost			•	<u> </u>	
	Annual Amount	\$/capita		8.3	0.01–8.3	0.7
	Source of Fund	4, 40,000				
	National Government	%	_	47.0	0–47	4.9
	Local Government	%	_	100.0	0–100	40.7
	Loans	%		53.0	0–53	3.4
	Tariff Revenue	%		100.0	0–100	14.3
	Others	%		0	0-100	0
Revenues and Fee		Unit	City Value	Top Value	Range	Average
venues and ret	Annual Revenues and Fees	O.I.i.e	City value	10p value	nange	Avelage
	Total Revenue	\$/capita		15	0.3–15.0	0.9
	Sewered Area Charges	⊅/caþita		15	0.5-15.0	0.9
		\$/connect:		110	0.6.110.0	20.0
	Connection Charge	\$/connection	_	110	0.6–110.0	20.0
	Tariff Rate	\$/m3	_	90	0.015–90	0.3
	Septic Tank Desludging Fee					

Private	\$/ST	_	133	4–133	9.9
Government	\$/ST	_	100	0–100	23.9
Other Fees	\$	_	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	12	67	0–67	21.7
Household Liquid Waste	%	38	80	15–80	39.6
Industrial Waste	%	34	38	0–38	8.4
Commercial Waste	%	11	35	0–35	8.5
Hospital Waste	%	5	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Y			
Current Wastewater Disposal					
Own Treatment Plant	%	-	100	0–100	10.3
Central Sewer System	%	-	35	0–35	6.5
No Treatment	%	-	100	0–100	36.5
Others	%	-	50	0–50	10.4
Description	List	-			
Within River Basin	Y/N	Y			
River Basin/Major River Name	Lancang River,	, Liusha River			
Basin Area	ha	709,300	4,939,800	75.15–4,939,800	360,567.7
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	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	40 #/ ml	22000#/	<1- 22000	
			10000	<1- 22000	
BOD			100ml 180		18.7
BOD	mg/l	180.0	180	1.28–180.0	
COD	mg/l mg/l	180.0 360.0	180 973	1.28–180.0 7.1–973.0	72.4
COD Total Suspended Solids	mg/l mg/l mg/l	180.0	180 973 261	1.28–180.0 7.1–973.0 1.0–261.0	72.4 49.6
COD Total Suspended Solids Heavy Metals	mg/l mg/l	180.0 360.0 250.0	180 973 261 16.7	1.28–180.0 7.1–973.0	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals Health Statistics	mg/l mg/l mg/l mg/l	180.0 360.0 250.0	180 973 261	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases	mg/l mg/l mg/l mg/l	180.0 360.0 250.0	180 973 261 16.7	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases	mg/l mg/l mg/l mg/l	180.0 360.0 250.0	180 973 261 16.7	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range	72.4 49.6 0.6 <b>Average</b>
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation– Related Diseases Reported Cases (per 10,000 population)  Diarrhea	mg/l mg/l mg/l mg/l Unit	180.0 360.0 250.0	180 973 261 16.7 <b>Top Value</b>	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b>	72.4 49.6 0.6 <b>Average</b> 50.1
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)	mg/l mg/l mg/l mg/l  Molt	180.0 360.0 250.0 — City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86	72.4 49.6 0.6 <b>Average</b> 50.1
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma	mg/l mg/l mg/l mg/l Unit	180.0 360.0 250.0 — City Value	180 973 261 16.7 <b>Top Value</b> 594.14	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b>	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B	mg/l mg/l mg/l mg/l Unit	180.0 360.0 250.0 — City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86 0.00–294.55	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection	mg/l mg/l mg/l mg/l  Molt  # # #	180.0 360.0 250.0 — City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	mg/l mg/l mg/l mg/l  mg/l  Unit  # # # # #	180.0 360.0 250.0 — City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria	mg/l mg/l mg/l mg/l  mg/l  Unit  # # # # #	180.0 360.0 250.0 — City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)	mg/l mg/l mg/l mg/l  Unit  # # # # # # # # # # # # # # # # # #	180.0 360.0 250.0 — City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population)	mg/l mg/l mg/l mg/l  Unit  # # # # # # # # # # # # # # # # # #	180.0 360.0 250.0 — City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals  Health Statistics  Sanitation—Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B	mg/l mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	180.0 360.0 250.0  - City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 –	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infection Measles Malaria Death (children under 5 years) (per 10,000 population Diarrhea Hepatitis A & B Trachoma	mg/l mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	180.0 360.0 250.0  - City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	1.28–180.0 7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0	18.7 72.4 49.6 0.6  Average  50.1 3.0 20.1 153.9 0.3 0.7  0.0 0.0 0.0 0.0 0.0 0.0

#### 29. Kunming, PR China

Kunming		For All Surveyed Cities and Municipalities
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		
Telephone		
E-mail address		

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2007)	#(000)	6,155.6	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	0.62	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	1,531.94	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	4.0	7.6	3.2 – 7.6	4.9
	Floating Population	%	18.1	844.1	0 - 844.1	34.5
	Urban Poor	%	1.34	48.0	0 – 48.0	14.6
	City Area	ha (000)	2,101.2	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	0.5	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	1.0	59.7	0 – 59.7	13.5
	Urban Fringe	%	0	99.7	0 – 99.7	18.9
	Peri–Urban	%	98.5	98.5	0 – 98.5	34.9
	Slum Area	%	-	35.96	0 – 35.96	4.3
	Average City Density	#/ha	2.9	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	163.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	24.0	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	1.9	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	-	1,519.4	20.0 – 1,519.4	120.7
Sanitation Cover	age	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	2,101.2	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	0.4	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	0.9	100.0	0.5 – 100.0	60.8
Population Coverage	9	('000) ha	6,080.0	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	100.0	100.0	0 – 100.0	31.5
	Central Water Supply System	%	90.8	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
_	I. Central Sewerage System	%	100.0	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	0.0	100.0	0.0-100.0	44.0
	III. Communal with Septic	%	0.0	10.5	0.0-10.5	0.9
	Tank		0.0		0.0-10.5	
	Tank IV. Pit Latrine	%	0.0	59.9	0.0–10.3	13.9
		%				13.9
	IV. Pit Latrine		0.0	59.9	0.0–59.9	
	IV. Pit Latrine V. Eco Sanitation	%	0.0	59.9 0.9	0.0–59.9	0.0
	IV. Pit Latrine V. Eco Sanitation VI. Open Defecation	%	0.0	59.9 0.9	0.0–59.9	0.0
	IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System	%	0.0 0.0 0.0	59.9 0.9 61.0	0.0–59.9 0.0–0.9 0.0–61.0	0.0 7.3
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I	% %	0.0 0.0 0.0	59.9 0.9 61.0	0.0–59.9 0.0–0.9 0.0–61.0	7.3 13.7
	IV. Pit Latrine V. Eco Sanitation VI. Open Defecation Toilet System Type I Type Ia	% % %	0.0 0.0 0.0	59.9 0.9 61.0 100.0 88.9	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9	0.0 7.3 13.7 9.3
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II	% % % %	0.0 0.0 0.0 100.0 0	59.9 0.9 61.0 100.0 88.9 93.1	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1	0.0 7.3 13.7 9.3 12.6
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa	% % % % %	0.0 0.0 0.0 100.0 0	59.9 0.9 61.0 100.0 88.9 93.1 100.0	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	0.0 7.3 13.7 9.3 12.6 32.2
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III	% % % % % %	0.0 0.0 0.0 100.0 0	59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	0.0 7.3 13.7 9.3 12.6 32.2 0.1
	IV. Pit Latrine  V. Eco Sanitation  VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type III	% % % % % %	0.0 0.0 0.0 100.0 0 -	59.9 0.9 61.0 100.0 88.9 93.1 100.0 2.0 61.0	0.0-59.9 0.0-0.9 0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	0.0 7.3 13.7 9.3 12.6 32.2 0.1 2.8

	Type Va	%		40.6	0-40.6	1.4
	Type VI & VIa	%	-	22.5	0–22.5	7.5
	Type VIb	%	_	12.0	0–12.0	0.4
Treatment Facil	ity	Unit	City Value	Top Value	Range	Average
Waste Water Treat	ment Plant					
Capacity (10,000 p	opulation)	m3/d	962.2	1,190.0	0.4 – 1,190.0	201.3
	Provider					
	Local Government	%	100	100.0	0–100.0	57.7
	National Government	%	_	100.0	0–100.0	8.7
	Private	%		92.7	0–92.7	4.7
Septage Treatment	Plant					
Capacity		m3/d	_	135.0	50–135.0	6.2
. ,	Provider					
	Local Government	%	100	100.0	0–100.0	57.7
	National Government	%		100.0	0–100.0	8.7
	Private	%		92.7	0–92.7	4.7
Desludging Services		,,,		52.7	5 52.7	
Frequency	-	year	_	12.0	0–12.0	0.6
- гечистсу	Provider	yeur		12.0	J-12.0	0.0
		%	100	100.0	0–100.0	8.7
	Government	%	100	92.7	0-100.0	
W-4 C	Private		Cita Valea			4.7
Water Supply Fa		Unit	City Value	Top Value	Range	Average
Household Water S		0/		25.0	2.60.05.0	64.5
Central Water Supp		%	90.8	95.0	3.60–95.0	64.5
Central Water Supp	oly–Communal	%	0	46.7	0.0–46.7	5.5
Borehole		%	0	54.5	0.0–54.5	14.1
Protected Spring/W	/ell	%	9.2	96.4	0.0–96.4	10.3
Rainwater		%	0	20.0	0.0–20.0	8.1
Water Vendor		%	0	35.0	0.0–35.0	5.1
Population Buying I		%	_	80.0	0-80.0	12.9
Average Water Cor	•	lpcd	_	160.0	29–160.0	72.1
Water Treatment Fa	acilities	lpcd	19.7	321.5	1.5–321.5	55.6
Local Government		%	100.0	100.0	0–100.0	47.5
National Governme	ent	%	0	100.0	0–100.0	26.5
Private Concessiona		%	0	100.0	0–100.0	9.3
Organizational A		Unit	City Value	Top Value	Range	Average
Institutions Involved	d in Sanitation					
Public Sector						
	National Government	#	_	6	1–6	0.5
	Local Government	#	3	4	1–4	1.3
	State- Owned Utility	#	1	2	1–2	0.5
Private Sector						
	Water Utility	#		2	0–2	0.1
	Enterprise	#		1	0–2	0.1
	Nongovernment Organization	#	_	2	0–2	0.1
Number of Personn						
Public Sector						
	Total Personnel (per 10,000	#		21.67	0.4–21.67	9.0
	pop'n) Planning and Monitoring	%		100	5–100	11.8
	Construction	%		100	6–100	8.9
	Operations and Maintenance	%		100	50–100.0	23.6
Private Sector	operations and maintenance	70		100	50-100.0	23.0
- Invate Sector	Total Personnel (per 10,000	#		30.96	12.3–30.96	1.4
	Total Fersonner (per 10,000	#		30.90	12.3-30.96	1.4

	pop,n)					
	Operations and Maintenance	%	_	_	_	_
Legal Framework	<u> </u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sai	nitation		-	-		
	Number of Laws on Sanitation					
	National	#	3	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	1984	2007	1947–2007	1985
	Latest	year	2002	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	Υ	17	7–17	-
	Year Enacted	year	2002	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation F	Plan		-	-		
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Υ	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita		762.7	0.7–762.7	32.1
	Source of Fund	\$7 capita	_	, 52.7	0.7 702.7	
Sanitation Problem	Major Sanitation Problem	Rate of wastewat	er treatment			
Samuation Froblem	Major Samtation Problem	cannot meet the				
	Future Programs/Projects	Improvement of v sanitation, and tre				
	Funding Amount	\$/capita	1.79	24.1	0.96–24.1	1.0
	Funding Source	Kunming Governi	ment, UN-Habitat			
Capital Investme		Unit	City Value	Top Value	Range	Average
	Annual Capital Investment					
	Annual Amount	\$/capita	_	168.0	0.5–168.0	10.3
	Source of Fund					
	National Government	%	0	90.0	0.0–90.0	22.1
	Local Government	%	30	100.0	0.0-100.0	18.5
	Loans	%	0	99.0	0.0–99.0	15.7
	Tariff Revenue	%	0	0	0–0	(
	Others	%	70	100.0	0.0-100.0	9.0
Operations and M	laintenance Expenditures	Unit	City Value	Top Value	Range	Average
	Annual O&M Cost					
	Annual Amount	\$/capita	_	8.3	0.01–8.3	0.7
	Source of Fund					
	National Government	%	0	47.0	0–47	4.9
	Local Government	%	10	100.0	0–100	40.7
	Loans	%	0	53.0	0–53	3.4
	Tariff Revenue	%	90	100.0	0–100	14.3
	Others	%	0	0	0	(
Revenues and Fee	es for Services	Unit	City Value	Top Value	Range	Average
	Annual Revenues and Fees					
	Total Revenue	\$/capita	_	15	0.3–15.0	0.9
	Sewered Area Charges					
	Sewered Area Charges  Connection Charge	\$/connection		110	0.6–110.0	20.0
		\$/connection \$/m3	-	110 90	0.6–110.0 0.015–90	20.0

Private	\$/ST	-	133	4–133	9.9
Government	\$/ST	_	100	0–100	23.9
Other Fees	\$	_	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	0	67	0–67	21.7
Household Liquid Waste	%	50	80	15–80	39.6
Industrial Waste	%	10	38	0–38	8.4
Commercial Waste	%	0	35	0–35	8.5
Hospital Waste	%	0	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	100	100	0–100	10.3
Central Sewer System	%	0	35	0–35	6.5
No Treatment	%	0	100	0–100	36.5
Others	%	0	50	0–50	10.4
Description	List	-			
Within River Basin	Y/N	Υ			
River Basin/Major River Nam	ne Jinsha river				
Basin Area	На	292,000	4,939,800	75.15–4,939,800	360,567.7
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	Range	Average
Water Quality – Surface Water					
Total Coliform	#/ml	_	22000#/	<1- 22000	
BOD			100ml		
	ma/l	10.7		1 28_180 0	19.7
	mg/l	10.7	180	1.28–180.0	18.7
COD	mg/l	10.7 67.4	180 973	7.1–973.0	72.4
COD Total Suspended Solids	mg/l mg/l	67.4	180 973 261	7.1–973.0 1.0–261.0	72.4 49.6
COD Total Suspended Solids Heavy Metals	mg/l mg/l mg/l	67.4 - -	180 973 261 16.7	7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals Health Statistics	mg/l mg/l	67.4	180 973 261	7.1–973.0 1.0–261.0	72.4 49.6
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation— Related Diseases	mg/l mg/l mg/l	67.4 - -	180 973 261 16.7	7.1–973.0 1.0–261.0 0.25–16.7	72.4 49.6 0.6
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation—Related Diseases Reported Cases (per 10,000 population)	mg/l mg/l mg/l <b>Unit</b>	67.4 - -	180 973 261 16.7 <b>Top Value</b>	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b>	72.4 49.6 0.6 <b>Average</b>
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea	mg/l mg/l mg/l Unit	67.4 - - City Value	180 973 261 16.7 <b>Top Value</b> 594.14	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b>	72.4 49.6 0.6 <b>Average</b>
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B	mg/l mg/l mg/l Unit	67.4 - -	180 973 261 16.7 <b>Top Value</b> 594.14 6.83	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86	72.4 49.6 0.6 <b>Average</b> 50.1
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l mg/l Unit # #	67.4 - - City Value - - -	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14 0.13–6.86 0.00–294.55	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infectior	mg/l mg/l mg/l  Molt  Unit  # # # # # #	67.4 - City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
COD Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infectior Measles	mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # #	67.4 - City Value - - -	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79  0.00–4.45	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infectior Measles Malaria	# # # # # # # # # # # # # # # # # # #	67.4 - City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	7.1–973.0 1.0–261.0 0.25–16.7 <b>Range</b> 0.75–594.14  0.13–6.86  0.00–294.55  0.32–507.79	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infectior Measles Malaria  Death (children under 5 years) (per 10,000 population)	# # # # # # # # # # # # # # # # # # #	67.4 - City Value - - -	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infectior Measles Malaria Death (children under 5 years) (per 10,000 populat	# # # # # # # # # # # # # # # # # # #	67.4 - City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infectior Measles Malaria Death (children under 5 years) (per 10,000 populate Diarrhea Hepatitis A & B	# # # # # # # # # # # # # # # # # # #	67.4  - City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	7.1–973.0 1.0–261.0 0.25–16.7 Range 0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54 0.0–0.25	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Total Suspended Solids Heavy Metals  Health Statistics Sanitation— Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infectior Measles Malaria  Death (children under 5 years) (per 10,000 populat  Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l mg/l  mg/l  Unit  # # # # # # tion) # # #	67.4 - City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7  0.0 0.0
COD Total Suspended Solids Heavy Metals  Health Statistics Sanitation– Related Diseases Reported Cases (per 10,000 population) Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infectior Measles Malaria  Death (children under 5 years) (per 10,000 populat Diarrhea Hepatitis A & B Trachoma Acute Lower Respiratory Infectior	# # # # # # # # # # # # # # # # # # #	67.4  - City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0 6.3	7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0 0.00–6.3	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7  0.0 0.0 0.0 0.0
COD Total Suspended Solids Heavy Metals  Health Statistics  Sanitation- Related Diseases Reported Cases (per 10,000 population)  Diarrhea Hepatitis A & B  Trachoma Acute Lower Respiratory Infection Measles Malaria  Death (children under 5 years) (per 10,000 populat Diarrhea Hepatitis A & B  Trachoma	mg/l mg/l mg/l  mg/l  Unit  # # # # # # tion) # # #	67.4  - City Value	180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0	7.1–973.0 1.0–261.0 0.25–16.7 Range  0.75–594.14 0.13–6.86 0.00–294.55 0.32–507.79 0.00–4.45 0.0–3.54  0.0–0.47 0.0–0.25 0–0	72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7  0.0 0.0

#### 30. Puer, PR China

Puer		For All Surveyed Cities and Municipalities
Coordinator	Yin Lu	
Office	Pure Water Supply Plant	
Address		
Fax		
Telephone		
E-mail address	liren.6666@yahoo.com.cn	

Demographics		Unit	City Value	Top Value	Range	Average
	Population (2007)	#(000)	265.6	11,000.00	21.7 – 11,000.0	1200.3
	Growth Rate	%	0.60	7.10	0.35 – 7.10	2.6
	Number of Households	#(000)	78.90	2,301.30	2.86 – 2,301.26	256.4
	Average Household Size	#	3.2	7.6	3.2 – 7.6	4.9
	Floating Population	%	5.7	844.1	0 - 844.1	34.5
	Urban Poor	%	2.69	48.0	0 – 48.0	14.6
	City Area	ha (000)	22.7	2,101.20	2.7 – 2,101.2	114.6
	Urban Core	%	16.7	94.5	0.3 – 94.5	21.6
	Secondary Urban Core	%	17.7	59.7	0 – 59.7	13.5
	Urban Fringe	%	44.4	99.7	0 – 99.7	18.9
	Peri–Urban	%	21.1	98.5	0 – 98.5	34.9
	Slum Area	%	-	35.96	0 – 35.96	4.3
	Average City Density	#/ha	11.3	305.6	0.5 – 305.6	54.7
	Urban Core	#/ha	39.0	426.0	6 – 426.0	73.5
	Secondary Urban Core	#/ha	_	184.0	4.0 - 184.0	29.2
	Urban Fringe	#/ha	-	133.0	3.0 – 133.0	17.3
	Peri–Urban	#/ha	-	110.0	0.3 – 110.0	11.5
	Slum Area	#/ha	_	1,519.4	20.0 – 1,519.4	120.7
Sanitation Covera	ge	Unit	City Value	Top Value	Range	Average
Area Coverage		('000) ha	22.70	2,101.20	0.8 – 2,101.20	114.6
	Central Sewerage System	%	18.5	100.0	0.0 - 100.0	26.9
	Central Water Supply System	%	9.6	100.0	0.5 – 100.0	60.8
Population Coverage		('000) ha	256.23	11,000.0	21.7 – 11,000.00	1,181.3
	Central Sewerage System	%	57.2	100.0	0 – 100.0	31.5
	Central Water Supply System	%	57.2	99.7	3.6 – 99.7	70.9
Sanitation Facility	Sanitation System Type	Unit	City Value	Top Value	Range	Average
	I. Central Sewerage System	%	57.0	100.0	0.0-100.0	27.3
	II. Individual with Septic Tank	%	42.8	100.0	0.0-100.0	44.0
	III. Communal with Septic	%	0.1	10.5	0.0–10.5	0.9
	Tank IV. Pit Latrine	%	0	59.9	0.0–59.9	13.9
		%				0.0
	V Eco Sanitation		0	0.9	0 0-0 9	
	V. Eco Sanitation VI. Open Defecation		0	0.9 61.0	0.0-0.9	
	VI. Open Defecation	%	0	0.9 61.0	0.0–0.9	
	VI. Open Defecation  Toilet System	%	0	61.0	0.0–61.0	7.3
	VI. Open Defecation  Toilet System  Type I	%	0 57	61.0	0.0-61.0	7.3
	VI. Open Defecation  Toilet System  Type I  Type Ia	% % %	57 0	61.0 100.0 88.9	0.0-61.0 0-100.0 0-88.9	7.3 13.7 9.3
	VI. Open Defecation  Toilet System  Type I  Type la  Type II	% % %	57 0 42.8	100.0 88.9 93.1	0.0–61.0 0–100.0 0–88.9 0–93.1	7.3 13.7 9.3 12.6
	VI. Open Defecation  Toilet System  Type I  Type la  Type II  Type IIa	% % % % %	57 0 42.8 0	61.0 100.0 88.9 93.1 100.0	0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0	7.3 13.7 9.3 12.6 32.2
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III	% % % % %	57 0 42.8 0	61.0 100.0 88.9 93.1 100.0 2.0	0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0	7.3 13.7 9.3 12.6 32.2 0.1
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type III	% % % % % %	57 0 42.8 0 0.1	100.0 88.9 93.1 100.0 2.0 61.0	0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	7.3 13.7 9.3 12.6 32.2 0.1 2.8
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type IIII  Type IIII  Type IIII	% % % % % % % % %	57 0 42.8 0	61.0 100.0 88.9 93.1 100.0 2.0 61.0 59.9	0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0 0-59.9	7.3 13.7 9.3 12.6 32.2 0.1 2.8 13.9
	VI. Open Defecation  Toilet System  Type I  Type Ia  Type II  Type IIa  Type III  Type III	% % % % % %	57 0 42.8 0 0.1	100.0 88.9 93.1 100.0 2.0 61.0	0.0-61.0 0-100.0 0-88.9 0-93.1 0-100.0 0-2.0 0-61.0	13.7 9.3 12.6 32.2 0.1 2.8 13.9 5.6

Type VI & Vla	%	_	22.5	0–22.5	7.5
Type VIb	%	-	12.0	0-12.0	0.4
Treatment Facility	Unit	City Value	Top Value	Range	Average
Waste Water Treatment Plant					
Capacity (10,000 population)	m3/d	780.5	1,190.0	0.4 – 1,190.0	201.3
Provider					
Local Government	%	100	100.0	0-100.0	57.7
National Government	%	_	100.0	0–100.0	8.7
Private	%	_	92.7	0-92.7	4.7
Septage Treatment Plant					
Capacity	m3/d	-	135.0	50–135.0	6.2
Provider					
Local Government	%	100	100.0	0–100.0	57.7
National Government	%	-	100.0	0-100.0	8.7
Private	%	-	92.7	0–92.7	4.7
Desludging Services					
Frequency	year	12	12.0	0–12.0	0.6
Provider					
Government	%	100	100.0	0–100.0	8.7
Private	%	_	92.7	0–92.7	4.7
Water Supply Facility	Unit	City Value	Top Value	Range	Average
Household Water Supply Source		<u> </u>	•		
Central Water Supply–Individual	%	57.2	95.0	3.60–95.0	64.5
Central Water Supply–Communal	%	0	46.7	0.0–46.7	5.5
Borehole	%	42.8	54.5	0.0–54.5	14.1
Protected Spring/Well	%	0	96.4	0.0–96.4	10.3
Rainwater	%	0	20.0	0.0–20.0	8.1
Water Vendor	%	0	35.0	0.0–35.0	5.1
Population Buying Bottled Water	%		80.0	0-80.0	12.9
Average Water Consumption	lpcd		160.0	29–160.0	72.1
Water Treatment Facilities	lpcd	13.7	321.5	1.5–321.5	55.6
Local Government	%	100	100.0	0–100.0	47.5
National Government	%	0	100.0	0–100.0	26.5
Private Concessionaire		0			
	0/2	Λ			
	%	O City Value	100.0	0–100.0	9.3
Organizational Arrangement	% Unit	O City Value			
Organizational Arrangement Institutions Involved in Sanitation			100.0	0–100.0	9.3
Organizational Arrangement Institutions Involved in Sanitation Public Sector	Unit	City Value	100.0 Top Value	0–100.0 <b>Range</b>	9.3 Average
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government	Unit #	City Value	100.0  Top Value	0–100.0 <b>Range</b>	9.3 Average
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government	# #	City Value	100.0 <b>Top Value</b> 6  4	0–100.0 <b>Range</b> 1–6 1–4	9.3 <b>Average</b> 0.5 1.3
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government State- Owned Utility	Unit #	City Value	100.0  Top Value	0–100.0 <b>Range</b>	9.3 <b>Average</b> 0.5 1.3
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government State- Owned Utility Private Sector	# # #	City Value  - 2 2	100.0  Top Value  6 4 2	0–100.0  Range  1–6  1–4  1–2	9.3 <b>Average</b> 0.5  1.3  0.5
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government State- Owned Utility Private Sector  Water Utility	# # #	- 2 2	100.0  Top Value  6 4 2	0-100.0  Range  1-6  1-4  1-2	9.3 <b>Average</b> 0.5  1.3  0.5  0.1
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government State- Owned Utility Private Sector  Water Utility Enterprise	# # # # # #	City Value  - 2 2	100.0  Top Value  6 4 2 2	0-100.0  Range  1-6  1-4  1-2  0-2  0-2	9.3  Average  0.5  1.3  0.5  0.1  0.1
Organizational Arrangement Institutions Involved in Sanitation  Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization	# # #	- 2 2	100.0  Top Value  6 4 2	0-100.0  Range  1-6  1-4  1-2	9.3  Average  0.5  1.3  0.5  0.1  0.1
Organizational Arrangement Institutions Involved in Sanitation  Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel	# # # # # #	- 2 2	100.0  Top Value  6 4 2 2	0-100.0  Range  1-6  1-4  1-2  0-2  0-2	9.3  Average  0.5  1.3  0.5  0.1  0.1
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector	# # # # # # # # # # # # # # # # # # #	- 2 2 2	100.0  Top Value  6 4 2 2 1 2	0-100.0  Range  1-6 1-4 1-2  0-2 0-2 0-2	9.3  Average  0.5 1.3 0.5  0.1 0.1 0.1
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000	# # # # # #	- 2 2	100.0  Top Value  6 4 2 2	0-100.0  Range  1-6  1-4  1-2  0-2  0-2	9.3  Average  0.5 1.3 0.5  0.1 0.1 0.1
Institutions Involved in Sanitation Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector	# # # # # # # # # # # # # # # # # # #	- 2 2 2	100.0  Top Value  6 4 2 2 1 2	0-100.0  Range  1-6 1-4 1-2  0-2 0-2 0-2	9.3  Average  0.5  1.3  0.5  0.1  0.1  9.0
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel Public Sector  Total Personnel (per 10,000 pop'n)	# # # # # #	- 2 2 2 10.15	100.0  Top Value  6 4 2 1 2 1 2 2 1 2 21.67	0-100.0  Range  1-6 1-4 1-2  0-2 0-2 0-2 0-2  0.4-21.67	9.3  Average  0.5  1.3  0.5  0.1  0.1  9.0  11.8
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government State— Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization  Number of Personnel  Public Sector  Total Personnel (per 10,000 pop'n) Planning and Monitoring	# # # # # # # # # # # # # # # # # # #	- 2 2 2 10.15	100.0  Top Value  6 4 2 2 1 2 1 2 1 100.0	0-100.0  Range  1-6 1-4 1-2  0-2 0-2 0-2 0-2  0.4-21.67 5-100	9.3
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government State— Owned Utility Private Sector  Water Utility Enterprise Nongovernment Organization Number of Personnel Public Sector  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction	# # # # # # # # % % %	City Value	100.0  Top Value  6 4 2 2 1 2 2 1 2 1 00 100	0-100.0  Range  1-6 1-4 1-2  0-2 0-2 0-2 0-2 5-100 6-100	9.3  Average  0.5 1.3 0.5  0.1 0.1 0.1 1.8 8.9
Organizational Arrangement Institutions Involved in Sanitation Public Sector  National Government Local Government State- Owned Utility  Private Sector  Water Utility Enterprise Nongovernment Organization Number of Personnel Public Sector  Total Personnel (per 10,000 pop'n) Planning and Monitoring Construction Operations and Maintenance	# # # # # # # # % % %	City Value	100.0  Top Value  6 4 2 2 1 2 2 1 2 1 00 100	0-100.0  Range  1-6 1-4 1-2  0-2 0-2 0-2 0-2 5-100 6-100	9.3  Average  0.5 1.3 0.5  0.1 0.1 0.1 1.8 8.9

	Operations and Maintenance	%	_	_	_	_
Legal Framework	<u>'</u>	Unit	City Value	Top Value	Range	Average
Legal Mandate of Sar	nitation					
	Number of Laws on Sanitation					
	National	#	1	7	1–4	1.9
	Local	#	1	3	1–3	1.2
	Year Enacted					
	Oldest	year	1994	2007	1947–2007	1985
	Latest	year	2002	2007	1956–2007	1993
	Sanitation Service Charges					
	Law on Collecting Fees	Y/N	N	17	7–17	-
	Year Enacted	year	_	2007	1947–2007	1985
Planning		Unit	City Value	Top Value	Range	Average
Strategic Sanitation P	lan					
	Existing Sanitation Plan					
	With Sanitation Plan	Y/N	Υ	11	11–27	
	When Prepared	year	_	2007	2006–2011	2009
	New Sanitation Plan					
	Will Prepare Sanitation Plan	Y/N	_			
	Preparation Year	year	_	2020	2015–2020	2018
	Estimated Cost	\$	_	250	1.9–250.0	12.5
	Amount per Capita	\$/capita	_	762.7	0.7–762.7	32.1
	Source of Fund		_			
Sanitation Problem	Major Sanitation Problem					
	Future Programs/Projects		_			
	Funding Amount	\$/capita		24.1	0.96–24.1	1.0
	Funding Source	4 1				
Capital Investmen		Unit	City Value	Top Value	Range	Average
						Aveluge
•					90	Average
•	Annual Capital Investment Annual Amount	\$/capita	27.9	168.0	0.5–168.0	
	Annual Capital Investment	\$/capita		-	-	
	Annual Capital Investment Annual Amount Source of Fund	\$/capita		-	-	10.3
	Annual Capital Investment Annual Amount Source of Fund National Government	%	27.9	168.0	0.5–168.0	10.3
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government	%	27.9 47 0	90.0 100.0	0.5–168.0 0.0–90.0 0.0–100.0	10.3 22.1 18.5
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans	% % %	27.9 47 0 53	90.0 90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0	10.3 22.1 18.5 15.7
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue	% % %	27.9 47 0 53 0	90.0 90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0	10.3 22.1 18.5 15.7
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others	% % % %	27.9 47 0 53 0	90.0 100.0 99.0 0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	10.3 22.1 18.5 15.7 0
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  Contact Capital Investment	% % %	27.9 47 0 53 0	90.0 90.0 100.0 99.0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0	10.3 22.1 18.5 15.7 0
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost	% % % % % Unit	27.9 47 0 53 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0 Range	10.3 22.1 18.5 15.7 0 9.0 <b>Average</b>
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount	% % % %	27.9 47 0 53 0	90.0 100.0 99.0 0	0.5–168.0 0.0–90.0 0.0–100.0 0.0–99.0 0–0 0.0–100.0	10.3 22.1 18.5 15.7 0 9.0 <b>Average</b>
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others laintenance Expenditures Annual O&M Cost Annual Amount Source of Fund	% % % % Unit \$/capita	27.9  47  0  53  0  City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range	10.3 22.1 18.5 15.7 0 9.0 Average
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government	% % % % Unit \$/capita	27.9  47 0 53 0 City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b>	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0–0  0.0–100.0  Range	10.3 22.1 18.5 15.7 0 9.0 Average
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government	% % % % White  ### Comparison   27.9  47  0  53  0  City Value	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9	
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others laintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government	% % % % Whit  \$/capita  % % %	27.9  47  0  53  0  City Value  47  0  53	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9 40.7
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Loans Tariff Revenue	% % % % Unit \$/capita	27.9  47 0 53 0 City Value  47 0 53 0	90.0 90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0–0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Loans Tariff Revenue Others	% % % White % Unit \$/capita % % % % % % % % % % %	27.9  47 0 53 0 City Value  47 0 53 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9 40.7 3.4 14.3
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Ses for Services	% % % % Unit \$/capita	27.9  47 0 53 0 City Value  47 0 53 0	90.0 90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0 100.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0–0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100	10.3 22.1 18.5 15.7 0 9.0 Average 0.7 4.9 40.7 3.4 14.3
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others  Tariff Revenue Others  Source of Fund National Government Annual Government Annual Government Annual Revenue Others  Source of Fund Annual Revenue	% % % % Unit  \$/capita  % % % Unit	27.9  47  0  53  0  City Value  47  0  53  0  City Value	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3  22.1  18.5  15.7  0  9.0  Average  0.7  4.9  40.7  3.4  14.3  0  Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Cothers Tariff Revenue Others Is for Services Annual Revenues and Fees Total Revenue	% % % White % Unit \$/capita % % % % % % % % % % %	27.9  47 0 53 0 City Value  47 0 53 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90.0 100.0 99.0 0 100.0 <b>Top Value</b> 8.3 47.0 100.0 53.0	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0	10.3  22.1  18.5  15.7  0  9.0  Average  0.7  4.9  40.7  3.4  14.3  0  Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Total Revenues and Fees Total Revenue Sewered Area Charges	% % % % Wnit  \$/capita  % % % Unit  \$/capita	27.9  47  0  53  0  City Value  47  0  City Value  3.2	90.0 90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Local Government Cons Tariff Revenue Others Is for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge	%    %    %    %    Wnit  \$/capita  %    %    %    %    %    W    W    W	27.9  47  0  53  0  City Value   47  0  53  0  City Value  3.2	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0 Average  0.7 4.9 40.7 3.4 14.3 0 Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Is for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	% % % % Wnit  \$/capita  % % % Unit  \$/capita	27.9  47  0  53  0  City Value  47  0  City Value  3.2	90.0 90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3 22.1 18.5 15.7 0 9.0 Average  0.7 4.9 40.7 3.4 14.3 0 Average
Operations and M	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Ses for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate Septic Tank Desludging Fee	% % % % Wnit  \$/capita  % % % % % % % % % % % % % % % % % %	27.9  47 0 53 0 City Value  47 0 City Value  3.2	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range  0.3–15.0  0.6–110.0  0.015–90	10.3 22.1 18.5 15.7 0 9.0 Average  0.7 4.9 40.7 3.4 14.3 0 Average  0.9
	Annual Capital Investment Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Iaintenance Expenditures Annual O&M Cost Annual Amount Source of Fund National Government Local Government Loans Tariff Revenue Others Is for Services Annual Revenues and Fees Total Revenue Sewered Area Charges Connection Charge Tariff Rate	%    %    %    %    Wnit  \$/capita  %    %    %    %    %    W    W    W	27.9  47  0  53  0  City Value   47  0  53  0  City Value  3.2	90.0 100.0 99.0 0 100.0 Top Value  8.3 47.0 100.0 53.0 100.0 0 Top Value	0.5–168.0  0.0–90.0  0.0–100.0  0.0–99.0  0-0  0.0–100.0  Range  0.01–8.3  0–47  0–100  0–53  0–100  0  Range	10.3  22.1 18.5 15.7 0 9.0  Average  0.7 4.9 40.7 3.4 14.3 0  Average  0.9 20.0 0.3

Other Fees	\$	_	30	0–30	3.6
Environmental Situation	Unit	City Value	Top Value	Range	Average
Water Quality and Pollution					
Water Quality Monitored	Y/N	Υ			
Sources of Water Pollution					
Household Solid Waste	%	_	67	0–67	21.7
Household Liquid Waste	%	_	80	15–80	39.6
Industrial Waste	%	_	38	0–38	8.4
Commercial Waste	%	_	35	0–35	8.5
Hospital Waste	%	_	17	0–17	2.5
Polluter to Treat Own Wastewater	Y/N	Υ			
Current Wastewater Disposal					
Own Treatment Plant	%	0	100	0–100	10.3
Central Sewer System	%	29	35	0–35	6.5
No Treatment	%	71	100	0–100	36.5
Others	%	0	50	0–50	10.4
Description	List	_			
Within River Basin	Y/N	Υ			
River Basin/Major River Name	Langcang river				
Basin Area	ha	5,000	4,939,800	75.15–4,939,800	360,567.7
City Location	u,m,d	Midstream			
Adjoining Town					
Pollution Load	vh–vl	Medium			
Sanitation Work/Plan	i/c	Individual			
Sanitation Work/Plan Environmental Statistics	i/c <b>Unit</b>	Individual  City Value	Top Value	Range	Average
			Top Value	Range	Average
Environmental Statistics			22000#/	<b>Range</b> <1- 22000	Average
Environmental Statistics Water Quality – Surface Water Total Coliform	Unit #/ml	City Value	22000#/ 100ml	<1- 22000	
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD	#/ml mg/l		22000#/ 100ml 180	<1- 22000 1.28-180.0	18.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD	#/ml mg/l mg/l	City Value	22000#/ 100ml 180 973	<1- 22000 1.28-180.0 7.1-973.0	18.7 72.4
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids	#/ml mg/l mg/l mg/l	City Value	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals	#/ml mg/l mg/l mg/l mg/l	City Value	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics	#/ml mg/l mg/l mg/l	City Value	22000#/ 100ml 180 973 261	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0	18.7 72.4 49.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases	#/ml mg/l mg/l mg/l mg/l	City Value	22000#/ 100ml 180 973 261 16.7	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7	18.7 72.4 49.6 0.6
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l Unit	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range	18.7 72.4 49.6 0.6 <b>Average</b>
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea	#/ml mg/l mg/l mg/l mg/l Unit	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b>	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range	18.7 72.4 49.6 0.6 <b>Average</b>
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l The mg/l mg/l mg/l # #	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml #/ml mg/l mg/l mg/l Unit ## ## ## ##	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	#/ml #/ml mg/l mg/l mg/l mg/l mg/l Unit	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles	#/ml #/ml mg/l mg/l mg/l mg/l Unit ## ## ## ## ## ## ## ## ## ## ## ## ##	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45	<1- 22000 1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 <b>Range</b> 0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria	#/ml mg/l mg/l mg/l mg/l Unit  # # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml mg/l mg/l mg/l mg/l Unit  # # # # # # # # # # # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45	<1- 22000  1.28-180.0  7.1-973.0  1.0-261.0  0.25-16.7  Range  0.75-594.14  0.13-6.86  0.00-294.55  0.32-507.79  0.00-4.45  0.0-3.54	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)	#/ml #/ml mg/l mg/l mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 —	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population  Diarrhea  Hepatitis A & B	#/ml mg/l mg/l mg/l mg/l  mg/l  The state of	City Value	22000#/ 100ml 180 973 261 16.7 <b>Top Value</b> 594.14 6.83 294.55 507.79 4.45 — 0.47 0.25	<pre></pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.25 0-0</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection	#/ml mg/l mg/l mg/l mg/l  mg/l  Unit  # # # # # # # # # # # # # # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45 - 0.47 0.25 0 6.3	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7 Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.47 0.0-0.25 0-0 0.00-6.3</pre>	18.7 72.4 49.6 0.6 <b>Average</b> 50.1 3.0 20.1 153.9 0.3 0.7 0.0 0.0 0.0
Environmental Statistics  Water Quality – Surface Water  Total Coliform  BOD  COD  Total Suspended Solids  Heavy Metals  Health Statistics  Sanitation– Related Diseases  Reported Cases (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma  Acute Lower Respiratory Infection  Measles  Malaria  Death (children under 5 years) (per 10,000 population)  Diarrhea  Hepatitis A & B  Trachoma	#/ml mg/l mg/l mg/l mg/l Unit  # # # # # # # # # # # # # # # # # #	City Value	22000#/ 100ml 180 973 261 16.7 Top Value  594.14 6.83 294.55 507.79 4.45 - 0.47 0.25	<pre>&lt;1- 22000  1.28-180.0 7.1-973.0 1.0-261.0 0.25-16.7  Range  0.75-594.14 0.13-6.86 0.00-294.55 0.32-507.79 0.00-4.45 0.0-3.54  0.0-0.25 0-0</pre>	18.7 72.4 49.6 0.6

# **APPENDIX**

#### Sanitation Data Book for Asian Cities: Questionnaire

Name of City	C ton -
Name of City:	Country:

	City Demographics			
	Land Area (ha)	<b>Population</b> Year :	Population Density (#/ha)	
	Total City Area	Total population (000) :  Growth Rate (%) :	Urban Core Secondary Urban	
DEMOGRAPHICS	City Area Breakdown:  Urban Core :  Secondary Urban  Core :  Urban Fringe :  Peri– urban :  Slum area :	No. of Households :  Average HH Size :  Floating Population : (approx)  No. of urban poor :	Core Urban Fringe Peri– urban Slum area	
	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	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.	

Sanitation Services	Water Supply Services
Service Area (ha)	Service Area (ha)
Served Area (central sewerage system)	: Served Area (central water supply system) :
Unserved Area	: Unserved Area :
Note: Total should equal to total city area	. Note: Total should equal to total city area
Household Sanitation	Household Water Supply
See Note 1 (last page) for Range of Sanita	No. of households with:
No. of households with:	• In– house connection (central WSS) :
No. of flousefloids with.	• Community tap (central WSS) :
Individual toilet with sewered line	Borehole (individual / communal) :

ľ	Sanitation Services	Water Supply Services
	Household Sanitation Individual toilet with septic tank	Household Water Supply
	<ul> <li>Type II regular desludging &amp; treated:</li> <li>Type IIa desludged if full, not treated:</li> <li>Communal toilet with septic tank</li> <li>Type III regular desludging &amp; treated:</li> <li>Type IIIa desludged if full, not treated:</li> <li>Pit latrine</li> <li>Type IV ventilated improved pit:</li> <li>Type IVa ordinary:</li> <li>Eco San</li> <li>Type V off- site treatment:</li> <li>Type Va on- site treatment:</li> <li>Open defecation</li> <li>Type VI open filed:</li> <li>Type VIa body of water:</li> <li>Type VIb use of bucket:</li> </ul>	<ul> <li>Protected spring/well</li> <li>Collected rainwater</li> <li>Vendor- provided</li> <li>Population buying Bottled water (%)</li> <li>Ave. consumption (Ipcd)</li> <li>Water Provider</li> <li>Local government (%)</li> <li>National government (%)</li> <li>Private concessionaire (%)</li> <li>Individual households (%)</li> <li>(Total should add to 100%)</li> </ul>
	Note: Total should equal to No. of Households in Demographics.	Note: Total should equal to No. of Households in Demographics.
_	<ul> <li>Treatment Facilities Capacity</li> <li>Wastewater treatment plant (m³/day) :</li> <li>Frequency of desludging (years) :</li> <li>Septage treatment plant (m³/day) :</li> <li>Eco San facility (m³/day) :</li> </ul>	<ul> <li>Treatment Facilities Capacity</li> <li>Water treatment plant (m³/day) :</li> </ul>
	<ul> <li>Treatment Facility Provider</li> <li>Local government (%) :</li> <li>National government (%) :</li> <li>Private concessionaire (%) :</li> <li>Individual households (%) :</li> <li>(Total should add to 100%)</li> </ul>	<ul> <li>Treatment Facility Provider</li> <li>Local government (%) :</li> <li>National government (%) :</li> <li>Private concessionaire (%) :</li> <li>Individual households (%) :</li> <li>(Total should add to 100%)</li> </ul>
	Please indicate treatment technology:  Oxidation/ Waste stabilisation Ponds	Please indicate treatment technology:  Rapid sand gravity filter with alum lime and chlorine

	Institutional Mandate and Set- up							
	Agencies / Organizations Involved	d in Sanit	ation					
	Name	Type*	Task**	Legal Mandate (year enacted)	No. of personnel***			
ORGAN								
ORGANIZATION	Note: * For Type, indicate numbers as defined 1 4=Private Water Utility; 5=Public– Private  ** Example of Tasks: Planning, Construction  *** Indicate total number of personnel invo	e Utility; 6=C on, Collectio	others (Please specify)Urbarn and Treatment, etc	n Local Body_	L 't Owned Utility;			
	Current Laws on Sanitation							
	Name of Law		Year Enacted	Implementing Ag	iency			
	Current Sanitation Status (Note: A							
	Does the city have a Sanitation Plan p to prepare one, estimated amount an fund	d source	of fund. Year A					
	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\$) 2012 2013							
FIN	Source of sanitation infrastructure construction funds: National government budget (%), Local government budget (%),							
FINANCIALS	Loans (%), Tariff revenues (%), Other (please         specify)							
	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\$) 20122013							
	For sewered areas: What is the sewerage connection charge? (US\$/connection) What is the tariff rate? Please specify unit. (US\$/unit) (Ex. \$/m3 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)							
	Current Sanitation Status (Note: A	الا figure	s are for liquid waste	e only, excluding solid waste	r.)			
FINANCIALS	What is the estimated total revenue for 2012NAV 2013NAV	-	ng sanitation services?	(US\$/year)				
ICIALS	Legal mandate for collecting fees? Na Name of Law		•					
	Future plans							

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

What are the major sources of water pollution? Please check types?  O Household solid waste (%): O Household liquid waste (%): O Industrial waste (%): O Commercial (%): O Type of establishment: Restaurants, (Please) O Hospital (%): O Type of establishment: Restaurants, (Please) O Hospital (%): O Other sources of hazardous waste,  Are the industries, commercial establishments, hospitals, institutions required by How are the wastewater treated now? O Polluter's own treatment plant (%): O Central sewer system (%): O No treatment, body of water (%): O Others (%): D Please describe: Through septic tank  Is the City located in a River Basin? Yes If YES:	e specify)
<ul> <li>Household liquid waste (%):</li> <li>Industrial waste (%): Type of industry: Textile, others (Please specify</li> <li>Commercial (%): Type of establishment: Restaurants, (Please</li> <li>Hospital (%): Other sources of hazardous waste,</li> </ul> Are the industries, commercial establishments, hospitals, institutions required by How are the wastewater treated now? <ul> <li>Polluter's own treatment plant (%):</li> <li>Central sewer system (%):</li> <li>No treatment, body of water (%):</li> <li>Others (%): Please describe: Through septic tank</li> </ul>	e specify)
<ul> <li>Industrial waste (%): Type of industry: Textile, others (Please specify</li> <li>Commercial (%): Type of establishment: Restaurants, (Please</li> <li>Hospital (%): Other sources of hazardous waste,</li> <li>Are the industries, commercial establishments, hospitals, institutions required by How are the wastewater treated now?</li> <li>Polluter's own treatment plant (%):</li> <li>Central sewer system (%):</li> <li>No treatment, body of water (%):</li> <li>Others (%): Please describe: Through septic tank</li> </ul>	e specify)
o Commercial (%): Type of establishment: Restaurants, (Pleas o Hospital (%): Other sources of hazardous waste,  Are the industries, commercial establishments, hospitals, institutions required by How are the wastewater treated now?  o Polluter's own treatment plant (%):  o Central sewer system (%):  o No treatment, body of water (%):  o Others (%): Please describe: Through septic tank	e specify)
O Hospital (%): Other sources of hazardous waste,  Are the industries, commercial establishments, hospitals, institutions required by How are the wastewater treated now?  O Polluter's own treatment plant (%):  O Central sewer system (%):  O No treatment, body of water (%):  O Others (%): Please describe: Through septic tank	
Are the industries, commercial establishments, hospitals, institutions required by How are the wastewater treated now?  o Polluter's own treatment plant (%):  o Central sewer system (%):  o No treatment, body of water (%):  o Others (%): Please describe: Through septic tank	aw to treat their wastewater? `
How are the wastewater treated now?  O Polluter's own treatment plant (%):  O Central sewer system (%):  O No treatment, body of water (%):  O Others (%): Please describe: Through septic tank	aw to treat their wastewater? '
<ul> <li>Polluter's own treatment plant (%):</li> <li>Central sewer system (%):</li> <li>No treatment, body of water (%):</li> <li>Others (%): Please describe: Through septic tank</li> </ul>	
<ul> <li>Central sewer system (%):</li> <li>No treatment, body of water (%):</li> <li>Others (%): Please describe: Through septic tank</li> </ul>	
o No treatment, body of water (%):  o Others (%): Please describe: Through septic tank	
o Others (%) : Please describe: Through septic tank	
Is the City located in a River Basin? Yes If <u>YES</u> :	
o Name of river basin or major river :	
o Basin area (ha):	
o City location (Please check):	
Are there adjoining towns or cities around your city? YES NO	
If YES:	
Pollution load: Very Heavy Heavy Medium Low \	ery Low
Sanitation work with adjoining areas: Individually Cooperatively	
	How? Please describe:

Water Quality Water Sources Upper National **Parameters** Groun River Lake on Standard Kolar river d Kolans **ENVIRONMENTAL STATISTICS** 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)

	Sanitation and Hygiene- Relate	ed Diseases					
	Year	Reported Cases	Deaths (children under five years of age)				
	Diseases directly related to poor water and sanitation						
	Diarrheal diseases						
픒	Hepatitis A & E						
HEALTH STATISTICS	Skin Diseases						
STATI	Trachoma						
STICS	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				

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

Name: Dr. Kulwant Singh, Title: Regional Advisor, UN- Habitat

Email: kulwant.singh@unhabitat.org

and

Name: Mr. Toby Roycroft, Title: Program Officer, CITYNET

Email: programs1@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
la	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
lla	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
Illa	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			
lva	Pit Latrine	na	Open another pit upon filling of pit			
V	Eco San	Storage		Cartage	Drying/ Composting/ Heating	Agricultural Use / Biogas
Va	Eco San	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



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