JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

GENERAL DEPARTMENT OF
AGRICULTURAL ENGINEERING AND WATER MANAGEMENT
MINISTRY OF AGRICULTURE AND HYDRAULIC RESOURCES

No.

THE STUDY ON THE RURAL WATER SUPPLY PROJECT (PHASE II) IN THE REPUBLIC OF TUNISIA

FINAL REPORT

VOLUME III (SUPPORTING DOCUMENTS)

MARCH 2006

TAIYO CONSULTANTS CO., LTD.
NIPPON KOEI CO., LTD.

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EXCHANGE RATE

Basis of Cost Estimate

Sub-projects for 2005 : As of October 2004 Price Level

Currency Exchange Rate : US$1.0 = 1.277DT = JP¥107.80

Sub-projects for 2006 : As of October 2005 Price Level

Currency Exchange Rate : US$1.0 = 1.314DT = JP¥113.90

LIST OF VOLUMES

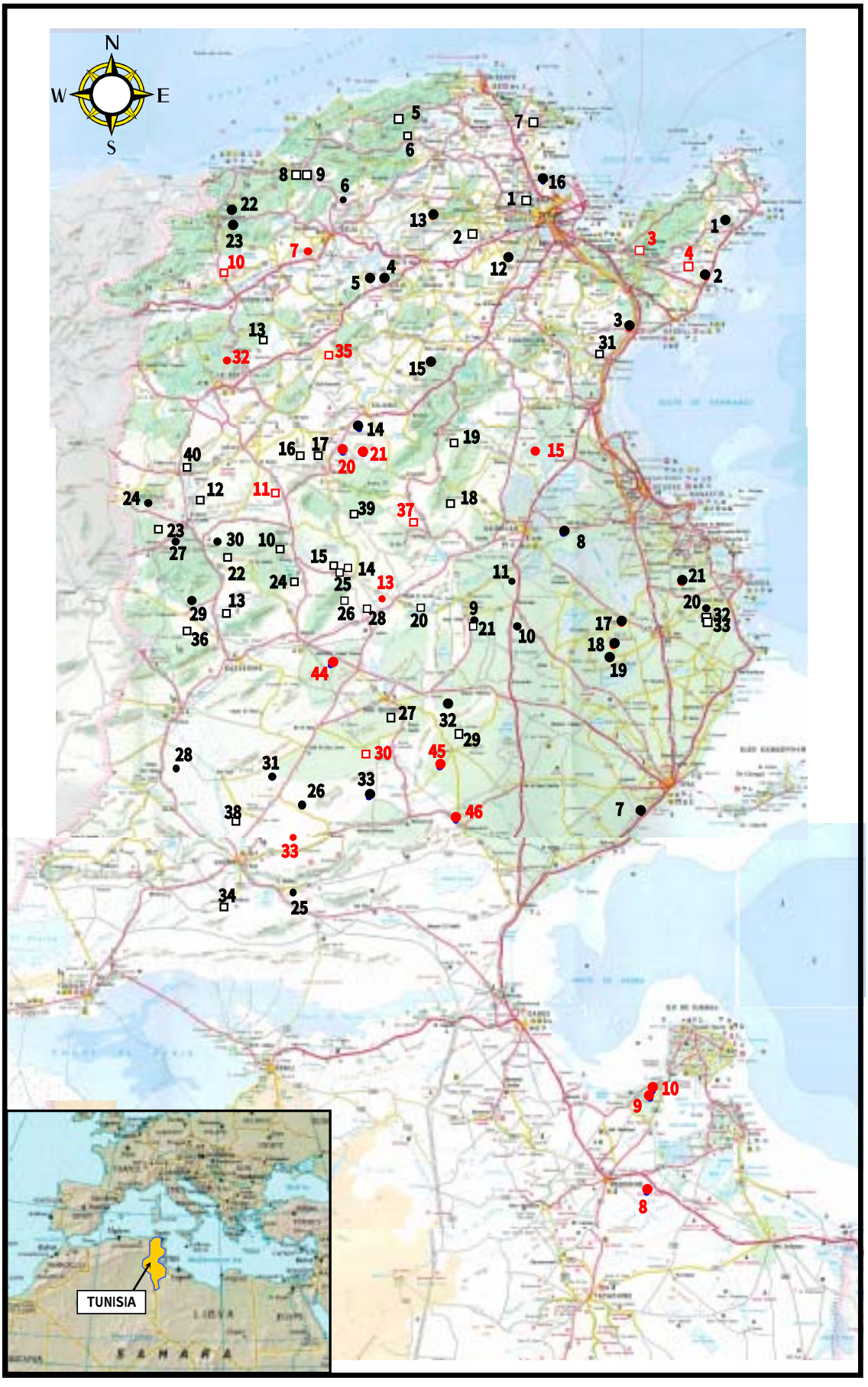
VOLUME I **MAIN REPORT**

VOLUME II **REPORT ON WATER ANALYSIS AND WATER SOURCE ASSESSMENT**

VOLUME III **SUPPORTING DOCUMENT**

VOLUME IV **PRACTICAL GUIDE OF THE SENSITIZATION MANUAL**

Location map of sub-projects for 2005 and 2006



Project 2005

1 BASSATINE
2 BEN THAMEUR ET BKIR
3 BIR BEN ZAHRA
4 MZOUGHA-ZELDOU (1st)
5 MZOUGHA-ZELDOU (2nd)
6 KEF DAROUGUI-SFAYA
7 GASR HDID A BEJA SUD
8 CITE KRICHID
9 CITE KRID
10 CITE MARS
7 GUERGOUR-BRAHMIA FKAYHIA
8 OULED FALEH
13 GRAIRIA
9 DOUAR EL BELDI
15 ROUAOUNA
10 OULED ABBES
11 OULED BOUDABOUS
12 EL MAAFRINE
13 TIRASSET
20 BIR EZZOUZ
21 SFINA
14 FEJ-ASSEKRA
15 KSAR-OULED BOUHANI
16 CEBALET BEN AMMAR
17 SLAYMIA
18 SKHAIBIA
19 KHIOUR
20 RMADHNIA
21 SOUALHIA
22 EL ISLAH
23 EZZAGUAYA
32 OULED GANA
33 HENCHIR BONCHMEL
24 HCHACHNA
25 OUED ZITON
26 AIN DEFLA
27 FAKET EL KHADEM
28 OULED BARKA
29 SIDI SHIL
30 M'BARKIA
31 OULED NAOUI
32 OULED YUOSSEF GALLEL
33 RQUIAT
44 OUAMRIA -ABABSIA
45 GOULEB
46 GHRIST EST

Project 2006

1. EL ACHICH
2. SIDI ACHOUR
3. BOULAHOUADH
4. TASSELMINE ET SOUASSI
5. ETRAMIS-EDMAIN
6. EL KALBOUSSI
7. SIDI HASSEN
8. AIN DAM-NEFZA
9. GMARA
10. EL FRACHICHE
11. EL ARGOUB-ERRHAMNA
12. FORNA
13. EL OUENA
14. GHANGUET ZGALASS
15. SIDI DAHER
16. AGBA
17. NSIRAT
18. GHANZOUR
19. GOUAAD
20. KHOUALDIA
21. HSAINIA
22. BNANA / OULED BENAJEH
23. MKIMEN
24. CHAAIBIA
25. OUED LAHTAB
26. AIN JAFFEL
27. GARD HADID
28. OULED MOUSSA
29. SLATNIA
30. SOUASSIA
31. CHRAIFIA
32. AMMAR
33. ESSAAFI
34. ENJAIMIA
35. NFOUTA
36. OULED MASSOUD RIZG
37. FRATHIA
38. SMAIDIA
39. MAAMRIA
40. ESBIAAT, EL ARGOUB ET SOUALHIA

● Subprojects for 2005
□ Subprojects for 2006
● The Study is cancelled (Subprojects for 2005)
□ The Study is cancelled (Subprojects for 2006)

THE STUDY ON
THE RURAL WATER SUPPLY PROJECT (PHASE II)
IN THE REPUBLIC OF TUNISIA

SUPPORTING DOCUMENTS

Abbreviations

AEP	Potable Water Supply (Alimentation en Eau Potable)
AGR	Regional Agricultural Engineering Department, CRDA (Arrondissement du Génie Rural)
AIC	Association of Water Users (Association D'Intérêt Collectif)
AME	Maintenance of Equipment Sub Division
ANPE	National Environment Protection Agency
API	Irrigation Sub Division
ARE	Water Resources Sub Division
BD	Board of Directors of GIC (Conseil d'Administration)
B/S	Basic Study under the Study on the Rural Water Supply Project (Phase II)
CEM	Ordnance Survey Map (Carte d'Etat Major)
CGIC	Unit in charge of GIC, CRDA (Cellule des Groupements à l'Intérêt Collectif)
CITET	International Center of Environmental Technology in Tunis (Centre International des Technologies de L'Environnmement de Tunis)
CRDA	Regional Directorate General for Agricultural Development (Commissariat Régional au Développement Agricole)
DEPER	Department of Drinking Water and Agricultural Equipment, Ministry of Agriculture, Environment and Hydraulic Resources (Direction de l'Eau Potable et de l'Equipement Rural)
DGGR	General Department of Agricultural Engineering and Water Management, Ministry of Agriculture, Environment and Hydraulic Ressources (Direction Générale du Génie Rural et de l'Exploitation des Eaux, Ministère de l'Agriculture, Environnement et des Ressources Hydrauliques)
DGRE	General Department of Water Resources, Ministry of Agriculture, Environment and Hydraulic Resources (Direction Générale Resource en Eau)
DHER	Hydraulic and Equipment Department, CRDA
DT	Tunisian Dinar (Dinars Tunisien)
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
FIRR	Financial Internal Rate of Return
F/S	Feasibility Study
GA	General Assembly of GIC
GDP	Gross Domestic Product
GIC	Water Users Group
GIH	Multi-Disciplinary Consultative Group (Groupement D'Intérêt Hydraulique)
GOJ	Government of Japan

GOT	Government of Tunisia (Gouvernement Tunisien)
GR	Agricultural Engineering Sub Division, AGR (Génie Rural)
IEE	Initial Environmental Examination
INS	National Institute of StatisticsInstitute (National de la Statistique)
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency (Agence Japonaise de Coopération Internationale)
KfW	Organization for Financial Assistance in Germany (Kreditanstalt für Wiederaufbau / Crédit pour la Reconstruction)
L/A	Loan Agreement
lpcd	liter per capita per day
MOA	Ministry of Agriculture and Hydraulic Resources (Ministère de l'Agriculture et des Ressources hydrauliques)
MOI	Ministry of Interior and Local Development (Ministère de l'Intérieur et du Développement local)
MOPS	Ministry of Public Sanitation (Ministère de la Santé publique)
MTD	Million Tunisian Dinar
ODA	Official Development Assistance
O/M	Operation and Maintenance (Exploitation et Entretien)
OM/M	Operation, Maintenance and Management
PCM	Project Cycle Management
PEHD	High Density Polyethylene
PISA	Agricultural Sector Investment Loan Program (Prêt d'Investissement au Secteur Agricole)
PRA	Participatory Rural Appraisal
PVC	Polyvinyl Chloride
SAPROF	Special Assistance for Project Formation (Assistance Spéciale pour les Projects en Formation)
SDR	Special Drawing Rights (Droits de Tirage Spéciaux)
SGIC	GIC Serving Agency, Ministry of Agriculture and Hydraulic Resources (Service GIC)
SONEDE	National Corporation for Water Development and Supply (Société Nationale d'Exploitation et de Distribution des Eaux)
STEG	Tunisian Corporation for Gas and Electricity (Société Nationale d'Exploitation et de Distribution des Eaux)
TD	Tunisian Dinar (Dinar Tunisien)
UFW	Unaccounted for Water
WHO	World Health Organization (L'Organisation Mondiale de la Santé)
WSS	Water Supply System

APPENDIX A

SUB-PROJECTS SUMMARY

List of Sub-projects (1/2)

Governorate	Sub-project	Projected Water Source	Year of Construction
ARIANA	CEBALET BEN AMMAR	SONEDE CONNECTION	2005
	EL ACHICH	SONEDE CONNECTION	2006
MANOUBA	EL MAAFRINE	EXTENSION GR	2005
	TIRASSET	SONEDE CONNECTION	2005
	SIDI ACHOUR	SONEDE CONNECTION	2006
NABEUL	BASSATINE	EXTENSION GR	2005
	BEN THAMEUR	SONEDE CONNECTION	2005
	BIR BEN ZAHRA	SONEDE CONNECTION	2005
BIZERTE	EL KALBOUSSI	DEEP WELL	2006
	ETRAMIS - EDMAIN	DEEP WELL	2006
	SIDI HASSEN	SONEDE CONNECTION	2006
BEJA	KEF DAROUGUI-SFAYA	EXTENSION GR	2005
	MZOUGHA-ZELDOU	SONEDE CONNECTION	2005
	AIN DAM - NEFZA	SONEDE CONNECTION	2006
	GMARA	SONEDE CONNECTION	2006
JENDOUBA	EL ISLAH	SONEDE CONNECTION	2005
	SOUALHIA	SONEDE CONNECTION	2005
LE KEF	ESBIAAT-EL ARGOUB ET SOUALHIA	DEEP WELL	2006
	EZZAGUAYA	SONEDE CONNECTION	2005
	EL OUENA	EXTENSION GR	2006
	FORNA	SONEDE CONNECTION	2006
SILIANA	FEJ ASSEKRA	EXTENSION GR	2005
	KSAR-OULED BOUHANI	SONEDE CONNECTION	2005
	AGBA	SPRING	2006
	GHANGUET ZGALASS	EXTENSION GR	2006
	NSIRAT	SONEDE CONNECTION	2006
	SIDI DAHER	EXTENSION GR	2006
KAIROUAN	DOUAR EL BELDI	EXTENSION GR	2005
	OULED ABBES	EXTENSION GR	2005
	OULED BOUDABBOUS	EXTENSION GR	2005
	GHANZOUR	DEEP WELL	2006
	GOUAAD	EXTENSION GR	2006
	HSAINIA	EXTENSION GR	2006

List of Sub-projects (2/2)

Governorate	Sub-project	Projected Water Source	Year of Construction
KAIROUAN	KHOUALDIA	EXTENSION GR	2006
	MAAMRIA	EXTENSION GR	2006
KASSERINE	AIN DEFLA	EXTENSION GR	2005
	FAKKET EL KHADEM (EL AITHA)	IRRIGATION SYSTEM	2005
	FAKKET EL KHADEM (NASSIRIA)	IRRIGATION SYSTEM	2005
	OULED BARKA	EXTENSION GR	2005
	SIDI SHIL	IRRIGATION SYSTEM	2005
	BNANA/OULED BENAJEH	EXTENSION GR	2006
	CHAAIBIA	DEEP WELL	2006
	MKIMEN	EXTENSION GR	2006
	OUED LAHTAB	DEEP WELL	2006
	OULED MASSOUD RIZG	DEEP WELL	2006
SIDI BOUZID	M'BARKIA	EXTENSION GR	2005
	OULED NAOUI	EXTENSION GR	2005
	OULED YOUSSEF GALLEL	EXTENSION GR	2005
	AIN JAFFEL	DEEP WELL	2006
	GARD HADID	DEEP WELL	2006
	OULED MOUSSA	EXTENSION GR	2006
	SLATNIA	EXTENSION GR	2006
SOUSSE	OULED EL FALEH	SONEDE CONNECTION	2005
	CHRAIFIA	EXTENSION GR	2006
MAHDIA	KHIOUR	SONEDE CONNECTION	2005
	RMADHNIA	SONEDE CONNECTION	2005
	SKHAIBIA	EXTENSION GR	2005
	SLAYMIA	SONEDE CONNECTION	2005
	OULED AMMAR ET OULED ESSAAFI	SONEDE CONNECTION	2006
	RQUIAT	EXTENSION GR	2006
SFAX	GUERGOUR-BRAHMIA-FKAYHIA	SONEDE CONNECTION	2005
GAFSA	HCHACHNA	EXTENSION GR	2005
	OUED ZITON	EXTENSION GR	2005
	ENJAIMIA	SONEDE CONNECTION	2006
	SMAIDIA	DEEP WELL	2006

Summary of Project: CEBALET BEN AMMAR

Governorate ARIANA | Delegation SIDI THABET | Year of Execution 2005
Water Source SONEDE CONNECTION | Population Growth Rate 1.90 % | Creation of GIC New
Possible withdrawal 2.0 L/s | The maximum water flow of the projected distribution pipeline is 2 liter/second

Demographics

	2004	2020
Population		
Groupoed	77	103
Scattered		
Total	77	103
Households	19	24
Sheep and Goats		43
Cows, Horses and Donkeys		23

Outline of Project

The projected distribution pipeline is connected to SONEDE water supply system and water is distributed to 4 communal taps by residual pressure of the flow at the connection point.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	2.00	0.91	1.35	3.35	4.18
2020	3.64	0.91	1.59	5.23	6.54

SERVICE INSTALLATIONS

Communal Tap	4
Potence	
Particular Connection	
Population / Service Installations	**25.8**

CONSTRUCTION COST (DT)

Water Source	1,300.000
Pipe Materials	10,706.000
Pipeline Works	25,720.000
Civil Engineering Works	0.000
Electrification	0.000
Equipment	0.000
Contingency	5,659.000
Total	43,385.000
Per Capita Investment Cost	**421.200**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.817
Proposed charge / m3	0.900
Flat Rate / Family	4.734
Proposed Revolving Fund	19.000
Revolving Fund Applied	19.000

INSTALLATIONS and FACILITIES

Pumping Station
Relay Pumping Station
Relay Tank x , m3
Air Valve 1
Washout 1
Sluice valve single
Sluice valve double 1
Sluice valve triple
Handhole
Pressure Reducing Valve

Distribution Tank	Capacity (m3)	Height (m)	Remarks

Pump Start/Stop Control

Office for GIC
Branching Works from SONEDE or GR 1
Water Hammer Protection

Disinfection SONEDE
Total Pipeline Length (m) 1,474.33

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	110	PN10	620.12					
DISTRIBUTION	90	PN10	854.21					

Summary of Project: EL ACHICH

Governorate ARIANA | Delegation MNIHLA | Year of Execution 2006
Water Source SONEDE CONNECTION | Population Growth Rate 1.90 % | Creation of GIC New
Possible withdrawal 0.5 L/s

The design capacity of the projected WSS is 21m3/day (0.24 L/s)

Demographics

Population	2005	2021
Groupoed	290	392
Scattered		
Total	290	392
Households	59	77
Sheep and Goats		45
Cows, Horses and Donkeys		15

Outline of Project

A relay pumping station is projected near the connection point of the SONEDE distribution line and its pump transmit 5m3/hour to the semi-buried ditribution tank of which capacity is 10m3 and elevation is 211m. The service ara is divided into a high area and a low area. There are two (2) BFs in the high area and the low area covers five (5) BFs. Four (4) pressure reducing valves are installed in order to stabilize dynamic pressure in the distribution pipelines of the low area. Applied minimum pipe diameter DE 90 causes rather high dynamic pressure.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	7.53	0.68	2.07	9.60	12.00
2021	13.85	0.68	2.86	16.71	20.88

SERVICE INSTALLATIONS

Communal Tap	7
Potence	
Particular Connection	
Population / Service Installations	**56.0**

CONSTRUCTION COST (DT)

Water Source	1,500.000
Pipe Materials	32,513.000
Pipeline Works	38,460.000
Civil Engineering Works	25,500.000
Electrification	5,000.000
Equipment	25,000.000
Contingency	19,196.000
Total	147,169.000
Per Capita Investment Cost	**375.400**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.848
Proposed charge / m3	1.000
Flat Rate / Family	
Proposed Revolving Fund	20.000
Revolving Fund Applied	20.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	1
Relay Tank	1 x 10 , m3
Air Valve	5
Washout	2
Sluice valve single	
Sluice valve double	1
Sluice valve triple	
Handhole	8
Pressure Reducing Valve	4

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	10		

Pump Start/Stop Control: LIGNE PILOTE

Office for GIC

Branching Works from SONEDE or GR: 1

Water Hammer Protection: Not Necessary

Disinfection: SONEDE

Total Pipeline Length (m): 4,801.80

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
TRANSMISSION	75	PN10	127.07	74	1.38	2.2	IN LINE	RELAY TANK
PUMP DISCHARGE	75	PN10	973.18					
DISTRIBUTION	90	PN10	3,701.55					

Summary of Project: EL MAAFRINE

Governorate	MANOUBA	Delegation	MORNAGUIA	Year of Execution	2005
Water Source	EXTENSION GR	Population Growth Rate	1.90 %	Creation of GIC	New

Possible withdrawal 1.5 L/s

The source is a SONEDE water supply system. Projected water demand in 2020 is 0.39 liter/ second

Demographics

	2004	2020
Population		
Groupoed	353	478
Scattered		
Total	353	478
Households	69	94
Sheep and Goats		340
Cows, Horses and Donkeys		233

Outline of Project

Water is transmitted to the projected relay pumping station by residual pressure of the flow at the connecting point of SONEDE water supply system. An existing communal tap is connected to this transmission pipeline to supply one locality with water.Water is pumped up from the relay pumping station to a projected distribution tank with 15m3 and is distributed to 7 localities and 1 public institutions. Each locality has 1 communal tap but 2 out of 7 are existing.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	9.16	6.75	9.14	18.30	22.88
2020	16.89	6.75	10.29	27.18	33.98

SERVICE INSTALLATIONS

Communal Tap	5
Potence	
Particular Connection	1
Population / Service Installations	**59.8**

CONSTRUCTION COST (DT)

Water Source	0.000
Pipe Materials	24,979.000
Pipeline Works	54,412.000
Civil Engineering Works	24,000.000
Electrification	10,000.000
Equipment	21,000.000
Contingency	20,159.000
Total	154,550.000
Per Capita Investment Cost	**323.300**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.697
Proposed charge / m3	0.700
Flat Rate / Family	5.562
Proposed Revolving Fund	22.000
Revolving Fund Applied	15.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	1
Relay Tank	1 x 10 , m3
Air Valve	
Washout	
Sluice valve single	
Sluice valve double	2
Sluice valve triple	
Handhole	
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	15		

Pump Start/Stop Control: Pilot cable with electrode

Office for GIC

Branching Works from SONEDE or GR: 1

Water Hammer Protection: Not Necessary

Disinfection: SONEDE

Total Pipeline Length (m): 6,018.03

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
TRANSMISSION	75	PN10	1,312.20	70	1.00	1.5	IN LINE	RELAY TANK
DISTRIBUTION	90	PN10	1,174.96					
DISTRIBUTION	75	PN10	3,530.87					

Summary of Project: TIRASSET

Governorate MANOUBA | Delegation EL BATAN | Year of Execution 2005
Water Source SONEDE CONNECTION | Population Growth Rate 1.90 % | Creation of GIC New
Possible withdrawal 2.0 L/s

Projected water demand in 2020 is 0.19 liter/second

Demographics

	2004	2020
Population		
Groupoed	196	264
Scattered		
Total	196	264
Households	42	57
Sheep and Goats		70
Cows, Horses and Donkeys		54

Outline of Project

Water is transmitted to a projected relay pumping station from the connection point to SONEDE water supply system. Then water is pumped up to a projected distribution tank with 10m3. This reservoir supplis 6 localities with water through 6 communal taps .

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	5.09	1.97	3.03	8.12	10.15
2020	9.33	1.97	3.66	12.99	16.24

SERVICE INSTALLATIONS

Communal Tap	6
Potence	
Particular Connection	
Population / Service Installations	**44.0**

CONSTRUCTION COST (DT)

Water Source	1,300.000
Pipe Materials	26,957.000
Pipeline Works	50,519.000
Civil Engineering Works	29,000.000
Electrification	12,000.000
Equipment	8,000.000
Contingency	19,166.000
Total	146,942.000
Per Capita Investment Cost	**556.600**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	1.072
Proposed charge / m3	1.100
Flat Rate / Family	6.758
Proposed Revolving Fund	27.000
Revolving Fund Applied	18.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	1
Relay Tank	1 x 10 , m3
Air Valve	5
Washout	2
Sluice valve single	
Sluice valve double	2
Sluice valve triple	
Handhole	
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	10		

Pump Start/Stop Control: Pressure gauge
Office for GIC: 1
Branching Works from SONEDE or GR: 1
Water Hammer Protection: Higher Nominal Pressure Pipe
Disinfection: SONEDE
Total Pipeline Length (m): 6,194.90

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
TRANSMISSION	75	PN10	178.66	108	1.00	5.5	IN LINE	RELAY TANK
TRANSMISSION	75	PN16	1,098.96					
TRANSMISSION	75	PN10	2,057.49					
DISTRIBUTION	90	PN10	539.07					
DISTRIBUTION	75	PN10	2,320.72					

Summary of Project: SIDI ACHOUR

Governorate MANOUBA | Delegation MORNAGUIA | Year of Execution 2006

Water Source SONEDE CONNECTION | Population Growth Rate 1.90 % | Creation of GIC New

Possible withdrawal 0.5 L/s

The design capacity of the projected WSS is 15m3/day (0.2 L/s)

Demographics

	2005	2021
Population		
Groupoed	162	220
Scattered		
Total	162	220
Households	41	55
Sheep and Goats		294
Cows, Horses and Donkeys		40

Outline of Project

A relay pumping station is projected around 160m north to the connection point to the SONEDE network. The relay pump transmits water to a projected distribution tank with 10m3. The tank covers 8 BFs through 5.5km ditribution pipeline.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	4.21	2.67	3.79	8.00	10.00
2021	7.77	2.67	4.24	12.01	15.01

SERVICE INSTALLATIONS

Communal Tap	8
Potence	
Particular Connection	
Population / Service Installations	**27.5**

CONSTRUCTION COST (DT)

Water Source	1,500.000
Pipe Materials	39,830.000
Pipeline Works	40,751.000
Civil Engineering Works	25,550.000
Electrification	5,000.000
Equipment	18,500.000
Contingency	19,670.000
Total	150,801.000
Per Capita Investment Cost	**685.500**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.858
Proposed charge / m3	1.000
Flat Rate / Family	
Proposed Revolving Fund	15.000
Revolving Fund Applied	15.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	1
Relay Tank	1 x 10 , m3
Air Valve	4
Washout	1
Sluice valve single	
Sluice valve double	3
Sluice valve triple	
Handhole	8
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	10		

Pump Start/Stop Control: LIGNE PILOTE

Office for GIC

Branching Works from SONEDE or GR: 1

Water Hammer Protection: Not Necessary

Disinfection: SONEDE

Total Pipeline Length (m): 5,987.34

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
PUMP DISCHARGE	75	PN10	374.21	63	1.38	1.5	IN LINE	RELAY TANK
TRANSMISSION	75	PN10	156.19					
DISTRIBUTION	75	PN10	2,155.21					
DISTRIBUTION	90	PN10	2,999.74					
DISTRIBUTION	110	PN10	301.99					

Summary of Project: BASSATINE

Governorate NABEUL | Delegation MENZEL TEMIME | Year of Execution 2005
Water Source EXTENSION GR | Population Growth Rate 1.30 % | Creation of GIC New
Possible withdrawal 3.0 L/s

The capacity of the pump installed just after the connection point of the SONEDE system. Total water demand in 2020 of concerned CICs is 2.86 liter/second.

Demographics

	2004	2020
Population		
Groupoed	927	1,141
Scattered	0	
Total	927	1,141
Households	218	269
Sheep and Goats		540
Cows, Horses and Donkeys		385

Outline of Project

Water is ditributed from the projected elevated tank of which hight is 12m and capacity is 50m3 to 13 localities, 1 communal tap each, and 2 public instituios; school and Lobna dam operation office. Original water source of the project is SONEDE water supply system. Water comes to the projected elevated tank through existing two pumping stations and two elevated tanks.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	23.78	14.25	19.96	43.74	54.67
2020	40.30	14.25	22.44	62.74	78.42

SERVICE INSTALLATIONS

Communal Tap	13
Potence	
Particular Connection	2
Population / Service Installations	**87.8**

CONSTRUCTION COST (DT)

Water Source	1,200.000
Pipe Materials	75,756.000
Pipeline Works	147,462.000
Civil Engineering Works	80,000.000
Electrification	0.000
Equipment	3,000.000
Contingency	46,113.000
Total	353,531.000
Per Capita Investment Cost	**309.800**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.725
Proposed charge / m3	0.800
Flat Rate / Family	5.025
Proposed Revolving Fund	20.000
Revolving Fund Applied	20.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	
Relay Tank	x , m3
Air Valve	12
Washout	4
Sluice valve single	3
Sluice valve double	6
Sluice valve triple	
Handhole	
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
ELEVATED	50	12	

Pump Start/Stop Control

Office for GIC 1
Branching Works from SONEDE or GR 1
Water Hammer Protection

Disinfection New
Total Pipeline Length (m) 10,838.63

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
TRANSMISSION	90	PN10	2,098.00					
DISTRIBUTION	90	PN10	7,335.96					
DISTRIBUTION	110	PN10	812.80					
DISTRIBUTION	160	PN10	591.87					

Summary of Project: BEN THAMEUR

Governorate NABEUL | Delegation KORBA | Year of Execution 2005
Water Source SONEDE CONNECTION | Population Growth Rate 1.30 % | Creation of GIC New
Possible withdrawal 2.0 L/s

Projected water demand in 2020 is 0.14 liter/second

Demographics

Population	2004	2020
Groupoed	100	123
Scattered	74	91
Total	174	214
Households	33	40
Sheep and Goats		90
Cows, Horses and Donkeys		51

Outline of Project

Branching from the distribution pipe of the SONEDE water supply system and water is distributed by residual pressure at the connection point to two localities. Total pipelength is arond 1.8km.No particular public institution to be supplied with water exists.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	4.08	1.98	2.89	6.97	8.72
2020	6.17	1.98	3.20	9.37	11.71

SERVICE INSTALLATIONS

Communal Tap	2
Potence	
Particular Connection	
Population / Service Installations	**107.0**

CONSTRUCTION COST (DT)

Water Source	1,300.000
Pipe Materials	10,949.000
Pipeline Works	27,073.000
Civil Engineering Works	10,000.000
Electrification	0.000
Equipment	0.000
Contingency	7,398.000
Total	56,720.000
Per Capita Investment Cost	**265.000**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.528
Proposed charge / m3	0.600
Flat Rate / Family	3.636
Proposed Revolving Fund	14.000
Revolving Fund Applied	14.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	
Relay Tank	x , m3
Air Valve	4
Washout	1
Sluice valve single	
Sluice valve double	1
Sluice valve triple	
Handhole	
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks

Pump Start/Stop Control

Office for GIC 1
Branching Works from SONEDE or GR 1
Water Hammer Protection

Disinfection SONEDE
Total Pipeline Length (m) 1,825.00

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	90	PN10	1,825.00					

Summary of Project: BIR BEN ZAHRA

Governorate NABEUL | Delegation HAMMAMET | Year of Execution 2005
Water Source SONEDE CONNECTION | Population Growth Rate 1.30 % | Creation of GIC New
Possible withdrawal 5.0 L/s

Projected water demand in 2020 is 0.44 liter/second

Demographics

	2004	2020
Population		
Groupoed	533	655
Scattered	0	
Total	533	655
Households	127	154
Sheep and Goats		135
Cows, Horses and Donkeys		95

Outline of Project

Projected service area is devided into two areas; the low area, where 9 communal taps are projected, will be supplied with water by the resiudal pressure at the connection point and the high area, where 4 communal taps and 1 parrticular connection are projected, will be supplied with water by gravitational distribution from a projected elevated tank to which water is transmitted from a relay pumping station.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	13.67	3.52	6.10	19.77	24.72
2020	23.14	3.52	7.52	30.66	38.32

SERVICE INSTALLATIONS

Communal Tap Potence	13
Particular Connection	1
Population / Service Installations	**50.4**

CONSTRUCTION COST (DT)

Water Source	1,300.000
Pipe Materials	81,907.000
Pipeline Works	138,268.000
Civil Engineering Works	80,000.000
Electrification	10,000.000
Equipment	15,000.000
Contingency	48,971.000
Total	375,446.000
Per Capita Investment Cost	**573.200**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.925
Proposed charge / m3	1.000
Flat Rate / Family	4.963
Proposed Revolving Fund	20.000
Revolving Fund Applied	20.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	1
Relay Tank	1 x 20 , m3
Air Valve	9
Washout	6
Sluice valve single	1
Sluice valve double	4
Sluice valve triple	
Handhole	
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
ELEVATED	25	15	

Pump Start/Stop Control: Pilot cable with electrode

Office for GIC: 1
Branching Works from SONEDE or GR: 1
Water Hammer Protection: Not Necessary

Disinfection: SONEDE
Total Pipeline Length (m): 10,302.44

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
TRANSMISSION	90	PN10	755.74	32	2.00	1.1	IN LINE	RELAY TANK
DISTRIBUTION	160	PN10	1,050.90					
DISTRIBUTION	110	PN10	1,793.00					
DISTRIBUTION	90	PN10	6,702.80					

Summary of Project: EL KALBOUSSI

Governorate BIZERTE | Delegation GHAZALA | Year of Execution 2006

Water Source DEEP WELL | Population Growth Rate 1.10 % | Creation of GIC New

Possible withdrawal 10.0 L/s

The design capacity of the projected WSS is 100m3/day (1.2 L/s)

Demographics

Population	2005	2021
Groupoed	1, 185	1,414
Scattered		
Total	1,185	1,414
Households	248	298
Sheep and Goats		1, 450
Cows, Horses and Donkeys		457

Outline of Project

The service area is divided into two main zones. One is rather low zone and there are a deep well pumping station, first ditribution tank (20m3), second distribution tank (30m3) with a break pressure and a relay pumping station which is supplied water from the second tank. A tank with the relay pumping station distributes water to several BFs through a break pressure. The station pumps up water to third tank (30m3) which covers the another zone where elevation is higher than the first one. There are fourth and fifth distribution tanks of which capacity is 20m3 and 10m3 respectively. The projected WSS supplies population with water through 35.5km pipeline, 41 BFs and 4 BPs.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	30.28	19.98	27.90	58.18	72.73
2021	49.95	19.98	30.47	80.42	100.52

SERVICE INSTALLATIONS

Communal Tap	41
Potence	
Particular Connection	4
Population / Service Installations	**34.5**

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	309,508.000
Pipeline Works	239,640.000
Civil Engineering Works	184,850.000
Electrification	68,000.000
Equipment	67,200.000
Contingency	130,381.000
Total	999,579.000
Per Capita Investment Cost	**706.900**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.734
Proposed charge / m3	
Flat Rate / Family	5.500
Proposed Revolving Fund	15.000
Revolving Fund Applied	15.000

INSTALLATIONS and FACILITIES

Pumping Station	1
Relay Pumping Station	1
Relay Tank	1 x 30 , m3
Air Valve	32
Washout	9
Sluice valve single	7
Sluice valve double	7
Sluice valve triple	
Handhole	42
Pressure Reducing Valve	31

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	20		5 tanks (R1=20, R2=30, R3= 30, R4=20, R5=10 m3)
SEMI BURIED	30		
SEMI BURIED	30		

Pump Start/Stop Control	Pilot cable with electrode + Pressure gauge
Office for GIC	1
Branching Works from SONEDE or GR	
Water Hammer Protection	Higher Pipe (PN16 for well pump, DCIP and PN16 for the relay pump)
Disinfection	New
Total Pipeline Length (m)	35,455.24

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
PUMP DISCHARGE	110	PN16	611.59	155	5.00	13.0	SUBMERSIBLE	WELL
PUMP DISCHARGE	80	DCIP	607.63	165	2.50	7.5	IN LINE	RELAY TANK
PUMP DISCHARGE	90	PN16	2,595.05					
DISTRIBUTION	75	PN10	12,880.70					
DISTRIBUTION	75	PN16	6,663.05					
DISTRIBUTION	90	PN10	3,427.17					
DISTRIBUTION	90	PN16	5,442.77					
DISTRIBUTION	110	PN10	1,381.78					
DISTRIBUTION	110	PN16	442.77					
DISTRIBUTION	160	PN10	1,402.73					

Summary of Project: ETRAMIS - EDMAIN

Governorate BIZERTE | Delegation BIZERTE SUD | Year of Execution 2006
Water Source DEEP WELL | Population Growth Rate 1.10 % | Creation of GIC New
Possible withdrawal 10.0 L/s

The design capacity of the projected WSS is 70m3/day (0.8 L/s)

Demographics

	2005	2021
Population		
Groupoed	622	743
Scattered		
Total	622	743
Households	147	176
Sheep and Goats		599
Cows, Horses and Donkeys		187

Outline of Project

A deep well transmits water to a projected distribution tank with 30m3 capacity. The tank covers main service area where 18 BFs and two (2) BPs are projected and there are three (3) BFs in a service sub-area located north of the tank. At the end of the distribution pipe in the service sub-area, there will be constructed a relay pumping station (not inclueded in the project) for future expansion. The distribution system of the main service area anticipates to add one locality of Fhiss of which population is 325. The populatio in this locality rejected the project for social problems. The elevation of this locality is rather high and therefore future expansion of this service area is quite difficult in spite of the application of bigger diameter pipe.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	24.19	8.61	13.85	38.04	47.55
2021	39.92	8.61	15.88	55.80	69.76

SERVICE INSTALLATIONS

Communal Tap	21
Potence	
Particular Connection	2
Population / Service Installations	**35.4**

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	130,868.000
Pipeline Works	104,024.000
Civil Engineering Works	63,300.000
Electrification	20,000.000
Equipment	35,000.000
Contingency	52,979.000
Total	406,171.000
Per Capita Investment Cost	**546.700**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.743
Proposed charge / m3	0.900
Flat Rate / Family	5.000
Proposed Revolving Fund	15.000
Revolving Fund Applied	15.000

INSTALLATIONS and FACILITIES

Pumping Station	1
Relay Pumping Station	
Relay Tank x , m3	
Air Valve	11
Washout	4
Sluice valve single	4
Sluice valve double	5
Sluice valve triple	
Handhole	24
Pressure Reducing Valve	18

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	30		

Pump Start/Stop Control: MANOSTATIQUE

Office for GIC

Branching Works from SONEDE or GR

Water Hammer Protection: Higher Nominal Pressure Pipe

Disinfection: New

Total Pipeline Length (m): 12,767.62

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
PUMP DISCHARGE	110	PN16	3,139.90	145	5.00	13.0	SUBMERSIBLE	WELL
DISTRIBUTION	75	PN10	4,927.49					
DISTRIBUTION	90	PN10	1,853.07					
DISTRIBUTION	110	PN10	658.24					
DISTRIBUTION	160	PN10	2,188.92					

Summary of Project: SIDI HASSEN

Governorate: BIZERTE | Delegation: GHAR EL MELH | Year of Execution: 2006
Water Source: SONEDE CONNECTION | Population Growth Rate: 1.10 % | Creation of GIC: New
Possible withdrawal: 7.0 L/s

The design capacity of the projected WSS is 40m3/day (0.5 L/s)

Demographics

Population	2005	2021
Groupoed	477	569
Scattered		
Total	477	569
Households	106	129
Sheep and Goats		376
Cows, Horses and Donkeys		215

Outline of Project

The project divides the service area into a high area and a low area. A distribution tank of SONEDE, which is located in the projected service area, will cover the low area which has 13BFs. A booster pumping station is projected on the transmission pipeline to said SONEDE tank. The minimum dynamice pressure at the connection point is 45m and this head is made use of the pump design. The pump transmits 0.5 L/s to a projected distribution tank with 20m3 capacity for the high service area. This tank covers 12 BFs and one BP.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	12.19	8.04	11.23	23.42	29.27
2021	20.10	8.04	12.26	32.36	40.45

SERVICE INSTALLATIONS

Communal Tap	25
Potence	
Particular Connection	1
Population / Service Installations	**22.8**

CONSTRUCTION COST (DT)

Water Source	1,500.000
Pipe Materials	86,090.000
Pipeline Works	90,464.000
Civil Engineering Works	30,150.000
Electrification	5,000.000
Equipment	5,000.000
Contingency	32,731.000
Total	250,935.000
Per Capita Investment Cost	**441.000**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.694
Proposed charge / m3	0.800
Flat Rate / Family	
Proposed Revolving Fund	15.000
Revolving Fund Applied	15.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	1
Relay Tank	x , m3
Air Valve	7
Washout	1
Sluice valve single	2
Sluice valve double	3
Sluice valve triple	
Handhole	11
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	20		

Pump Start/Stop Control: MANOSTATIQUE

Office for GIC

Branching Works from SONEDE or GR: 2

Water Hammer Protection: Not Necessary

Disinfection: SONEDE

Total Pipeline Length (m): 11,766.06

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
PUMP DISCHARGE	75	PN10	1,463.99	30	0.50	0.4	IN LINE	Booster pump in transmission pipeline of SONEDE
DISTRIBUTION	90	PN10	7,705.91					
DISTRIBUTION	110	PN10	2,596.16					

Summary of Project: KEF DAROUGUI-SFAYA

Governorate BEJA | Delegation BE JA NORD | Year of Execution 2005

Water Source EXTENSION GR | Population Growth Rate 0.10 % | Creation of GIC New

Possible withdrawal 5.0 L/s

The capacity of the water source spring of GIC FATNASSA. Projected water demand in 2020 of GIC FATNASSA and SFAYA is 1.9 liter/second

Demographics

	2004	2020
Population		
Groupoed	465	473
Scattered		
Total	465	473
Households	103	104
Sheep and Goats		649
Cows, Horses and Donkeys		247

Outline of Project

Water is transmitted from the GIC FATNASSA water supply system to the projected distribution tank with 20m3 capacity. For this branching, the break pressure of the exisisting system is shifted to a higher place in order to have enough elevation to transmit water, however, due to this shift, one more break pressure is added to the existing system in order to keep the pressure at a communal tap appropriate.The water distribution of the project is made from the projected distribution tank by gravity to 8 localities, 1 communal tap each.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	11.65	6.68	9.43	21.08	26.35
2020	16.71	6.68	10.19	26.90	33.62

SERVICE INSTALLATIONS

Communal Tap	8
Potence	
Particular Connection	
Population / Service Installations	**59.1**

CONSTRUCTION COST (DT)

Water Source	2,000.000
Pipe Materials	52,549.000
Pipeline Works	57,335.000
Civil Engineering Works	39,000.000
Electrification	3,200.000
Equipment	20,500.000
Contingency	26,187.250
Total	200,771.250
Per Capita Investment Cost	**424.500**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.827
Proposed charge / m3	1.000
Flat Rate / Family	6.169
Proposed Revolving Fund	25.000
Revolving Fund Applied	25.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	
Relay Tank	x , m3
Air Valve	9
Washout	4
Sluice valve single	
Sluice valve double	3
Sluice valve triple	
Handhole	
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	20		

Pump Start/Stop Control

Office for GIC

Branching Works from SONEDE or GR 1

Water Hammer Protection Not Necessary

Disinfection New

Total Pipeline Length (m) 5,663.00

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
TRANSMISSION	75	PN16	1,719.00	100	1.10	2.2	SUBMERSIBLE Horizontal Type	RELAY TANK
TRANSMISSION	75	PN10	881.00	117	1.10	2.2	SUBMERSIBLE Horizontal Type	RELAY TANK
DISTRIBUTION	90	PN10	257.00					
DISTRIBUTION	75	PN10	2,806.00					

Summary of Project: MZOUGHA-ZELDOU

Governorate BEJA | Delegation TESTOUR | Year of Execution 2005
Water Source SONEDE CONNECTION | Population Growth Rate 0.10 % | Creation of GIC New
Possible withdrawal 2.0 L/s | Predicted water demand in 2020 is 1.5 liter/second

Demographics

	2004	2020
Population		
Groupoed	1,794	1,824
Scattered		
Total	1,794	1,824
Households	418	420
Sheep and Goats		4,759
Cows, Horses and Donkeys		724

Outline of Project

Water is transmitted from the tank constructed at the connection point by a pump to the existing elevated tank. This tank supplies with water to 12 localities of Mzougha through 13 communal taps. This tank also supplies with water to the relay tank for pumping up water to the projected distribution tank with 40m3 capacity in Zeldou. Two localities are supplied with water from the relay tank. 18 localities, one communal tap each, are supplied from the distribution tank in Zeldou. Total 7 break pressures are constructed in order to keep the residual pressure of each communal tap appropriate.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	44.94	25.77	36.38	81.32	101.65
2020	64.43	25.77	39.30	103.73	129.66

SERVICE INSTALLATIONS

Communal Tap	33
Potence	
Particular Connection	7
Population / Service Installations	**55.3**

CONSTRUCTION COST (DT)

Water Source	2,000.000
Pipe Materials	451,527.000
Pipeline Works	399,004.000
Civil Engineering Works	132,000.000
Electrification	0.000
Equipment	59,500.000
Contingency	156,604.600
Total	1,200,635.600
Per Capita Investment Cost	**658.200**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.861
Proposed charge / m3	1.000
Flat Rate / Family	5.978
Proposed Revolving Fund	25.000
Revolving Fund Applied	25.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	2
Relay Tank	2 x 40 , 20 m3
Air Valve	78
Washout	48
Sluice valve single	13
Sluice valve double	
Sluice valve triple	
Handhole	
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
ELEVATED	25	9	
SEMI BURIED	40		

Pump Start/Stop Control: Pressure gauge

Office for GIC

Branching Works from SONEDE or GR: 1

Water Hammer Protection: Higher Nominal Pressure Pipe

Disinfection: New

Total Pipeline Length (m): 47,657.00

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
TRANSMISSION	110	PN16	1,700.00	150	3.00	9.2	SUBMERSIBLE Horizontal Type	RELAY TANK
TRANSMISSION	110	PN10	1,618.00	120	1.50	2.2	SUBMERSIBLE Horizontal Type	RELAY TANK
TRANSMISSION	90	PN16	2,400.00					
TRANSMISSION	90	PN10	2,678.64					
DISTRIBUTION	160	PN10	1,782.00					
DISTRIBUTION	125	PN10	524.00					
DISTRIBUTION	110	PN10	2,902.00					
DISTRIBUTION	90	PN10	3,801.36					
DISTRIBUTION	90	PN16	3,812.00					
DISTRIBUTION	75	PN16	3,023.00					
DISTRIBUTION	75	PN10	23,416.00					