Summary of Project: OULED BOUDABBOUS

Governorate KAIROUAN | Delegation BOUHAJLA | Year of Execution 2005
Water Source EXTENSION GR | Population Growth Rate 0.90 % | Creation of GIC Existing GIC
Possible withdrawal 15.0 L/s

The source is a deep well. The projected water demand in 2020 of three concerned GICs is 6.4 liter/second

Demographics

	2004	2020
Population		
Groupoed	599	692
Scattered		
Total	599	692
Households	107	125
Sheep and Goats		510
Cows, Horses and Donkeys		30

Outline of Project

Transmission pipeline is branched from the transmission pipeline of GIC BIR MSIKINE water supply system. It is connected to the projected elevated tank with 15m high and 50m3 capacity. Water is transmitteid from the connection point by residual pressure of the flow in the existing transmission pipeline.The elevated tank will cover all the service area which consists of 10 localities. Each locality has one communal tap.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	15.25	3.45	6.25	21.50	32.25
2020	24.44	3.45	7.64	32.08	48.12

SERVICE INSTALLATIONS

Communal Tap	10
Potence	
Particular Connection	
Population / Service Installations	**69.2**

CONSTRUCTION COST (DT)

Water Source	1,500.000
Pipe Materials	63,656.795
Pipeline Works	89,037.439
Civil Engineering Works	65,000.000
Electrification	3,000.000
Equipment	25,000.000
Contingency	37,079.135
Total	284,273.369
Per Capita Investment Cost	**410.800**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.273
Proposed charge / m3	0.700
Flat Rate / Family	4.542
Proposed Revolving Fund	7.999
Revolving Fund Applied	10.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	
Relay Tank	x , m3
Air Valve	11
Washout	3
Sluice valve single	1
Sluice valve double	4
Sluice valve triple	
Handhole	
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
ELEVATED	50	15	

Pump Start/Stop Control

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

Disinfection New
Total Pipeline Length (m) 9,444.25

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	75	PN10	5,486.91					
DISTRIBUTION	90	PN10	796.24					
DISTRIBUTION	110	PN10	1,089.24					
DISTRIBUTION	125	PN10	491.19					
TRANSMISSION	110	PN10	1,580.67					

Summary of Project: GHANZOUR

Governorate KAIROUAN | Delegation OUESSLATIA | Year of Execution 2006
Water Source DEEP WELL | Population Growth Rate 0.90 % | Creation of GIC New
Possible withdrawal 6.0 L/s

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

Demographics

	2005	2021
Population		
Groupoed	691	796
Scattered	32	38
Total	723	834
Households	130	151
Sheep and Goats		2,599
Cows, Horses and Donkeys		120

Outline of Project

A deep well pump discharge water to a distribution tank with 30m3 capacity and 365m elevation. The tank directly covers two (2) BFs of which elevation is 310m and 350m. The tank also distributes 16 BFs through a break pressure of which elevation is 297m. The elevation of BFs locateed downstream the break pressure varies from 225m to 280m. A number of the BFs accordingly have to have a pressure reducing valve.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	18.24	11.55	16.21	34.45	51.67
2021	28.88	11.55	17.61	46.49	69.74

SERVICE INSTALLATIONS

Communal Tap	18
Potence	
Particular Connection	
Population / Service Installations	**46.3**

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	145,158.118
Pipeline Works	91,683.000
Civil Engineering Works	58,500.000
Electrification	78,000.000
Equipment	23,000.000
Contingency	59,451.000
Total	455,792.118
Per Capita Investment Cost	**546.500**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.774
Proposed charge / m3	0.917
Flat Rate / Family	
Proposed Revolving Fund	15.000
Revolving Fund Applied	12.000

INSTALLATIONS and FACILITIES

Pumping Station	1
Relay Pumping Station	
Relay Tank	x , m3
Air Valve	13
Washout	7
Sluice valve single	
Sluice valve double	7
Sluice valve triple	
Handhole	27
Pressure Reducing Valve	5

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	40		Capacity is determined by tank behaviour

Pump Start/Stop Control: LIGNE PILOTE

Office for GIC

Branching Works from SONEDE or GR

Water Hammer Protection: Higher Nominal Pressure Pipe

Disinfection: New

Total Pipeline Length (m): 12,358.94

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
PUMP DISCHARGE	90	PN10	482.92	141	3.00	7.5	SUBMERSIBLE	WELL
PUMP DISCHARGE	90	PN16	630.59					
DISTRIBUTION	75	PN10	5,374.50					
DISTRIBUTION	90	PN10	27.63					
DISTRIBUTION	110	PN10	952.54					
DISTRIBUTION	125	PN10	1,928.59					
DISTRIBUTION	160	PN10	1,542.26					
DISTRIBUTION	200	PN10	1,419.91					

Summary of Project: GOUAAD

Governorate KAIROUAN | Delegation OUESSLATIA | Year of Execution 2006
Water Source EXTENSION GR | Population Growth Rate 0.90 % | Creation of GIC New
Possible withdrawal 12.5 L/s

The total maximum water demand in 2021 with the existing GIC WSS is 369m3/day (4.3 L/s).

Demographics

	2005	2021
Population		
Groupoed	611	704
Scattered	62	71
Total	673	775
Households	112	130
Sheep and Goats		1,849
Cows, Horses and Donkeys		90

Outline of Project

A relay puming station with a relay tank is constructed aside the connection point of an existing GIC WSS's distribution pipeline. Since inflow, 1.0 L/s to the tank is less than the relay pumping capacity, 1.5 L/s, the capacity of the tank, 30m3, shall comnpensate this difference. A relay pump transmits water to a distribution tank with 30m3 capacity and 415m in elevation, and it covers 11 BFs and one (1) BP of which elevation varies 335m - 385m. Eight (8) BFs require a pressure reducing valve in order to control a flow. For removing a upstream service area of the distribution pipeline of the existing syste, 618m of PEHD DE110 PN10 is installed from a distribution tank to a branching point to the said service area.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	16.81	10.52	14.80	31.61	47.41
2021	26.29	10.52	16.04	42.33	63.49

SERVICE INSTALLATIONS

Communal Tap	11
Potence	
Particular Connection	1
Population / Service Installations	**70.5**

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	121,062.921
Pipeline Works	111,323.600
Civil Engineering Works	92,900.000
Electrification	10,000.000
Equipment	14,500.000
Contingency	52,468.000
Total	402,254.521
Per Capita Investment Cost	**519.000**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.750
Proposed charge / m3	1.000
Flat Rate / Family	
Proposed Revolving Fund	15.000
Revolving Fund Applied	12.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	1
Relay Tank	1 x 30 , m3
Air Valve	21
Washout	6
Sluice valve single	
Sluice valve double	4
Sluice valve triple	
Handhole	31
Pressure Reducing Valve	8

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

Pump Start/Stop Control: MANOSTATIQUE
Office for GIC
Branching Works from SONEDE or GR: 2
Water Hammer Protection: AIR CHAMBER V=300
Disinfection: New
Total Pipeline Length (m): 14,837.00

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	840.00	150	1.50	4.0	IN LINE	RELAY TANK
PUMP DISCHARGE	75	PN16	1,703.00					
DISTRIBUTION	75	PN10	3,989.00					
DISTRIBUTION	75	PN16	1,969.00					
DISTRIBUTION	90	PN10	1,624.00					
DISTRIBUTION	110	PN10	2,636.00					
DISTRIBUTION	110	PN10	618.00					
DISTRIBUTION	125	PN10	1,151.00					
DISTRIBUTION	160	PN10	307.00					

Summary of Project: HSAINIA

Governorate KAIROUAN | Delegation NASRALLAH | Year of Execution 2006
Water Source EXTENSION GR | Population Growth Rate 0.90 % | Creation of GIC Existing GIC
Possible withdrawal 10.0 L/s

Total water demand in 2021 of four (4) concerned GIC WSS including the project is 428m3/day (5 L/s)

Demographics

	2005	2021
Population		
Groupoed	687	793
Scattered		
Total	687	793
Households	112	129
Sheep and Goats		1,312
Cows, Horses and Donkeys		55

Outline of Project

Distribution pipeline extends from an existing water service tower with 40m3 capacity and 228m in elevation and it covers 10 BFs of which elevation varies 165m to 195m. Total distribution pipeline length is around 6 km.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	17.48	8.21	12.25	29.73	44.60
2021	28.01	8.21	13.65	41.66	62.48

SERVICE INSTALLATIONS

Communal Tap 10
Potence
Particular Connection
Population / Service Installations 79.3

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	54,429.991
Pipeline Works	50,192.000
Civil Engineering Works	8,500.000
Electrification	
Equipment	
Contingency	16,968.000
Total	130,089.991
Per Capita Investment Cost	**164.000**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.385
Proposed charge / m3	0.500
Flat Rate / Family	
Proposed Revolving Fund	10.000
Revolving Fund Applied	10.000

INSTALLATIONS and FACILITIES

Pumping Station
Relay Pumping Station
Relay Tank x , m3
Air Valve 8
Washout 3
Sluice valve single
Sluice valve double 3
Sluice valve triple
Handhole 14
Pressure Reducing Valve

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SERVICE	40		

Pump Start/Stop Control

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

Disinfection Existing GIC
Total Pipeline Length (m) 5,978.00

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	75	PN10	490.00					
DISTRIBUTION	90	PN10	2,878.00					
DISTRIBUTION	110	PN10	2,610.00					

Summary of Project: KHOUALDIA

Governorate KAIROUAN | Delegation HADJEB LAAYOUN | Year of Execution 2006
Water Source EXTENSION GR | Population Growth Rate 0.90 % | Creation of GIC New
Possible withdrawal 5.0 L/s

Total water demand in 2021 with the existing GIC is 193m3/day (2.2 L/s)

Demographics

	2005	2021
Population		
Groupoed	446	516
Scattered	31	36
Total	477	552
Households	88	102
Sheep and Goats		1,738
Cows, Horses and Donkeys		112

Outline of Project

A relay puming station with a relay tank is constructed aside the connection point of an existing GIC WSS's distribution pipeline. Since the existing GIC has already started yard connections, it is difficult to have a flow assured to the project during the day. The capacity of the tank, 50m3, consequently is equivalent to the maximum daily water supply or more by filling water during the night. A relay pump transmits water to a distribution tank with 30m3 capacity and 364m in elevation, and it covers 15 BFs and one (1) BP of which elevation varies 290m - 330m.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	11.98	7.58	10.64	22.62	33.93
2021	18.95	7.58	11.56	30.51	45.76

SERVICE INSTALLATIONS

Communal Tap	15
Potence	
Particular Connection	1
Population / Service Installations	**36.8**

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	79,241.152
Pipeline Works	90,660.000
Civil Engineering Works	69,500.000
Electrification	6,000.000
Equipment	18,000.000
Contingency	39,510.000
Total	302,911.152
Per Capita Investment Cost	**548.800**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.866
Proposed charge / m3	1.000
Flat Rate / Family	
Proposed Revolving Fund	15.000
Revolving Fund Applied	12.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	1
Relay Tank	1 x 50 , m3
Air Valve	15
Washout	6
Sluice valve single	
Sluice valve double	8
Sluice valve triple	
Handhole	29
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	30		Capacity is determined by tank behaviour

Pump Start/Stop Control: LIGNE PILOTE

Office for GIC

Branching Works from SONEDE or GR: 1

Water Hammer Protection: Not Necessary

Disinfection: New

Total Pipeline Length (m): 15,246.00

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	1,428.00	61	1.00	1.5	IN LINE	RELAY TANK
DISTRIBUTION	75	PN10	9,463.00					
DISTRIBUTION	90	PN10	2,927.00					
DISTRIBUTION	110	PN10	116.00					
DISTRIBUTION	125	PN10	1,312.00					

Summary of Project: MAAMRIA

Governorate KAIROUAN | Delegation EL ALAA | Year of Execution 2006
Water Source EXTENSION GR | Population Growth Rate 0.90 % | Creation of GIC Existing GIC
Possible withdrawal 10.0 L/s

Total water demand in 2021 of concerned four GIC WSSs including the project is 531m3/day (6.1 L/s)

Demographics

	2005	2021
Population		
Groupoed	666	767
Scattered		
Total	666	767
Households	124	143
Sheep and Goats		1,477
Cows, Horses and Donkeys		101

Outline of Project

The project covers two service areas which have different connection points to an existing GIC WSS. One has three (3) BFs supplied water by the dynamic pressure of the distribution pipe of the existing WSS. Another service area is divided into a high area and a low area. Branched distribution pipeline from the connection point delivers water to a 20m3 distribution tank with supplying one (1) BF. The tank covers three (3) BFs and three (3) BPs, and transmits water to another 15m3 distribution tank located opposite side to the first one. The elevation of the second one is 55m lower than the first one. The second one covers 11 BFs.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	16.95	10.41	14.69	31.64	47.46
2021	27.09	10.41	16.04	43.13	64.69

SERVICE INSTALLATIONS

Communal Tap	15
Potence	
Particular Connection	3
Population / Service Installations	**42.6**

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	91,392.000
Pipeline Works	87,605.000
Civil Engineering Works	53,900.000
Electrification	
Equipment	17,000.000
Contingency	37,484.000
Total	287,381.000
Per Capita Investment Cost	**374.700**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.604
Proposed charge / m3	0.800
Flat Rate / Family	
Proposed Revolving Fund	16.000
Revolving Fund Applied	16.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	
Relay Tank x , m3	
Air Valve	13
Washout	2
Sluice valve single	
Sluice valve double	1
Sluice valve triple	4
Handhole	20
Pressure Reducing Valve	13

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

Pump Start/Stop Control: Float valve
Office for GIC
Branching Works from SONEDE or GR: 2
Water Hammer Protection
Disinfection: New
Total Pipeline Length (m): 12,544.00

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	75	PN10	5,681.00					
DISTRIBUTION	90	PN10	2,232.00					
DISTRIBUTION	90	PN16	1,338.00					
DISTRIBUTION	110	PN10	3,293.00					

Summary of Project: AIN DEFLA

Governorate KASSERINE | Delegation HAIDRA | Year of Execution 2005
Water Source EXTENSION GR | Population Growth Rate 1.50 % | Creation of GIC New
Possible withdrawal 8.0 L/s

The source is a deep well. Projected toral water demand of concerned three GICs in 2020 is 3.1 liter/second

Demographics

	2004	2020
Population		
Groupoed	925	1,174
Scattered	119	151
Total	1,044	1,325
Households	201	253
Sheep and Goats		1, 713
Cows, Horses and Donkeys		70

Outline of Project

Transmission pipe is connected to the water supply system of GIC ZAOUIET CHAFFAI just before a break pressure. Water is transmitted from the connecting point to a projected distribution tank with 100m3 by residual pressure of the flow at the connecting point. This tank covers 18 localities and 6 public institutions.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	26.28	10.66	16.20	42.48	63.71
2020	44.49	10.66	18.93	63.42	95.14

SERVICE INSTALLATIONS

Communal Tap	18
Potence	
Particular Connection	6
Population / Service Installations	**73.6**

CONSTRUCTION COST (DT)

Water Source	2,000.000
Pipe Materials	108,886.693
Pipeline Works	138,131.201
Civil Engineering Works	79,000.000
Electrification	3,000.000
Equipment	17,500.000
Contingency	52,277.684
Total	400,795.578
Per Capita Investment Cost	**302.500**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.610
Proposed charge / m3	0.750
Flat Rate / Family	4.709
Proposed Revolving Fund	10.015
Revolving Fund Applied	11.000

INSTALLATIONS and FACILITIES

Pumping Station
Relay Pumping Station
Relay Tank x , m3
Air Valve 9
Washout 2
Sluice valve single 8
Sluice valve double 4
Sluice valve triple
Handhole
Pressure Reducing Valve

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	100		

Pump Start/Stop Control

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

Disinfection New
Total Pipeline Length (m) 12,364.43

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	1,073.06					
TRANSMISSION	75	PN16	355.52					
DISTRIBUTION	75	PN10	5,081.95					
DISTRIBUTION	90	PN10	2,911.21					
DISTRIBUTION	110	PN10	310.20					
DISTRIBUTION	160	PN10	2,632.49					

Summary of Project: FAKKET EL KHADEM (EL AITHA)

Governorate KASSERINE | Delegation MAJEL BEL ABBES | Year of Execution 2005
Water Source IRRIGATION SYSTEM | Population Growth Rate 1.50 % | Creation of GIC New
Possible withdrawal 25.0 L/s | Projected water demand in 2020 is 0.9 liter/second

Demographics

Population	2004	2020
Groupoed	581	735
Scattered	222	281
Total	803	1,016
Households	139	177
Sheep and Goats		2, 204
Cows, Horses and Donkeys		98

Outline of Project

Water is distributed from the projected elevated tank with 150m3 capacity and 25m high of an irrigation project to 21 localities through 19 communal taps and 2 potences.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	19.53	12.63	17.46	36.99	55.49
2020	31.58	12.63	19.27	50.85	76.27

SERVICE INSTALLATIONS

Communal Tap	19
Potence	2
Particular Connection	0
Population / Service Installations	**37.6**

CONSTRUCTION COST (DT)

Water Source	0.000
Pipe Materials	117,526.347
Pipeline Works	172,740.436
Civil Engineering Works	29,200.000
Electrification	3,000.000
Equipment	5,000.000
Contingency	49,120.017
Total	376,586.800
Per Capita Investment Cost	**370.700**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.488
Proposed charge / m3	0.600
Flat Rate / Family	4.706
Proposed Revolving Fund	11.682
Revolving Fund Applied	11.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	
Relay Tank	x , m3
Air Valve	30
Washout	3
Sluice valve single	11
Sluice valve double	5
Sluice valve triple	
Handhole	
Pressure Reducing Valve	

Distribution Tank	Capacity (m3)	Height (m)	Remarks
ELEVATED	150	25	

Pump Start/Stop Control

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

Disinfection New
Total Pipeline Length (m) 14,253.95

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	75	PN10	6,037.29					
DISTRIBUTION	90	PN10	3,842.70					
DISTRIBUTION	110	PN10	1,986.67					
DISTRIBUTION	125	PN10	1,667.35					
DISTRIBUTION	160	PN10	576.97					
DISTRIBUTION	200	PN10	142.97					

Summary of Project: FAKKET EL KHADEM (NASSIRIA)

Governorate KASSERINE | Delegation MAJEL BEL ABBES | Year of Execution 2005
Water Source IRRIGATION SYSTEM | Population Growth Rate 1.50 % | Creation of GIC New
Possible withdrawal 25.0 L/s

The source is a deep well. Projected water demand in 2020 is 0.42 liter/second

Demographics

	2004	2020
Population		
Groupoed	244	309
Scattered	160	203
Total	404	512
Households	67	85
Sheep and Goats		1,354
Cows, Horses and Donkeys		92

Outline of Project

Water is distributted from the projected elevated tank with 150m3 capacity and 25m high of an irrigation project to 10 localities, a school and a mosque through 9 communal taps, 1 potence and 2 individual connections. Tere is existing pipeline which can be used for the project providing that 5 air valves and 2 drains are renewed.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	9.58	5.99	8.33	17.91	26.86
2020	14.98	5.99	9.13	24.11	36.17

SERVICE INSTALLATIONS

Communal Tap	9
Potence	1
Particular Connection	2
Population / Service Installations	**39.4**

CONSTRUCTION COST (DT)

Water Source	0.000
Pipe Materials	57,325.462
Pipeline Works	92,406.544
Civil Engineering Works	6,800.000
Electrification	5,000.000
Equipment	5,000.000
Contingency	24,979.801
Total	191,511.807
Per Capita Investment Cost	**374.000**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.525
Proposed charge / m3	0.650
Flat Rate / Family	5.078
Proposed Revolving Fund	11.682
Revolving Fund Applied	11.000

INSTALLATIONS and FACILITIES

Pumping Station
Relay Pumping Station
Relay Tank x , m3
Air Valve 15
Washout 4
Sluice valve single 8
Sluice valve double 1
Sluice valve triple
Handhole
Pressure Reducing Valve

Distribution Tank	Capacity (m3)	Height (m)	Remarks
ELEVATED	150	25	

Pump Start/Stop Control

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

Disinfection New
Total Pipeline Length (m) 7,554.14

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	75	PN10	4,727.74					
DISTRIBUTION	90	PN10	837.31					
DISTRIBUTION	110	PN10	96.07					
DISTRIBUTION	125	PN10	1,893.02					

Summary of Project: OULED BARKA

Governorate KASSERINE | Delegation FOUSSANA | Year of Execution 2005
Water Source EXTENSION GR | Population Growth Rate 1.50 % | Creation of GIC New
Possible withdrawal 20.0 L/s

The source is a deep well. Total projected water demand in 2020 of concerned three GICs; Ouled Barka, Ouled Zid and Berino is 3.1 liter/second.

Demographics

Population	2004	2020
Groupoed	1,575	1,998
Scattered		
Total	1,575	1,998
Households	301	380
Sheep and Goats		1,209
Cows, Horses and Donkeys		88

Outline of Project

Water is planned to be transmitted from the existing distribution tank of the GIC OULED ZID. However, it is necessary to construct a new tank in order to assure the water supply fow concerned three GICs. The capacity of the said tank is 100m3. Another distribution tank with 50m3 capacity is projected to supply with water to the project area. Water is transmitted from the 100m3 tank to the 50m3 tank by gravity. The service are is divided into high area and low area. Two areas are separately supplied with water by gravity. 8 localities exist in the high area and 31 localities are in the low area. One communal tap is installted in each locality.Relating to the project, the automatic control of the deep well pump operation and the disinfection facilities are newly installed.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	40.56	8.69	16.08	56.64	84.97
2020	70.58	8.69	20.58	91.16	136.74

SERVICE INSTALLATIONS

Communal Tap	39
Potence	
Particular Connection	2
Population / Service Installations	**51.2**

CONSTRUCTION COST (DT)

Water Source	2,000.000
Pipe Materials	187,552.786
Pipeline Works	274,281.192
Civil Engineering Works	115,000.000
Electrification	0.000
Equipment	6,500.000
Contingency	87,800.097
Total	673,134.075
Per Capita Investment Cost	**336.900**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.542
Proposed charge / m3	0.650
Flat Rate / Family	3.709
Proposed Revolving Fund	8.581
Revolving Fund Applied	10.000

INSTALLATIONS and FACILITIES

Pumping Station
Relay Pumping Station
Relay Tank x , m3
Air Valve 26
Washout 5
Sluice valve single 13
Sluice valve double 7
Sluice valve triple
Handhole
Pressure Reducing Valve

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	100		
SEMI BURIED	50		

Pump Start/Stop Control

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

Disinfection New but to install in the existing
Total Pipeline Length (m) 20,666.17

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	75	PN10	7,214.22					
DISTRIBUTION	75	PN16	2,931.52					
DISTRIBUTION	90	PN10	871.46					
DISTRIBUTION	90	PN16	981.62					
DISTRIBUTION	110	PN10	604.79					
DISTRIBUTION	110	PN16	287.93					
DISTRIBUTION	125	PN10	369.49					
DISTRIBUTION	160	PN10	1,917.85					
DISTRIBUTION	200	PN10	1,582.91					
TRANSMISSION	90	PN10	3,904.38					

Summary of Project: SIDI SHIL

Governorate KASSERINE | Delegation THALA | Year of Execution 2005
Water Source IRRIGATION SYSTEM | Population Growth Rate 1.50 % | Creation of GIC New
Possible withdrawal 35.0 L/s | Projected water demand in 2020 is 0.87 liter/second

Demographics

	2004	2020
Population		
Groupoed	662	840
Scattered	65	82
Total	727	922
Households	119	150
Sheep and Goats		2,079
Cows, Horses and Donkeys		66

Outline of Project

The water source of the project is the deep well for irrigation and the pumping system for the irrigation has already installed. The project branched from the transmission pipeline of the irrigation system. When water is pumped up to the projected relay pumping station, water to the tank used for the irrigation system is stopped by sluice valve. Pump head to the projected pumping station is almost same as that to the tank for irrigation.Water is pumped up from the pumping station to the projected 30m3 distribution tank. The service area is divided into a high area and a low area. The high area, where three localities exist, has one communal tap for each locality. 16 localities in the low area, each has one communal tap.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	18.39	12.38	16.99	35.38	53.08
2020	31.31	12.38	18.94	50.25	75.37

SERVICE INSTALLATIONS

Communal Tap	19
Potence	
Particular Connection	1
Population / Service Installations	**48.5**

CONSTRUCTION COST (DT)

Water Source	1,500.000
Pipe Materials	236,741.229
Pipeline Works	259,598.059
Civil Engineering Works	58,000.000
Electrification	6,000.000
Equipment	22,500.000
Contingency	87,650.893
Total	671,990.181
Per Capita Investment Cost	**728.800**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.504
Proposed charge / m3	0.600
Flat Rate / Family	5.350
Proposed Revolving Fund	15.183
Revolving Fund Applied	12.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	1
Relay Tank	1 x 50 , m3
Air Valve	27
Washout	6
Sluice valve single	4
Sluice valve double	8
Sluice valve triple	
Handhole	
Pressure Reducing Valve	

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

Pump Start/Stop Control: Pressure gauge
Office for GIC
Branching Works from SONEDE or GR: 1
Water Hammer Protection: Not Necessary
Disinfection: New
Total Pipeline Length (m): 26,986.01

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	75	PN10	9,649.13	64	2.00	3.0	IN LINE	RELAY TANK
DISTRIBUTION	75	PN16	1,966.87					
DISTRIBUTION	90	PN10	2,081.90					
DISTRIBUTION	110	PN10	394.35					
DISTRIBUTION	125	PN10	2,967.35					
DISTRIBUTION	160	PN10	3,325.01					
TRANSMISSION	75	PN10	6,601.40					

Summary of Project: BNANA/OULED BENAJEH

Governorate KASSERINE | Delegation FOUSSANA | Year of Execution 2006
Water Source EXTENSION GR | Population Growth Rate 1.50 % | Creation of GIC New

Possible withdrawal 8.0 L/s — Capcity of the deep well pump installed in the water source deep well. The total water demand in 2021 of three GICs including the project is 3.6 L/s.

Demographics

Population	2005	2021
Groupoed	1,251	1,586
Scattered	1,167	1,476
Total	2,418	3,062
Households	453	570
Sheep and Goats		3,573
Cows, Horses and Donkeys		247

Outline of Project

A deep well pump transmits water to a projected elevated tank with 15m high and 50m3 capacity. The elevated tank covers four (4) GIC WSS including the project. The tank transmits water to a projected semi-buried tank with 75m3 capacity supplying one (1) BF. The tank transmits water supplying two (2) BFs and one (1) BP to a relay pumping station wihch pump up water to a projected semi-buriied tank with 20m3 capacity. The 75m3 tank also directly supply other seven (7) BFs with water and connects to a break pressure. There are two downstream service areas of the break pressure, one has 12 BFs and one (1) BP and another has 12 BFs, three (3) BPs and one (1) potence. The 20m3 tank covers 11 BFs, one (1) BP and one (1) potence.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	56.27	25.27	38.47	94.74	142.11
2021	85.54	25.27	41.90	127.44	191.15

SERVICE INSTALLATIONS

Communal Tap	45
Potence	2
Particular Connection	7
Population / Service Installations	**57.8**

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	433,476.711
Pipeline Works	433,995.654
Civil Engineering Works	231,300.000
Electrification	12,000.000
Equipment	51,500.000
Contingency	174,340.855
Total	1,336,613.220
Per Capita Investment Cost	**436.500**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.688
Proposed charge / m3	0.900
Flat Rate / Family	
Proposed Revolving Fund	16.000
Revolving Fund Applied	16.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	1
Relay Tank	1 x 15 , m3
Air Valve	57
Washout	11
Sluice valve single	24
Sluice valve double	11
Sluice valve triple	1
Handhole	104
Pressure Reducing Valve	18

Distribution Tank	Capacity (m3)	Height (m)	Remarks
ELEVATED	50	15	
SEMI BURIED	75		
SEMI BURIED	20		

Pump Start/Stop Control: MANOSTATIQUE
Office for GIC: 1
Branching Works from SONEDE or GR
Water Hammer Protection: Not Necessary
Disinfection: New
Total Pipeline Length (m): 48,612.57

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	3,235.51	85	1.00	2.2	IN LINE	RELAY TANK
DISTRIBUTION	75	PN10	12,521.47	174	8.00	22.0	SUBMERSIBLE	WELL
DISTRIBUTION	75	PN10	9,613.19					
DISTRIBUTION	90	PN10	3,875.25					
DISTRIBUTION	90	PN10	1,029.90					
DISTRIBUTION	110	PN10	2,175.77					
DISTRIBUTION	110	PN10	191.61					
TRANSMISSION	110	PN10	3,800.44					
PUMP DISCHARGE	125	PN10	2,264.20					
PUMP DISCHARGE	125	PN16	1,253.74					
TRANSMISSION	125	PN10	2,720.47					
DISTRIBUTION	125	PN10	1,453.22					
DISTRIBUTION	125	PN10	269.76					
DISTRIBUTION	160	PN10	1,465.53					
DISTRIBUTION	160	PN10	1,233.37					
DISTRIBUTION	200	PN10	1,509.14					

Summary of Project: CHAAIBIA

Governorate KASSERINE | Delegation SBIBA | Year of Execution 2006
Water Source DEEP WELL | Population Growth Rate 1.50 % | Creation of GIC New
Possible withdrawal 5.0 L/s

The design capacity of the projected WSS is 231m3/day (2.7L/s)

Demographics

Population	2005	2021
Groupoed	1, 829	2,322
Scattered	609	769
Total	2,438	3,091
Households	442	558
Sheep and Goats		5, 404
Cows, Horses and Donkeys		308

Outline of Project

The deep well pump discharge water to a ditribution tank with 75m3 capacity and 773m elevation. The tank has two service areas. One service area extends to South-West for 22 BFs. Another covers South and East area with 15 BFs and a second distribution tank with 30m3 capacity and 648m elevation. This tank distribute water to South for 15 BFs. The elevation of service installations covered by 75m3 tank is from 630m - 670m and that by the second one is 604m - 627m. 28 service installaitons are consequently controlled their pressure by a pressure reducing valve.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	59.65	36.26	51.68	111.33	167.00
2021	97.40	36.26	56.31	153.71	230.57

SERVICE INSTALLATIONS

Communal Tap	52
Potence	
Particular Connection	
Population / Service Installations	**59.4**

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	314,262.113
Pipeline Works	321,772.728
Civil Engineering Works	132,300.000
Electrification	42,000.000
Equipment	53,400.000
Contingency	129,560.226
Total	993,295.067
Per Capita Investment Cost	**321.400**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.621
Proposed charge / m3	0.708
Flat Rate / Family	
Proposed Revolving Fund	16.000
Revolving Fund Applied	16.000

INSTALLATIONS and FACILITIES

Pumping Station	1
Relay Pumping Station	
Relay Tank	x , m3
Air Valve	27
Washout	5
Sluice valve single	16
Sluice valve double	14
Sluice valve triple	1
Handhole	62
Pressure Reducing Valve	28

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	75		
SEMI BURIED	30		

Pump Start/Stop Control: LIGNE PILOTE
Office for GIC: 1
Branching Works from SONEDE or GR
Water Hammer Protection: Not Necessary
Disinfection: New
Total Pipeline Length (m): 30,140.71

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	75	PN10	12,905.31	118	5.00	13.0	SUBMERSIBLE	WELL
DISTRIBUTION	90	PN16	5,217.07					
DISTRIBUTION	110	PN10	1,183.28					
DISTRIBUTION	125	PN16	1,864.63					
PUMP DISCHARGE	110	PN10	1,153.68					
DISTRIBUTION	160	PN10	6,235.11					
DISTRIBUTION	200	PN10	1,581.63					

Summary of Project: MKIMEN

Governorate KASSERINE | Delegation HAIDRA | Year of Execution 2006
Water Source EXTENSION GR | Population Growth Rate 1.50 % | Creation of GIC New
Possible withdrawal 8.0 L/s

Total water demand in 2021 of concerned four (4) GIC WSSs including the project is 329m3 /day. (3.8 L/s)

Demographics

	2005	2021
Population		
Groupoed	247	314
Scattered	1,022	1,297
Total	1,269	1,611
Households	216	273
Sheep and Goats		4,654
Cows, Horses and Donkeys		120

Outline of Project

A semi-buried tank with 50m3 cpacity is projected aside the distribution tank of Zaouite chaffai GIC WSS which is the water source of the project. Water flows from the tank by gravity to an existing elevated tank and to an existing relay tank and it pumps up to another distribution tank with 10m3 capacity and 878m elevation. The tank supplies seven (7) BFs and one (1) BP, and connects to third distribution tank with 10m3 capacity and 827m elevation. The 3rd tank distribute water to six (6) BFs, three (3) BPs and one (1) potence. The existing elevated tank covers five (5) existing BFs, two projected BFs, one (1) existing BP and one (1) projected BP.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	27.42	14.81	21.62	49.04	73.56
2021	37.03	14.81	22.59	59.62	89.43

SERVICE INSTALLATIONS

Communal Tap	15
Potence	1
Particular Connection	5
Population / Service Installations	67.1

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	379,458.445
Pipeline Works	374,668.785
Civil Engineering Works	114,100.000
Electrification	40,000.000
Equipment	22,500.000
Contingency	139,609.084
Total	1,070,336.314
Per Capita Investment Cost	**664.400**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.785
Proposed charge / m3	0.825
Flat Rate / Family	
Proposed Revolving Fund	16.000
Revolving Fund Applied	16.000

INSTALLATIONS and FACILITIES

Pumping Station	
Relay Pumping Station	
Relay Tank	x , m3
Air Valve	34
Washout	6
Sluice valve single	4
Sluice valve double	9
Sluice valve triple	
Handhole	44
Pressure Reducing Valve	10

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	50		There are existing elevated tank with 25m3 capacity.
SEMI BURIED	10		
SEMI BURIED	10		

Pump Start/Stop Control: MANOSTATIQUE
Office for GIC
Branching Works from SONEDE or GR
Water Hammer Protection: Not Necessary

Disinfection: New
Total Pipeline Length (m): 48,843.19

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	4,271.31	133	1.00	4.0	IN LINE	RELAY TANK
PUMP DISCHARGE	75	PN16	3,625.39					
DISTRIBUTION	75	PN10	4,870.58					
DISTRIBUTION	75	PN10	9,393.68					
DISTRIBUTION	75	PN10	3,133.88					
TRANSMISSION	90	PN10	4,701.50					
TRANSMISSION	90	PN16	10,450.59					
DISTRIBUTION	90	PN10	3,303.56					
DISTRIBUTION	90	PN10	2,366.56					
DISTRIBUTION	110	PN10	935.08					
DISTRIBUTION	125	PN10	57.34					
DISTRIBUTION	160	PN10	1,733.72					

Summary of Project: OUED LAHTAB

Governorate KASSERINE | Delegation SBIBA | Year of Execution 2006
Water Source DEEP WELL | Population Growth Rate 1.50 % | Creation of GIC New
Possible withdrawal 10.0 L/s

The design capacity of the projected WSS is 115m3/day (1.3 L/s)

Demographics

	2005	2021
Population		
Groupoed	896	1,138
Scattered	300	380
Total	1,196	1,518
Households	205	260
Sheep and Goats		6, 006
Cows, Horses and Donkeys		113

Outline of Project

A deep well pump delivers water to an elevated tank with 50m3 capacity and 15m high . The tank directly ditribute eight (8) BFs of which elevation is 580m to 613m and covers 18 BFs and one (1) BP of which elevation is 540m to 570m through a break pressure. The break pressure connects to a 10m3 distribution tank which covers five (5) BFs. The elevation of 5 BFs is 520m to 540m. The service area accordingly has three (3) zones.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	29.26	19.12	26.88	56.14	84.21
2021	47.80	19.12	29.16	76.96	115.44

SERVICE INSTALLATIONS

Communal Tap	31
Potence	
Particular Connection	1
Population / Service Installations	**49.0**

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	177,262.044
Pipeline Works	248,818.553
Civil Engineering Works	154,400.000
Electrification	57,000.000
Equipment	56,400.000
Contingency	104,082.090
Total	797,962.687
Per Capita Investment Cost	**525.700**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.630
Proposed charge / m3	0.720
Flat Rate / Family	
Proposed Revolving Fund	18.000
Revolving Fund Applied	16.000

INSTALLATIONS and FACILITIES

Pumping Station	1
Relay Pumping Station	
Relay Tank x , m3	
Air Valve	43
Washout	8
Sluice valve single	7
Sluice valve double	12
Sluice valve triple	1
Handhole	56
Pressure Reducing Valve	17

Distribution Tank	Capacity (m3)	Height (m)	Remarks
ELEVATED	50	15	
SEMI BURIED	10		

Pump Start/Stop Control: LIGNE PILOTE
Office for GIC: 1
Branching Works from SONEDE or GR
Water Hammer Protection: Not Necessary
Disinfection: New
Total Pipeline Length (m): 24,839.70

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
DISTRIBUTION	75	PN10	1,744.80	128	3.00	5.5	SUBMERSIBLE	WELL
DISTRIBUTION	75	PN10	7,248.02					
DISTRIBUTION	75	PN10	5,759.06					
DISTRIBUTION	90	PN10	1,383.32					
DISTRIBUTION	90	PN10	2,627.81					
DISTRIBUTION	90	PN10	533.07					
PUMP DISCHARGE	90	PN10	1,365.52					
DISTRIBUTION	110	PN10	666.15					
DISTRIBUTION	110	PN10	172.51					
DISTRIBUTION	125	PN10	145.82					
DISTRIBUTION	125	PN10	3,193.62					

Summary of Project: OULED MASSOUD RIZG

Governorate KASSERINE | Delegation FOUSSANA | Year of Execution 2006
Water Source DEEP WELL | Population Growth Rate 1.50 % | Creation of GIC New
Possible withdrawal 5.0 L/s

The design capacity of the projected WSS is 114m3/day (1.3 L/s)

Demographics

	2005	2021
Population		
Groupoed	651	826
Scattered	217	275
Total	868	1,101
Households	170	214
Sheep and Goats		2, 025
Cows, Horses and Donkeys		14

Outline of Project

Two distribution tanks are projected. One is around 775m and another is arond 840m in elevation. The capacity of former is 50m3 and it covers two service areas; one service area with four (4) BFs is 740m - 755m in elevation and another area with 17 BFs is 695m - 725m in elvation. The latter tank has 10m3 capacity and covers four (4) BFs of which elevation is 770m - 830m. A deep well pump transmits water to the 50m3 tank and then water flows to a booster pumping station by gravity. The booster pump discharges water to the 10m3 tank. The distribution system considers the flow to 13 BFs and one (1) BP for the localities of Abaydi Brika Boughanem, etc. of which population has rejected the project.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2005	30.59	16.09	23.62	54.21	81.31
2021	49.96	16.09	25.99	75.95	113.93

SERVICE INSTALLATIONS

Communal Tap	25
Potence	
Particular Connection	5
Population / Service Installations	**44.0**

CONSTRUCTION COST (DT)

Water Source	
Pipe Materials	226,772.755
Pipeline Works	203,571.526
Civil Engineering Works	94,500.000
Electrification	57,000.000
Equipment	49,500.000
Contingency	94,701.643
Total	726,045.924
Per Capita Investment Cost	**659.400**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.765
Proposed charge / m3	0.900
Flat Rate / Family	
Proposed Revolving Fund	15.000
Revolving Fund Applied	16.000

INSTALLATIONS and FACILITIES

Pumping Station	1
Relay Pumping Station	1
Relay Tank x , m3	
Air Valve	16
Washout	3
Sluice valve single	13
Sluice valve double	7
Sluice valve triple	
Handhole	36
Pressure Reducing Valve	20

Distribution Tank	Capacity (m3)	Height (m)	Remarks
SEMI BURIED	50		
SEMI BURIED	10		

Pump Start/Stop Control: MANOSTATIQUE

Office for GIC

Branching Works from SONEDE or GR

Water Hammer Protection: Not Necessary

Disinfection: New

Total Pipeline Length (m): 23,248.86

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	1,634.08	103	3.00	5.5	SUBMERSIBLE	WELL
PUMP DISCHARGE	75	PN16	296.01	83	1.00	2.2	IN LINE	BOOSTER PUMPING STATION
DISTRIBUTION	75	PN10	1,657.24					
DISTRIBUTION	75	PN10	5,318.62					
DISTRIBUTION	75	PN10	1,620.91					
PUMP DISCHARGE	90	PN10	2,694.97					
DISTRIBUTION	90	PN10	2,893.85					
DISTRIBUTION	90	PN10	1,068.30					
DISTRIBUTION	90	PN10	185.60					
DISTRIBUTION	110	PN10	322.53					
DISTRIBUTION	110	PN10	1,111.31					
DISTRIBUTION	125	PN10	608.16					
DISTRIBUTION	160	PN10	1,395.29					
DISTRIBUTION	200	PN10	2,441.99					

Summary of Project: M'BARKIA

Governorate SIDI BOUZID | Delegation SIDI ALI BEN AOUN | Year of Execution 2005
Water Source EXTENSION GR | Population Growth Rate 1.50 % | Creation of GIC New
Possible withdrawal 20.0 L/s

The source is a deep well. Projected total water demand of concerned GICs and irrigation in 2020 is 6.5 liter/second

Demographics

Population	2004	2020
Groupoed	702	893
Scattered	146	185
Total	848	1,078
Households	140	178
Sheep and Goats		1, 235
Cows, Horses and Donkeys		307

Outline of Project

One pump is installed in an existing pumping station and it is connected to the suction pipe of the existing pump. Water is pumped up to a projected distribution tank with 40m3 and distributied by gravity from there to 14 localities through 10 communal taps, 4 potences in which one is existing and an individual connections.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	28.95	16.80	20.55	49.50	74.25
2020	46.78	16.80	23.24	70.02	105.02

SERVICE INSTALLATIONS

Communal Tap	10
Potence	3
Particular Connection	1
Population / Service Installations	**41.5**

CONSTRUCTION COST (DT)

Water Source	0.000
Pipe Materials	272,354.105
Pipeline Works	166,819.000
Civil Engineering Works	39,500.000
Electrification	0.000
Equipment	28,000.000
Contingency	76,000.965
Total	582,674.070
Per Capita Investment Cost	**540.500**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.445
Proposed charge / m3	0.600
Flat Rate / Family	2.991
Proposed Revolving Fund	11.964
Revolving Fund Applied	12.000

INSTALLATIONS and FACILITIES

Pumping Station
Relay Pumping Station
Relay Tank x , m3
Air Valve 11
Washout 8
Sluice valve single
Sluice valve double 9
Sluice valve triple
Handhole
Pressure Reducing Valve

Distribution Tank	Capacity (m3)	Height (m)	Remarks
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): 21,635.00

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	4,648.00	100	2.00	4.0	IN LINE	RELAY TANK
TRANSMISSION	110	PN10	1,636.00					
DISTRIBUTION	75	PN10	7,642.00					
DISTRIBUTION	90	PN10	2,809.00					
DISTRIBUTION	110	PN10	2,004.00					
DISTRIBUTION	125	PN10	397.00					
DISTRIBUTION	160	PN10	2,499.00					

Summary of Project: OULED NAOUI

Governorate SIDI BOUZID | Delegation OULED HAFFOUZ | Year of Execution 2005

Water Source EXTENSION GR | Population Growth Rate 1.50 % | Creation of GIC Existing GIC

Possible withdrawal 15.0 L/s

The source is a deep well. Total withdrawal for existing and projected water supply systems is 2.11 liter/second in 2020

Demographics

Population	2004	2020
Groupoed	691	877
Scattered	240	304
Total	931	1,181
Households	186	235
Sheep and Goats		1, 245
Cows, Horses and Donkeys		106

Outline of Project

Water is transmitted from the water source well of the existing GIC, Chouachine by a deep well pump to the projected distribution tank with 30m3. Water is distributed from the tank by gravity to 14 localities. Service facilities consists of 10 communal taps and 4 potences and also transmitted to the existing distribution tank with 30m3 of the GIC Chouachine.

Water Supply Planning (m3/day)

Year	Population	Cattle	UFW	Average Daily Water Supply	Maximum Daily Water Supply
2004	22.74	9.40	14.22	36.96	55.45
2020	37.06	9.40	16.37	53.43	80.14

SERVICE INSTALLATIONS

Communal Tap	10
Potence	4
Particular Connection	
Population / Service Installations	**45.4**

CONSTRUCTION COST (DT)

Water Source	0.000
Pipe Materials	249,742.500
Pipeline Works	184,246.000
Civil Engineering Works	29,500.000
Electrification	0.000
Equipment	32,500.000
Contingency	74,398.275
Total	570,386.775
Per Capita Investment Cost	**483.000**

Contribution by Beneficiaries (DT)

Estimated Cost / m3	0.429
Proposed charge / m3	0.600
Flat Rate / Family	3.542
Proposed Revolving Fund	14.168
Revolving Fund Applied	14.000

INSTALLATIONS and FACILITIES

Pumping Station

Relay Pumping Station

Relay Tank x , m3

Air Valve 15

Washout 11

Sluice valve single

Sluice valve double 5

Sluice valve triple

Handhole

Pressure Reducing Valve

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

Pump Start/Stop Control: Pilot cable with electrode

Office for GIC

Branching Works from SONEDE or GR

Water Hammer Protection: Not Necessary

Disinfection: Existing GIC but the system will

Total Pipeline Length (m): 20,771.00

Pipeline	Diameter (mm)	Nominal Pressure	Length (m)	Pump H (m)	Pump Q (l/s)	Motor (kW)	Pump Type	Facilities to be Installed
TRANSMISSION	110	PN10	1,302.00	185	4.00	15.0	SUBMERSIBLE	WELL
DISTRIBUTION	75	PN10	4,291.00					
DISTRIBUTION	75	PN16	3,742.00					
DISTRIBUTION	90	PN16	3,751.00					
DISTRIBUTION	110	PN10	1,718.00					
DISTRIBUTION	110	PN16	2,094.00					
DISTRIBUTION	160	PN10	3,873.00					