

INSPECTION RESULTS OF 5 WASAS ON POTENTIAL WATER SUPPLY PROJECTS FOR JICA GRANT AID

Prepared by JICA Survey Team
July 2012

1. OVERVIEW OF 5 WASAS

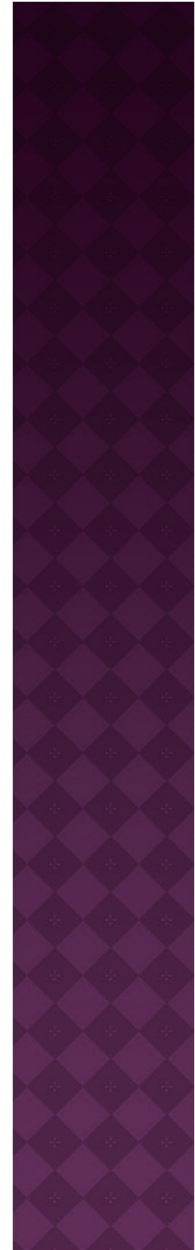
THERE ARE DISCREPANCIES BETWEEN 5 WASAS IN MANAGEMENT CAPACITY, FINANCIAL VIABILITY AND AFFORDABILITY OF DEVELOPMENT FUND.

State	Punjab				Sindh
WASA	Rawalpindi	Gujranwala	Multan	Faisalabad	Hyderabad
Total population	1,300,000	1,700,000	1,800,000	3,100,000	1,700,000
Population served	1,170,000	544,000	1,200,000	1,550,000	1,500,000
Water coverage	90 %	32 %	60 %	50 %	88 %
Water availability	8 hrs/day	14 hrs/day	6 hrs/day	7 hrs/day	18-24hrs/day
Per capita consumption	150 liter/day	227 Litter/day	225 Litter/day	112 Litter/day	
Average unit production cost	Rs. 5,79 /m ³	Rs. 0,109 /m ³	Rs. 4,14 /m ³	Rs. 4,71 /m ³	
NRW rate	38 %	50 %	40 %	33 %	
Metering ratio	1.47 %	0	0	1.47 %	
Operating ratio	1.14	2.10	2.80	1.01	
Billing efficiency	100 %	25 %	30 %	92 %	
Collection efficiency	75 %	40 %	88 %	51 %	
Staff ratio (staff /1,000 water connection)	12	6	5.41	6.45	

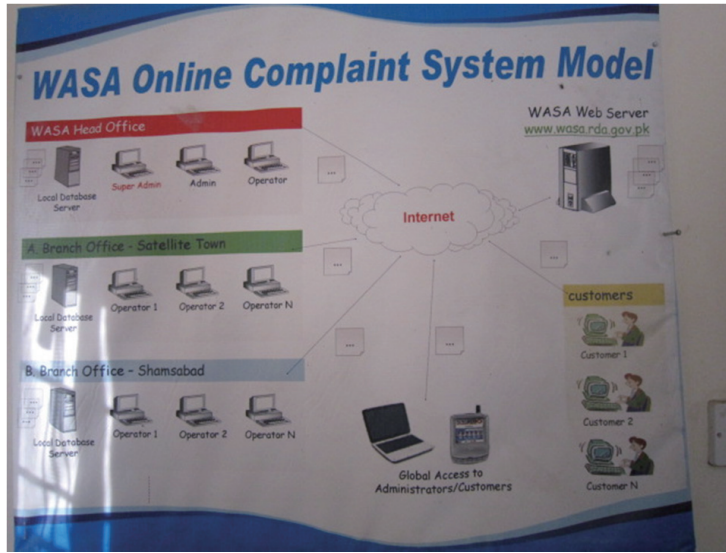
2. RAWALPINDI WASA

2.1. CURRENT WATER SUPPLY CONDITIONS

- ◉ Water source of Rawalpindi is both of surface water and ground water. Total water production is 59 MGD. 23 MGD is surface water and 36 MGD is ground water.
- ◉ Water treatment plant (WTP) of Rawal dam (with capacity of 28MGD) is operated and maintained well, but due to the aged water transmission pipe from WTP to the city, WTP operation is limited to 23 MGD.
- ◉ Depletion of ground water level due to excessive abstraction and hazardous arsenic which affects human health are serious issues, so surface water development is urgently needed.
- ◉ The computerized WASA online complaint system was established as a part of MIS system. This system will be applied to other WASAs as a successful case.



Rawalpindi WASA



Online Complain System Model



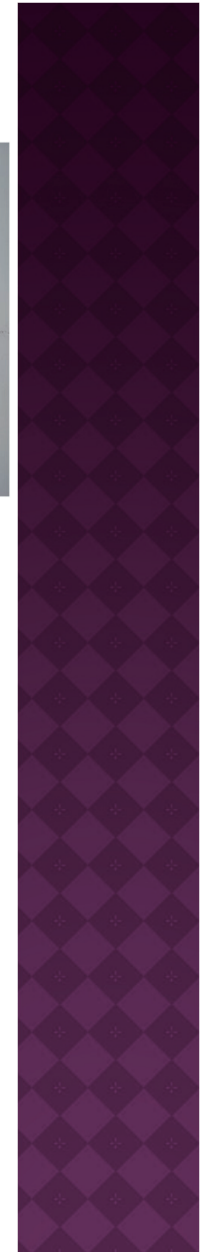
Human health problem affected by hazardous arsenic



Filter back-washing in Rawal WTP



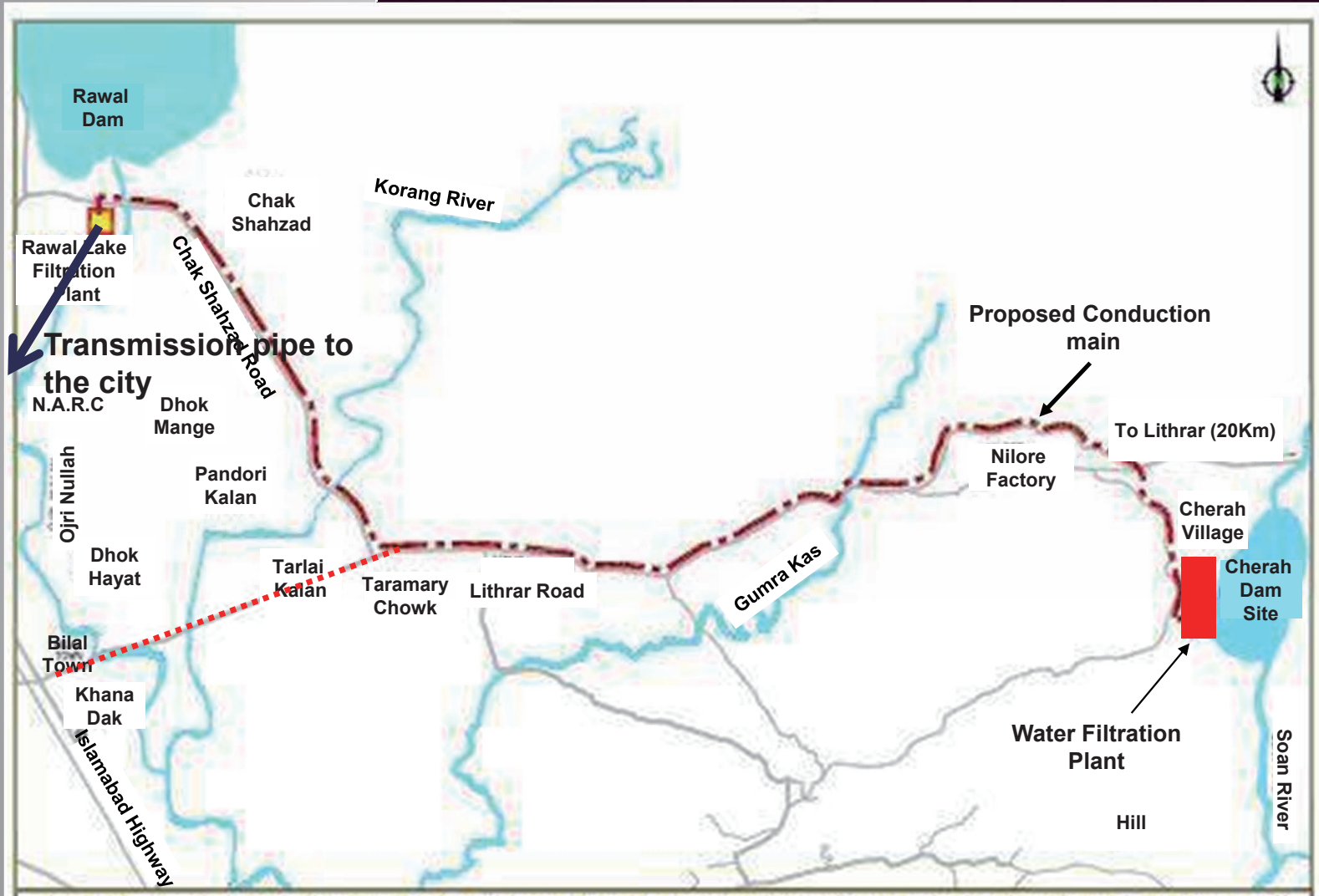
Aged malfunctioning water transmission pipe



2.2. PROPOSED PROJECTS FORM RWASA

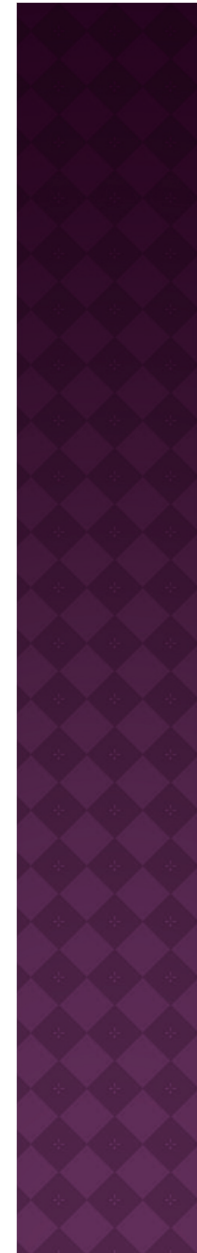
Name / Description of Projects	Estimated Cost (Rs. In Millions)	Current Approval Status	Estimated Implementation Period (months)	Estimated Population to be Served (Millions)	Brief scope of work
Laying of 48" H.D.P (High Density Plastic) Pipe line from Rawal Lake Treatment Plant to City) (9 km)	1,027	In planning phase	10 months	0.34	A 48" HDP Pipe line will be laid from Rawal Lake Treatment plant to the city main supply. This pipeline will cater for an additional 13.5 MGD water Supply (6 MGD from Rawal lake and 7.5 MGD from proposed Chirah Dam, which has already been approved) to the city.
Replacement of old Turbine pumps with new Submersible Pumps (150 Nos.)	182.6	In planning phase	2 months	0.75	One dated old Turbine pumps will be replaced by new/efficient submersible pumps all over the City so as to enhance the water supply.
Establishment of a fully equipped Water quality laboratory	178	In planning phase	12 months	N/A	WASA intends to establish a fully equipped water quality laboratory to ensure the supply of clean water to its consumers.
Implementation of GIS mapping system/ Network Analysis and MIL Scoring	30	In planning phase	24 months	N/A	For improvement in water supply network and betterment of consumers, network analysis is a must. Latest technology will be used to carry out complete network analysis alongwith MIL scoring using GIS mapping system. This will also help in reducing UFW.
Implementation of SCADA system for T/Well operation	12	In planning phase	3 months	0.75	In order to ensure centralized control over its tube wells, WASA intends to establish SCADA system at its head office.

LAYOUT PLAN - AUGMENTATION OF WATER SUPPLY PROJECT BASED ON CHERAH DAM



BENEFITS OF LAYING WATER TRANSMISSION PIPE FROM RAWAL LAKE TREATMENT PLANT TO CITY

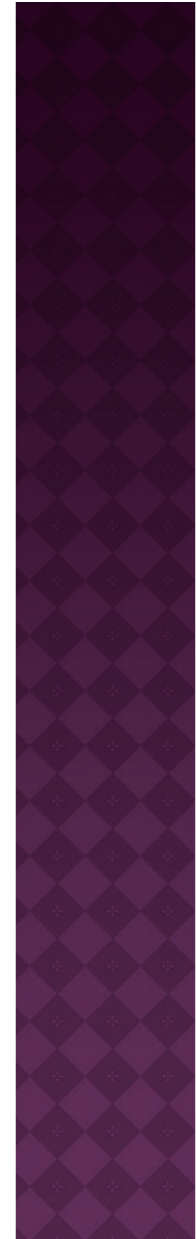
- ◉ Additional 7.5 MGD good quality surface water - cheaper source of water.
- ◉ 7.5 MGD water will replace yield of 60 TWs
- ◉ 7.5 MGD water will act as ground water recharge source and mitigate groundwater depletion.
- ◉ Improvement in environmental degradation due to over abstraction.



3. GUJRANWALA WASA

3.1 CURRENT WATER SUPPLY CONDITIONS

- Consultant TOR for formulation of water supply master plan is on-going, and master plan study will commence at the end of this year by local consultants with local fund.
- JICA grand aid project for supplying sewerage cleaning machinery is in requesting stage.
- Water supply coverage is 32% at the lowest level in 5 WASAs. Extension of water supply network is urgently needed.
- The estimated NRW rate is 50% at the highest level among 5 WASAs and there is no leak detection equipment.
- GWASA is required to challenge more effective management and financial viability. Current billing efficiency is as low as 25% and collection efficiency is 40%. It means the collected charge is only 10% ($25\% \times 40\% = 10\%$) of total supplied water.



Gujranwala WASA



Tube well in the City



Unserved existing urban community



Laboratory and test kits



Unserved housing development area

3.2. PROPOSED PROJECTS FROM GWASA

Sr. No	Name / Description of Projects	Estimated Cost (Rs. In Millions)	Current Approval Status	Estimated Implementation Period (months)	Estimated Population to be Served (Millions)	Brief scope of work
1	Water supply project in unnerved areas including Overhead Reservoirs and Generator Sets in Gujranwala	650	un-approved	24 months	0.24	i) Tube wells of 2 cusecs = 15 Nos ii) Tube well rooms = 15 Nos iii) Electric installations = 15 Jobs iv) Bulk meters = 15 Nos v) Customer meters = 10,000 Nos vi) PVC piped network = 120 Kms vii) OHRs 1 lac gallons = 10 Nos viii) Generator sets of 100 KVA = 15 Nos
2	Replacement of old Machinery of 20 Nos Tube wells and Generator sets in Gujranwala	210	un-approved	12 months	-	i) Replacement of outlived tube well machinery = 20 Nos ii) Bulk Meters = 20 Nos iii) Generator sets of 100 KVA = 20 Nos iv) Rehb. of structure = 20 Jobs

LOCATION MAP OF UNSERVED AREA

