

# Information System Improvement Plan (ISIP) for municipalities ISIP Forms for Water Supply System

Prepared by

**Urban Management Centre** 

Under
Performance Assessment System program









The Urban Management Centre (UMC) is a women promoted not-for-profit organization, that works towards professionalizing urban management in India and worldwide. UMC provides technical assistance and support to city governments and facilitates change through peer-to-peer learning processes. It enhances the capacity of city governments by providing expertise and ready access to innovations on good governance implemented in India and abroad. UMC extensively works in the areas of urban water and sanitation, heritage management, planning, urban health, municipal finance, urban management, urban transportation and institutional restructuring. UMC is a legacy organization of International City/County Management Association (ICMA) and hence is also known as ICMA-South Asia. For more information, visit our website: www.umcasia.org



#### Performance Assessment System (PAS)

PAS, a seven-year action research project, has been initiated by Centre For Environment Planning and Technology (CEPT) University with funding from the Bill and Melinda Gates Foundation. PAS aims to develop better information on water and sanitation performance at the local level to be used to improve the financial viability, quality and reliability of services. It uses performance indicators and benchmarks on water and sanitation services in all the 400-plus urban areas of Gujarat and Maharashtra. Urban Management Centre (UMC) and the All India Institute of Local Self Government (AIILSG) are CEPT's project partners in Gujarat and Maharashtra, respectively. More details are available on www.pas.org.in

# Form WS01: Coverage of water supply service

About: This is an indicator form to generate coverage of water supply service indicator. Source of this information will be Form WS01A and Form WS01B.

Name of Municipality:		Date:	
		For Year:	
Location:	Municipal Head office		
Calculated by:	Municipal Engineer / City engineer		
Frequency of recording:	Daily     Double     Monthly	Quarterly	☑ Yearly
Reported to:	Chief officer		
Frequency of reporting:	Daily Daily Daily	Quarterly	☑ Yearly

	Population	Connections	Water supply coverage
Column	A	В	С
Unit	Numbers	Numbers	In percentage
Source	Form WS01A	Form WS01B	(B / A)*100
Value			

Form WS01A: Po	pulation Forecast
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About: Source of this information will be Census of India which is published decadal. Yearly population increase is to be forecasted using appropriate method. Population forecast would be done by the municipal engineer. Forecasted population figures for the city would be an important figure as it will be used in finding out the coverage of municipal services.

Name of Municipality:			Date:	
			For Year:	
Location:	Municipal Head off	ice		
Calculated by:	Municipal Engineer			
Frequency of recording:	Daily	Monthly	Quarterly	☑ Yearly
Reported to:	-			
Frequency of reporting:	Daily	Monthly	Quarterly	Yearly
				l
Population		2001		
Population		2011		
Decadal growth rat	te	2001-2011		
Annual growth rate	!			
HHs Size		2011		
	I	1	1	-
Year	Projected Population	Number of Household		
2011				
2012				
2013				
2014				
2015				
2016				
2017				
2018				
2019				

# Form WS01B: Number of households with water supply connection

About: Municipalities of Gujarat state are using computer software for keeping the records and information related to tax which includes property tax, water tax, sanitation tax etc. The information of water supply connection can be obtained from property tax software wherever available.

Location:	Central office				
Generated by:	Tax department				
Frequency of recording:	Daily	Monthly	Quarterly	🗹 Yearly	
Reported to:	Municipal Engineer / City Engineer				
Frequency of reporting:	Daily	Monthly		☑ Yearly	

					Res	idential		Non Residential						
Ward no	1/2"	3⁄4"	1	"	1.5″	2″	Sub Total	1/2"	<sup>3</sup> ⁄4″	1″	1.5″	2″	Sub Total	Total
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
Total														
Tot	tal prop	erties v	vith	wat	er supp	oly conr	nection							

# Form WS02: Per capita water supplied

About: This form is an indicator form to generate per capita treated water supply indicator. Source of this information will be Form WS02A and Form WS01A.

Name of Municipality:	Date:
	For Year:
Location:	Municipal Head office
Calculated by:	Municipal Engineer / City engineer
Frequency of recording:	Daily Monthly Quarterly Yearly
Reported to:	Chief officer

Frequency of reporting:	Daily	Monthly	Quarterly	🗹 Yearly	

	Month	Water supplied during the month	Days in the month	Number of HH served	Per capita water supplied
Column	А	В	С	D	E
Unit	-	MLM	Days	Number	LPCD
Source	-	Form WS02A	-	Form WS01B	[B / (CxD)]
1	April				
2	May				
3	June				
4	July				
5	August				
6	September				
7	October				
8	November				
9	December				
10	January				
11	February				
12	March				
Average					

## Form WS02A: Quantum of treated water supply

About: Quantum of treated water supplied is needed to calculate per capita water supply and non-revenue water. Source of the information would be readings taken from the meter installed at the outlet of water treatment plant/ chlorination plant.

Name of Municipality:	 Date:	
Water source:		

Monthly total quantity of water supplied in ML : \_\_\_\_\_ (ΣΕ) For Month:

Location:	✓ Purchased Treated water	☑ Outlet of treatment Plant	V	Outlet of ground water chlorination plant
Recorded by:	Staff at treatment p plant	blant / Chlorination		
Frequency of recording:	🗹 Daily 🗆 Mo	nthly D Quarterly		Yearly
Reported to:	Municipal engineer			
Frequency of reporting:	🗆 Daily 🗹 Mo	nthly 🗆 Quarterly		Yearly

Sr. No.	Date	Reading at a fix time:	Difference	Quantity of water	Remarks
Units	-	Kiloliters	Kiloliters	ML	
A	В	С	D	E	F
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					

12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
Total	Yearly		

# Form WS04: Extent of Non-revenue water

About: This form is an indicator form to generate NRW indicator. Source of this information will be Form WS02A and Form WS04A.

Name of Municipality:			Date:	
			For Year:	
Location:	Municipal Head o	ffice		
Calculated by:	Municipal Engine	er / City engineer		
Frequency of recording:	Daily	🗹 Monthly	Quarterly	Yearly
Reported to:	Chief officer			
Frequency of reporting:	Daily	Monthly	Quarterly	☑ Yearly

	Month	Total water produced	Total water billed	Non-revenue water
Column	A	В	С	D
Unit	-	MLD	MLD	Percentage
Source	-	Form WS02A	Method 1: Form WS04B	(C/B) x 100
1	April			
2	May			
3	June			
4	July			
5	August			
6	September			
7	October			
8	November			
9	December			
10	January			
11	February			
12	March			
Average				

# Form WS04A: Total Quantum of water Billed

About: Source of this information would be records from water flow meters for bulk and commercial connections. While the quantum of water billed to domestic consumers would be based on consumer end sample survey.

Name of Municipality:			Date:	
			For Month:	Apr-14
Location of form:	☑ Municipal office	Field		
Filled by:	Water supply engineer			
Frequency of recording:	Daily	🗹 Monthly	Quarterly	Yearly
Reported to:	Municipal engineer / Ci	ty engineer		
Frequency of reporting:	Daily	🗹 Monthly	Quarterly	Yearly

Particular	Source	Unit	Amount of water supplied
Water supplied to bulk and commercial connections	Actual consumption from generated bills	MLD	
Water supplied to domestic connection	Form WS05B	MLD	
Total	Sum of commercial and domestic consumption	MLD	

# Form WS05: Continuity of water supply - Method 1 (Valve operation)

About: This form would collect data of water supply duration with appropriate pressure and water quantity delivered to generate continuity of water.

Name of municipality:		Date:
	Fo	r Year:

Location:	Municipal Head off	ice		
Calculated by:	Municipal Engineer	/ City Engineer		
Frequency of recording:	Daily	🗹 Monthly	Quarterly	Yearly
Reported to:	Chief officer			
Frequency of reporting:	Daily	Monthly	Quarterly	☑ Yearly

				Average water
		Water supply	Total days of	supply duration
	Month	duration	month	per day
Column	А	В	С	D
Unit	-	Hours	days	Hours/day
Source	-	Form WS05A	-	(B/C)
1	April			
2	May			
3	June			
4	July			
5	August			
6	September			
7	October			
8	November			
9	December			
10	January			
11	February			
12	March			
Average				

# Form WS05: Continuity of water supply - Method 2 (Consumer end survey)

About: This form would collect data of water supply duration with appropriate pressure and water quantity delivered to generate continuity of water.

Name of municipality:	Date:	
	For Year:	

Location:	Municipal Head off	ice		
Calculated by:	Municipal Engineer	/ City Engineer		
Frequency of recording:	Daily	🗹 Monthly	Quarterly	Yearly
Reported to:	Chief officer			
Frequency of reporting:	Daily	Monthly	Quarterly	☑ Yearly

				Average water
		Water supply	Total days of	supply duration
	Month	duration	month	per day
Column	А	В	С	D
Unit	-	Hours	days	Hours/day
Source	-	Form WS05B	-	(B/C)
1	April			
2	May			
3	June			
4	July			
5	August			
6	September			
7	October			
8	November			
9	December			
10	January			
11	February			
12	March			
Average				

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# Form WS05A: Duration of water supply by valve operations

About: Source of the information would be records of valve operation for the valve installed at the outlet of ESR or sump or starting point of water distribution network.

Name of Municipality:	Date:	
Address:		
Audress.		
Average hours of supply per day:	Hours For Month:	

Location of form:	□ At source	☑ Intermediate	point	Consumer End
Recorded by:	Valve operator			
Frequency of recording:	☑ Daily	Monthly		y 🗆 Yearly
Reported to:	Water supply engir	neer		
Frequency of reporting:	Daily	🗹 Monthly	Quarterly	y 🗆 Yearly

Sr. Date		N	lorning su	oply	E	vening Sup	oply	Total duration	Pomarks
No.	Date	Start Stop time time Duration		Duration	Start time	Stop time	Duration	(E+H)	Refficiences
	dd:mmm	hh:mm	hh:mm	mins	hh:mm	hh:mm	mins	mins	
Α	В	С	D	E	F	G	н	I	J
1	1-Apr								
2	2-Apr								
3	3-Apr								
4	4-Apr								
5	5-Apr								
6	6-Apr								
7	7-Apr								
8	8-Apr								
9	9-Apr								
10	10-Apr								
11	11-Apr								
12	12-Apr								

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1			1	1	1	1
13	13-Apr					
14	14-Apr					
15	15-Apr					
16	16-Apr					
17	17-Apr					
18	18-Apr					
19	19-Apr					
20	20-Apr					
21	21-Apr					
22	22-Apr					
23	23-Apr					
24	24-Apr					
25	25-Apr					
26	26-Apr					
27	27-Apr					
28	28-Apr					
29	29-Apr					
30	30-Apr					
Total						

## Form WS05B: Consumer end survey

About: This form would collect data of water supply duration with appropriate pressure and water quantity delivered to generate continuity of water and non-revenue water indicators respectively. It is recommended that this survey should be carried out using potable meter. In absence of potable meter, appropriate method approved by the city engineer should be used.

Name of Municipal	lity:							Date:				
				For Month: April								
Location of survey:			At so	At source Intermediate I Consumer End								
Recorded by:			Survey	Survey staff								
Frequency of recor	ding:		🗆 Daily	/	⊠ N	Ionthly	🗆 Qu	arterly	Yearl	У		
Reported to:			Water s	supply	engine	eer						
Frequency of repor	rting:		🗆 Daily	/	М	onthly	🗆 Qu	arterly	Yearl	y		
	r	r –	1		1	1				1		
Days	Water zone Ward Ward Owner name and Address Start time Start time Start time Start time Start time Start time Start time Start time							Water quantity (Liters)	Duration of water supply	Duration of water supply above 7 meter head		
1												
2												
3												
4												
5												
6												
7												
Average of 7 days												
Note: (The average of the seven days should be considered for that month)												

# Form WS06: Quality of water supplied

About: This form is an indicator form to generate quality of water supplied indicator. Source of this information will be Form WS06A.

Name of Municipality:			Date:	
			For Year:	
Location:	Municipal Head off	ice		
Calculated by:	Municipal Engineer	/ City Engineer		
Frequency of recording:	Daily	🗹 Monthly	Quarterly	Yearly
Reported to:	Chief officer			
Frequency of	Daily	Monthly	Quarterly	☑ Yearly

	Month	Total samples tested	Samples passed	Percentage Samples passed
Column	А	В	С	D
Unit	-	Numbers	Numbers	Percentage
Source	-	WS06A	WS06A	(C/B) x 100
1	April			
2	May			
3	June			
4	July			
5	August			
6	September			
7	October			
8	November			
9	December			
10	January			
11	February			
12	March			
Average	Yearly			

#### Form WS06A: Water quality monthly report

About: Water quality is an important parameter as it directly related to health of the citizens. Water quality testing standard regime and proper documentations of test results are lacking in the cities. Details of residual chlorine test and physical test would be obtained from Form 6B and Form 6C. While the details of bacteriological and chemical testing would be available from the laboratory test report. The frequency of water quality testing is mentioned in Form 6A, which is in accordance with CPHEEO Manual.

Name of Municipality:				Date:	
Total test:	Total passed:			For Month:	
Location of the form:	Municipal Office				
Recorded by:	Sanitary inspector	r / Health Inspector			
Frequency of recording:	🗹 Daily	Monthly	Quarterly	Yearly	
Reported to:	Municipal engine	er / City engineer			
Frequency of reporting:	Daily	🗹 Monthly	Quarterly	Yearly	

	RC and Physical test							Bacteriological test							Chemical test						
Sr. no.	o. Date Source Intermediate End poin		point	Source Intermediate End poin				point	Source Intermediate			End point		Total	Total						
		Total	Pass	Total	Pass	Total	Pass	Total	Pass	Total	Pass	Total	Pass	Total	Pass	Total	Pass	Total	Pass	samples	passed
1																					
2																					
3																					
4																					
5																					

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6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16								 			
17								 			
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28								 			
29											
30											
31											
Total											

# Information System Improvement Plan (ISIP) for water supply systems, 2014

## Form WS06C: RC and Physical testing

About: Water quality is an important parameter as it directly related to health of the citizens. Water quality testing standard regime and proper documentations of test results are lacking in the cities. Quality testing for residual chlorine and physical parameters are recommended to be done on daily basis as per CPHEEO. This format is to be used separately at all source and intermediate location on daily basis.

Name of Municipality:	Date:	
Address of the sample location:	_	
Name & designation of staff collecting samples:	<u>_</u>	

Location of test:	☑ At source	☑ Intermediate	Consumer End
Recorded by:	Field staff or valve or	perator	
Frequency of recording:	🗹 Daily	Monthly     Quarterly	Yearly
Reported to:	Sanitary Inspector o	r water supply engineer	
Frequency of reporting:	Daily	☑ Monthly □ Quarterly	Yearly

Sr no	Characteristics	Analytical value	Test Result (Pass/Fail)	Remarks
1	Physical test			
	1. Colour			
	2. Odor			
	3. Temperature			
	4. Taste			
	5. Turbidity			
	6. TDS			
2	Residual Chlorine Test			
3	PH value			

				Minimum			
				Residual			number of
_			Physical	Chlorine	Bacteriological	Chemical	Samples
1	Ats	source					
	a.	Ground water					
		Tube well/					
		French well/					
		dug well (If					
		drinking water					
		is directly	Quarterly	Daily	Monthly	Quarterly	At each well
		consumer end					
		chlorine dosage					
		needs to be					
		added)					
						Twice a	
						year(in	
						summers	
			Twice a			and rainy	At each hand
		Hand pumps	year	-	l wice a year	season)	pump
	D.	Surface Water					
		RdW Water:					
		Infiltration					
		wells/ Lakes/					
		Dams/ Canal	Daily	-	Weekly	Daily	One per source
2	At	Water Treatment Plant					•
				Hourly			
			Daily	during			
			(Turbidity	supply			_
	(	Outlet of WTP	Only)	time	Weekly	Daily	One per source
3	At '	Water Distribution Syste	em				
		Inlet of main sump/					
		Jround level Storage					
		Reservoir/Elevaled	Daily	Daily	Mookly	Monthly	Fach W/DS
Δ	Δt (	Consumer End	Dally	Daliy	WEEKIY	wontiny	
	,						At 5-10 locations
							from each WDS zone
			Daily				for municipalities
			(Turbidity			Once an	and 1 per 2500 households in
	9	Standpost	only)	Daily	Monthly	year	municipal
							corporations. During
			Daily				monsoons or a disease outbreak.
			(Turbidity			Once an	number of samples
	0	Consumer End	only)	Daily	Monthly	year	should be increased.

# Form WS06D: Frequency of required water quality tests

# Form WS06B: Water quality test results - Zone wise

About: Water quality is an important parameter as it directly related to health of the citizens. Water quality testing standard regime and proper documentations of test results are lacking in the cities. Quality testing for residual chlorine and physical parameters are recommended to be done on daily basis as per CPHEEO manual. This format is to be used for RC and physical test at consumer end.

Name o	f Munic	ipality:		Date:								
Total te	st: _				Tot	al passe	ed:		Fo	or Month	n:	
Locatio Recorde	n of test ed by:	: 🗹 Sar	At sour	ce spector	/ water	ا ک vlqquz	Interme	diate r	V	l Consu	mer Enc	ł
Frequency of recording: Reported to:		□ Mu	Daily Inicipal e	y 🗹 Month pal engineer		onthly	y 🗆 Quarterly		erly	Yearly		
reportir	ng:		Daily		M M	onthly		Quart	erly	ΠY	early	
Water zone no.	Water zone name	RC test	RC test passed	Physical test	Physical test passed	Bacteriologica I test	Bacteriologica I test passed	Chemical test	Chemical test passed	Total test	Total passed	Remarks
Test at source 1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
16												
17												
18												
19												
20												
Total												

# Form WS07: Efficiency of consumer complaint redressal

About: This form is an indicator form to generate efficiency of consumer complaint redrassal indicator. Source of this information will be PGR tool.

Date:	
For Year:	
Municipal Head office	
Municipal Figureer / City engineer	
□ Daily ☑ Monthly □ Quarterly	Yearly
	Date: For Year: Municipal Head office Municipal Engineer / City engineer Daily Monthly Quarterly

Reported to:Chief officerFrequency of reporting:
DailyMonthlyQuarterlyYearly

		Complaint		
		received during	Complaint resolved	Efficiency of consumer
	Month	the month	within 24 hours	complaint redresaal
Column	А	В	С	D
Unit	-	Numbers	Numbers	Percentage
Source	-	PGR Tool	PGR Tool	[C / B] x 100
1	April			
2	May			
3	June			
4	July			
5	August			
6	September			
7	October			
8	November			
9	December			
10	January			
11	February			
12	March			
Average	Yearly			

# Form WS08: Cost recovery in water supply services

About: Cost recovery for water supply system is calculated from total operating revenue expenditure and total revenue expenditure. The information operating revenue income and expenditure can be obtained from finance patrak number 3 and 4 respectively.

Name of municipality:			Date:	
			For Year:	
Location:	Municipal Head office			
Calculated by:	Accountant			
Frequency of recording:	Daily	Monthly	Quarterly	☑ Yearly
Reported to:	Chief officer			
Frequency of reporting:	Daily	Monthly	Quarterly	☑ Yearly

	Annual operating expenses	Annual revenues	Cost recovery in water supply services
Column	А	В	С
Unit	Rupees	Rupees	Percentage
Source	Finance patrak 4	Finance patrak 3	[A / B] x 100
Value			

# Form WS09: Efficiency in collection of water supply related charges

About: The information operating revenue income and expenditure can be obtained from finance patrak number 3 and 4 respectively.

Name of municipality:			Date:	
			Year:	
			-	
Location:	Municipal Head of	ffice		
Calculated by:	Accountant			
Frequency of recording:	Daily	Monthly	Quarterl	y 🗹 Yearly
Reported to:	Chief officer			
Frequency of reporting:	Daily	Monthly	Quarterl	y 🗹 Yearly

	Current revenue demand	Current revenue collection	Per capita water supplied
Column	A	В	С
Unit	Rupees	Rupees	Percentage
Source	DCB Table	DCB Table	[B / A] x 100
Value			

# Form WS10: Coverage of water supply connections in slum

About: This form is an indicator form to generate coverage of water supply connections in slums. Source of this information will be Form WS10A.

Name of Municipality:	Date:	
	For Year:	

Frequency of reporting:	Daily      Monthly      Quarterly	🗹 Yearly					
Reported to:	ported to: Chief officer						
Frequency of recording:	Daily Double Monthly Double Quarterly	🗹 Yearly					
Calculated by:	Community organizer						
Location of form:	Municipal Head office						

	Total slum households	Number of HH having water supply connections in Slum	Number of HH served
Column	А	В	С
Unit	Numbers	Numbers	Percentage
Source	Form WS10A	Form WS10A	(B/A) x 100
Value			

#### Form WS10A: Services in slums (Slum level information)

About: A full scale survey should be conducted for the first time. For next year onwards the data should be updated by deducting the households in which the basic services are provided and by incorporating addition in slum households during the year. Other sources of the data can be slum surveys conducted under various other programs such as RAY, MGY, Usha survey etc.

Name of Municipality:

Date:

Sr. no.	Slum Name	Address	Number of	Number of	Properties connected to individual water supply connection	Household having individual toilet	Properties having sewer connection	Household having D2D solid waste collection?
A	В	C	D	E	F	G	Н	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
10								
18								
19								
20								
Total								

# Form WS10B: Slum Household Survey Form

## **General Information**

City Name :			Class :			Date	e:		
Name of slum settlement/pocket:			Land mark (if any):			Wai	Ward no. :		
Name of Respondent:									
Number of family members:	Male:		Female:		Children:				
Type of house:	Own:	Y / N	Rented:	Y / N	Pucca:	Y / N	Kacha:	Y / N	

		Units	Remarks				
Water Su	ipply						
1	Does the municipality supply water to your HH :	Y/N					
2	If yes, Does the HH have individual tap :	Y/N					
5	If no, Other source of water supply :	(1/2/3/4/5)					
	1:Standpost, 2: Hand pump, 3:Municipality tanker,4: Own sou (Specify)	ırce, 5: Sharing, 6	: other				
3	Number of days of water supplied in a week:	Number					
4	Number of hours of water supplied :	Number					
5	Is water supplied through tap is sufficient	Y/N					
6	Reasons for not having individual tap connection at home						
Sanitati	on and Sewerage						
1	Does the Household have individual toilet :	Y/N					
2	If yes, toilet built under which scheme?	Number					
	1: Under GOG scheme 2: Private 3: Others (NGO)						
3	Is the toilet functional?	Y/N					
4	Is toilet connected to	(1/2/3/4/5/6)					
	1:Sewerage network, 2:Open drain, 3:Septic tank,4:Soak pit, 5:Service Latrine, 6: Not connected						
5	If no, then where you go for defecation	(1/2/3/4)					
	1:Community toilet, 2: Pay & Use toilet, 3: Sharing, 4:Open defecation						
6	Reasons for not having toilet at home	1/2/3/4/5/6					
	1. No space for construction, 2. House on rent, 3. No water sup	oply or less water,	, 4.Hard				
	starata, 5.No money, 6. Any other reason specify						
Solid wa	ste management						
1	Is HH covered with door to door waste collection	Y/N					
2	If yes, door to door collection carried out by	(1/2/3)					
	1:ULB, 2:Private party, 3:Residents						
3	Frequency of primary collection of solid waste	(1/2/3/4)					
	1:Daily, 2:Once in two days, 3:Once a week, 4:Once in two week						