



# Updated National Water Sector Strategy 2020 - 2035

## ANNEX IV

### PROPOSED PROJECTS



## CONSULTANT



BUREAU TECHNIQUE  
POUR LE DÉVELOPPEMENT



DAR AL HANDBAH NAZH TALEB & PARTNERS  
دار الهندسة نزيه طالب وشركاه



ELARD



LIBANCONSULT AGM  
Consulting Engineers



KREDO



Hydroconseil  
Engineering Services & Assessment





## FOREWORD

The present volume is part of the **Updated National Water Sector Strategy 2022**, which includes the following volumes:

*The Updated National Water Sector Strategy 2022* (the core volume of the Strategy)

*Annex I : Water Sector Governance*

- A Strategy pillar – SDG 6
- B Current legal and Institutional frameworks
- C Human Resources of the WEs
- D Water tariff analysis
- E Strategic action - Recommendations

*Annex II : Water resources management*

- A Available water resources - Impact of climate change
- B Surface water resources management
- C Groundwater resources management
- D Guidelines for monitoring water quality
- E Wastewater and sludge management
- F Strategic Environmental and Social Assessment

*Annex III : Water Sector current situation*

- A Tapped water resources and wastewater facilities
- B Demand criteria, assumptions and water balance
- C Appendices to Volume IV

**Annex IV : PROPOSED PROJECTS** (*this volume*)

- A Criteria for projects and priorities selection
- B Proposed Projects (Bound separately)

*Annex V : DRAWINGS*





## CONTENTS

(Detailed tables of contents are provided at the beginning of each Section)

### Section A

A.1. Criteria for projects and priorities selection.....	8
A.2. Proposed projects cost estimates and ratios per capita.....	12
A.3. List of proposed projects.....	14

### Section B (bound separately)

Appendices to propose projects



## LIST OF ACRONYMS

Bm <sup>3</sup>	Billion cubic meter
BMLWE	Beirut and Mount Lebanon Water Establishment
BWE	Bekaa Water Establishment
CDR	Council for Development and Reconstruction
CM	Customer Management
EIB	European Investment Bank
EU	European Union
HR	Human resources
IFRS	International Financial Reporting Standards
IWMI	International Water Management Institute
l/c/d	Litres per capita per day
l/sec	Litres per second
LBP	Lebanese Pound
LRA	Litani River Authority
m <sup>3</sup> /d	Cubic meter per day
m <sup>3</sup> /h	Cubic meter per hour
masl	Meters above sea level
MCM	Million cubic meter
MENA	Middle East and North Africa region
Mm <sup>3</sup>	Million cubic meter
MoA	Ministry of Agriculture
MoE	Ministry of Environment
MoEW	Ministry of Energy and Water
NGO	Non-Governmental Organization
NLWE	North Lebanon Water Establishment
NRW	Non-Revenue Water (unaccounted-for water)
NWSS	National Water Sector Strategy
ONL	Office National du Litani
PPP	Private Public Partnership
SLWE	South Lebanon Water Establishment
UFW	Unaccounted for Water
UN	United Nations
WE	Water Establishment
WEs	Water Establishments
WES	Water Establishments



# SECTION A PROPOSED PROJECTS





## A.1. CRITERIA FOR PROJECTS AND PRIORITIES SELECTION

### A.1.1 GENERAL

The NWSS aims to identify the projects that need to be implemented in order to cover the needs of the population in terms of drinking water, wastewater, and water for irrigation. Those needs for the strategy horizon (2035), covering the whole territory, are given in *Volume IV*.

In addition, the Consultants undertook a comprehensive assessment of the statuses and capacities of the existing infrastructures and operational systems, which allowed identifying the gaps that should be filled in order to cover the needs. These gaps were then translated into projects in all three sectors, and prioritized by order of urgency and impact:

- Priority 1 is for urgent projects to be implemented as soon as can be.
- Priority 2 is for projects that are required but could be delayed if no possibility to implement them now.
- Priority 3 is for projects that would be required in the future, based on the foreseen evolution of the present status of the water sector.

### A.1.2 CRITERIA FOR WATER PROJECTS SELECTION

#### A.1.2.1 Priority 1 (2020 -2025)

Priority 1 is for projects addressing a negative water balance in a given water distribution scheme, and/or implementing missing components such as reservoirs, networks, and pumping stations in order to extend the coverage and the good performance of the distribution scheme. Namely:

- Development and expansion of water resources to cover potable water needs, i.e. in water systems having a negative water balance in 2020
- Provision of adequate water storage capacities, i.e. in water systems that currently have very small reservoirs compared to the required storage or in those that have very old reservoirs that need to be replaced.
- Provision of adequate main transmission lines by constructing new ones, increasing the capacity of existing ones, and replacing very old ones
- Construction of distribution networks, mainly in water systems that currently don't have a distribution network or where the network is very old and in bad condition.
- Monitoring main transmission and distribution lines through the installation of district water meters, in order to better control the distribution and address leakage issues.

#### A.1.2.2 Priority 2 (2025 - 2030)

Priority 2 projects cover mainly :

- The extension of existing distribution networks and/or replacement of old ones
- The expansion of existing water storage capacities to the required standards

- The development of new (or improvement of existing) water resources to address future negative water balances, along with the construction of related works (i.e. transmission lines, pumping stations, reservoirs ...)

#### A. 1.2.3 Priority 3

Priority 3 is for projects that should be implemented to address expected issues at the long term.

### A.1.3 CRITERIA FOR WASTEWATER PROJECTS SELECTION

The main objective of the proposed wastewater projects is to eradicate, or at least reduce, the nuisance to the environment and to groundwater by minimizing the discharge of untreated wastewater into the open or in waterbodies. For this purpose, priorities are set as follows :

#### A. 1.3.1 Priority 1

- Implement new WWTPs and sewers in densely populated areas with poor (or inexistent) sanitation infrastructure
- Expansion and upgrade of major existing WWTPs the treatment capacity of which isn't enough to treat the influent (in 2020) to acceptable standards.
- Implementation of new WWTPs and sewers in areas that are in the watershed of proposed and existing dams

#### A. 1.3.2 Priority 2

- Implementation of new WWTPs and sewer networks in less densely populated areas
- Expansion and upgrade of existing WWTPs if their treatment capacity isn't enough to treat the influent wastewater flows in the near future

#### A. 1.3.3 Priority 3

- Implementation of small wastewater treatment units in isolated villages/areas

### A.1.4 CRITERIA FOR IRRIGATION PROJECTS SELECTION

A negative water balance and/or the bad status and coverage of the irrigation networks. However, proper estimation of the water balance is quite impossible due to the lack of meteorological and hydrometric data, and insufficient studies on the subject. Therefore Priorities are set as follows :

#### A. 1.4.1 Priority 1

For agricultural areas requiring :

- Concreting of existing earth channels
- Rehabilitation of existing concrete channels
- Construction of new irrigation networks (channels or pipes)





### A. 1.5.2 Priority 2

For Dams that would be needed in more than 15 years, the construction of which should therefore start in less than 10 years.

For Hill Lakes in areas facing less severe water shortages for irrigation purposes, or in areas that witness a relatively stable or slight increase in irrigated area

### A. 1.5.3 Priority 3

For Dams that would be needed in more than 20 years, the construction of which should therefore start in less than 15 years.

For Hill Lakes in areas that currently don't face water shortages, but that might require additional resources in the future









## A.3. LIST OF PROPOSED PROJECTS

The tables hereinafter give a list of the proposed projects, starting with two Tables of Contents, sorted by Water Establishment and by Water Sector.

Each project is given a code number. The same code is given to the corresponding project's appendix in Section B, where additional details and justifications about the project can be found.



**LIST OF PROJECTS**

Sorted by Water Establishment

Table of Contents sorted by water sector		
<b><u>NORTH LEBANON WATER ESTABLISHMENT</u></b>	<b><u>BEIRUT &amp; MOUNT LEBANON WATER EST.</u></b>	
<b>Drinking water projects</b>	<b>Drinking water projects</b>	
NL-W A. District of Batroun	BML-W A. District of Beirut	
NL-W B. District of Halba	BML-W B. District of Jbeil	
NL-W C. District of Koura	BML-W C. District of Baabda Aley	
NL-W D. District of Minieh	BML-W D. District of Keserwan	
NL-W E. District of Ed Danniyeh	BML-W E. District of Chouf	
NL-W F. District of Zgharta	BML-W F. District of Maten	
NL-W G. District of Tripoli	<b>Wastewater projects</b>	
NL-W H. District of Qobayate		BML-WW A. District of Beirut
<b>Wastewater projects</b>		BML-WW B. District of Jbeil
		BML-WW C. District of Baabda Aley
		BML-WW D. District of Keserwan
		BML-WW E. District of Chouf
	BML-WW F. District of Metn	
<b>Irrigation projects</b>	<b>Irrigation projects</b>	
	BML-IR A. District of Jbeil	
	BML-IR B. District of Maten	
	BML-IR C. District of Keserouane	
	BML-IR D. District of Baabda	
<b>Dams</b>	BML-IR E. District of Chouf	
	<b>Dams</b>	BML-D. Dams in Beirut and Mount Lebanon
<b>Hill Lakes</b>		<b>Hill Lakes</b>
	BML-HL. Hill Lakes in Beirut and Mount Lebanon	
<b><u>SOUTH LEBANON WATER ESTABLISHMENT</u></b>	<b><u>BEQAA WATER ESTABLISHMENT</u></b>	
<b>Drinking water projects</b>	<b>Drinking water projects</b>	
SL-W A. District of Nabatiye	BQ-W A. District of Baalbeck	
SL-W B. District of Jezzine	BQ-W B. District of Hermel	
SL-W C. District of Sour	BQ-W C. District of West Beqaa, Zahleh & Rachaiya	
SL-W D. District of Zahrani	<b>Wastewater projects</b>	
SL-W E. District of Saida		BQ-WW A. District of Baalbeck
SL-W F. District of Bint Jbeil		BQ-WW B. District of Hermel
SL-W G. District of Marjaayoun & Hasbaya		BQ-WW C. District of Zahleh - West Beqaa
<b>Wastewater projects</b>	BQ-WW D. District of Rachaya	
	<b>Irrigation projects</b>	BQ-IR A. District of Baalbeck
		BQ-IR B. District of Zahle
	<b>Dams</b>	<b>Dams</b>
		BQ-D. Dams in the Beqaa
<b>Irrigation projects</b>	<b>Hill Lakes</b>	
	BQ-HL. Hill Lakes in the Beqaa	
<b>Dams</b>	<b>ARTIFICIAL AQUIFER RECHARGE</b>	
	<b>METEOROLOGICAL &amp; HYDROMETRIC</b>	
<b>Hill Lakes</b>	<b>REQUIRED GENERAL STUDIES</b>	



**LIST OF PROJECTS**  
**Sorted by Water Sector**

	Page		Page
Table of Contents sorted by Water Establishment	13		
<b><u>DRINKING WATER</u></b>		<b><u>WASTEWATER</u></b>	
<b>North Lebanon water establishment</b>		<b>North Lebanon water establishment</b>	
NL-W A. District of Batroun	15	NL-WW A. District of Akkar	41
NL-W B. District of Halba	16	NL-WW B. District of Koura	41
NL-W C. District of Koura	18	NL-WW C. District of Minieh	42
NL-W D. District of Minieh	19	NL-WW D. District of Zgharta	42
NL-W E. District of Ed Danniyeh	20	NL-WW E. District of Batroun	42
NL-W F. District of Zgharta	21	<b>South Lebanon water establishment</b>	
NL-W G. District of Tripoli	22	SL-WW A. District of Nabatiye	46
NL-W H. District of Qobayate	23	SL-WW B. District of Sour	47
<b>South Lebanon water establishment</b>		SL-WW C. District of Bint Jbeil	48
SL-W A. District of Nabatiye	29	SL-WW D. District of Jezzine	48
SL-W B. District of Jezzine	30	SL-WW E. District of Saida	48
SL-W C. District of Sour	30	<b>Beirut &amp; Mount Lebanon water est.</b>	
SL-W D. District of Zahrani	32	BML-WW A. District of Beirut	49
SL-W E. District of Saida	33	BML-WW B. District of Jbeil	49
SL-W F. District of Bint Jbeil	34	BML-WW C. District of Baabda Aley	49
SL-W G. District of Marjaayoun & Hasbaya	35	BML-WW D. District of Keserwan	50
<b>Beirut &amp; Mount Lebanon water est.</b>		BML-WW E. District of Chouf	50
BML-W A. District of Beirut	36	BML-WW F. District of Metn	50
BML-W B. District of Jbeil	37	<b>Beqaa water establishment</b>	
BML-W C. District of Baabda Aley	38	BQ-WW A. District of Baalbeck	43
BML-W D. District of Keserwan	39	BQ-WW B. District of Hermel	44
BML-W E. District of Chouf	40	BQ-WW C. District of Zahleh - West Beqaa	44
BML-W F. District of Maten	40	BQ-WW D. District of Rachaya	45
<b>Beqaa water establishment</b>			
BQ-W A. District of Baalbeck	25	<b><u>IRRIGATION</u></b>	
BQ-W B. District of Hermel	26	<b>North Lebanon water establishment</b>	
BQ-W C. District of West Beqaa, Zahleh & Rachaiya	27	NL-IR A. District of Akkar	51
		NL-IR B. North districts	52
<b><u>DAMS</u></b>		<b>South Lebanon water establishment</b>	
NL-D. Dams in North Lebanon	61	SL-IR A. Major irrigation schemes	56
BQ-D. Dams in the Beqaa	61	SL-IR B. Local irrigation schemes	56
SL-D. Dams in South Lebanon	61	SL-IR C. Construction/Rehab of concrete channels	57
BML-D. Dams in Beirut and Mount Lebanon	62	<b>Beirut &amp; Mount Lebanon water est.</b>	
		BML-IR A. District of Jbeil	58
<b><u>HILL LAKES</u></b>		BML-IR B. District of Maten	59
NL-HL.A. Hill Lakes in Akkar	63	BML-IR C. District of Keserouane	59
NL-HL.B. Hill Lakes in North Lebanon	63	BML-IR D. District of Baabda	60
BQ-HL. Hill Lakes in the Beqaa	64	BML-IR E. District of Chouf	60
SL-HL. Hill Lakes in South Lebanon	65	<b>Beqaa water establishment</b>	
BML-HL. Hill Lakes in Beirut and Mount Lebanon	66	BQ-IR A. District of Baalbeck	53
		BQ-IR B. District of Zahle	55
<b><u>ARTIFICIAL AQUIFER RECHARGE</u></b>	67		
<b><u>METEOROLOGICAL &amp; HYDROMETRIC</u></b>	68	<b><u>REQUIRED GENERAL STUDIES</u></b>	69



TOTAL COST OF WATER PROJECTS IN NORTH LEBANON

Priority 1	Priority 2	Priority 3	Total
213 016 500 \$	130 873 500 \$	-	343 890 000 \$

Project code	Priority	Description	Estimated cost (USD)
<b>NL-W A. District of Batroun (see drawing NL-W.A)</b>			
NL-W. A.1		Distribution system 1 supplying Tannourine Faouqa; Chatine Required works :	
	Priority 1	Construction of 1x200 m <sup>3</sup> + 1x 500 m <sup>3</sup> reservoirs	212 000 \$
	Priority 2	Construction of 17 km Distribution networks	1 442 000 \$
NL-W. A.2		Distribution System 2 Supplying Daraya El-Batroun; Aabdelli; Douma; Bcheaali; Tannourine Et-Tahta; Deir Mar Youssef Jrabta; Toula El-Batroun; Aalali; Sghar; Jrabta El-Batroun; Racha; Ouata Houb; Douq; Mehmarsh; Hadtoun; Dahr Abi Yaghi; Mar Mama; Masrah; Ram El-Batroun. Required works :	
	Priority 1	Construction of 100 m <sup>3</sup> + 3x300 m <sup>3</sup> new reservoirs Construction of 6 km Transmission lines	922 000
	Priority 2	Construction of 7 km Distribution networks	594 000 \$
NL-W. A.3		Distribution System 3 supplying Hamat Required works :	
	Priority 1	Construction of 2 km Transmission lines and a well	721 000
	Priority 2		- \$
NL-W. A.4		Distribution System 4 supplying Beit Kassab; Hardine; Niha El-Batroun; Kfour El-Aarbi. Required works :	
	Priority 1	Construction of 11.5 km Transmission lines	1 097 000
	Priority 2		- \$
NL-W. A.5		Distribution System 5 Supplying Selaata, Rachkida, Qarnaaoun, Aabrine, Batroun, Kfar Khollos, Kfar Hay, Boqsmayia, Bijdarfil, Ijdabra, Jebba, Basbina, Kfifane, Deir Kfifane, Jrane El-Batroun, Smar Jbayl, Mrah Ez Ziyat, Rachana, Thoum, Chouma, Kfar Aabida, Edde El-Batroun, Mrah Chdid, Helta, Sourat El-Batroun, Kfarb Shlaimane, Deir Billa, Kfar Hilda, Beit Chlala, Daael, Bechtoudar, Assia, Ftahat El-Batroun, Zané, Chibtine, Deir Mar Youhanna EL-Batroun, Nahlé El-Batroun, Mrah El-Hajj, Kour, Harbouna, Artiz, koubba and Kfar Hatna Required works :	
	Priority 1	Construction of 30.5 km Transmission lines Construction of 9x100 m <sup>3</sup> , 1x150 m <sup>3</sup> and 1x200 m <sup>3</sup> new reservoirs	3 641 000
	Priority 2		- \$
NL-W. A.6		Distribution System 5 Supplying Ras Nhach Required works :	
	Priority 1	Construction of 1 km Transmission lines	95 500
	Priority 2		- \$
NL-W. A.7		For All Systems: Required works :	
	Priority 1	Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Batroun district</b>			<b>23 724 500</b>
Out of which : Priority 1			16 688 500
Priority 2			7 036 000
Priority 3			-





Project code	Priority	Description	Estimated cost (USD)
<b>NL-W B. District of Halba (see drawing NL-W.B)</b>			
NL-W. B.1		Distribution System 1 supplying Akkar el Atika. Required works :	
	Priority 1	Construction of 8 km Transmission lines Drilling and equipping 4 new wells Construction of 2x1000 m <sup>3</sup> and 500 m <sup>3</sup> new reservoirs	3 434 000 \$
	Priority 2	Construction of 8 km Distribution networks	678 500 \$
NL-W. B.2		Distribution System 2 supplying Shakdoun Aakkar and Daoura. Required works :	
	Priority 1	Construction of 2 km Transmission lines Drilling and equipping 1 new well	721 000 \$
	Priority 2		- \$
NL-W. B.3		Distribution System 3 Supplying Ain-Yacoub; Bazbina; Beino; El-Borge; Mimnih; Tikrite; ElAyoun; Aaiyat; Chakdoun; Qboula; Tallet Chattaha and Tshea Required works :	
	Priority 1	Construction of 2 km Transmission lines Construction of 1000 m <sup>3</sup> + 100 m <sup>3</sup> and 2 x 300 m <sup>3</sup> new reservoirs Construction of 1 pumping station	1 028 000 \$
	Priority 2	Construction of 20 km Distribution networks	1 696 000 \$
NL-W. B.4		Distribution System 4 supplying Rahbe Required works :	
	Priority 1	Construction of 4 km Transmission lines	382 000 \$
	Priority 2	Construction of 2 km Distribution networks	170 000 \$
NL-W. B.5		Distribution System 5 and 6A Supplying Beit Mallat; Dahr-Leyciné; Edbel; Hayzouk; Ilate; Jebrâil; Machha Required works :	
	Priority 1	Construction of 12 km Transmission lines Drilling and equipping 6 new wells Construction of 2x250 m <sup>3</sup> ; 1x500 m <sup>3</sup> ; 1x450 m <sup>3</sup> new reservoirs	4 749 000 \$
	Priority 2	Construction of 102 km Distribution networks	8 650 000 \$
NL-W. B.6		Distribution System 7A Supplying Al-Jédidé; Al-Zoueiribe; Cheikh Taba Montagne; El-Kantara; Karem-Asfour-El-Nahrieh; Minyara Beit Ghattas, Cheikh Taba Plaine and Hekr el Cheikh Taba Required works :	
	Priority 1	Construction of 6 km Transmission lines Construction of 250 m <sup>3</sup> + 1000 m <sup>3</sup> + 1500 m <sup>3</sup> new reservoirs Drilling and equipping 2 new wells	2 162 500 \$
	Priority 2	Construction of 27 km Distribution networks	2 290 000 \$
NL-W. B.7		Distribution System 7B Supplying Bkarzala; Majdla; Mar Touma; Mechailha Hakour; Zouk el Moukachérine; Zouk-El-Habalça; Zouk-El-Hosmieh- Dahr Ayasse and Zouk El-Hadara Required works :	
	Priority 1	Construction of 7 km Transmission lines Drilling and equipping 2 new wells	1 728 000 \$
	Priority 2	Construction of 4 km Distribution networks	339 000 \$
NL-W. B.8		Distribution System 9 Supplying Berkayel; Bzal; Safineh el Kayteh Required works :	
	Priority 1	Construction of 14.5 km Transmission lines Construction of 500 m <sup>3</sup> new reservoir Drilling and equipping 5 new wells	4 160 500 \$
	Priority 2	Construction of 11 km Distribution networks	933 000 \$



Project code	Priority	Description	Estimated cost (USD)
NL-W. B.9		Distribution System 10 supplying Bebnine Required works :	
	Priority 1	Construction of 4.5 km Transmission lines Drilling and equipping 2 new wells Construction of 1x2000 m³ new reservoir	1 733 000 \$
	Priority 2	Construction of 7 km Distribution networks	594 000 \$
NL-W. B.10		Distribution System Supplying Ouadi El-Jamous Required works :	
	Priority 1	Construction of 2 km Transmission lines Drilling and equipping 1 new well Construction of 1x1000 m³ new reservoir	933 000 \$
	Priority 2	Construction of 2 km Distribution networks	170 000 \$
NL-W. B.11		Distribution System 12 Supplying El-Karkaf; Beit-El-Haouche; Jdeidet el Kayteh and Eyoune-El-Ghouzlane Required works :	
	Priority 1	Construction of 6 km Transmission Lines Drilling and equipping 3 new wells Construction of 1x1500 m³ new reservoir	2 390 500 \$
	Priority 2	Construction of 3 km Distribution networks	254 500 \$
NL-W. B.12		Distribution System 14A Supplying Chane; El Houaiche; Khreibet Akkar Required works :	
	Priority 1	Construction of 5.5 km Transmission lines Construction of 1x150 m³ new reservoir	599 000 \$
	Priority 2	Construction of 2 km Distribution networks	170 000 \$
NL-W. B.13		Distribution System 14B Supplying Beit Ayooub; Beit Younes; El Korne; El Krayat; Sadaqa and Michmiche Required works :	
	Priority 1	Construction of 15.5 km Transmission lines Drilling and equipping 7 new wells	5 189 000 \$
	Priority 2	Construction of 18 km Distribution networks	1 526 500 \$
NL-W. B.14		Distribution System 14C Supplying Danbou; Habchite; Harare and Qabaait Required works :	
	Priority 1	Construction of 11 km Transmission lines Drilling and equipping of 3 new wells	2 639 500 \$
	Priority 2		- \$
NL-W. B.15		Distribution System 14D supplying Fneidek Required works :	
	Priority 1	Construction of 14 km Transmission lines Construction of 1x3500 m³ new reservoir Drilling and equipping 7 new wells	5 417 000 \$
	Priority 2	Construction of 6 km Distribution networks	509 000 \$
NL-W. B.16		Distribution System 15 Supplying Mhammara Required works :	
	Priority 1	4 km Transmission lines Construction of 1000 m³ new reservoir Drilling and equipping 2 new wells	1 654 000 \$
	Priority 2	Construction of 2 km Distribution networks	170 000 \$
NL-W. B.17		For All Systems: Required works :	
	Priority 1	Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Halba district</b>			<b>72 070 500</b>
Out of which : Priority 1			48 920 000
Priority 2			23 150 500
Priority 3			-



Project code	Priority	Description	Estimated cost (USD)
<b>NL-W C. District of Koura (see drawing NL-W.C)</b>			
NL-W. C.1		Distribution System 2 supplying Al-Boukaia; Al-Hraiché; Badbhoun; Bargoune; Barsa; Afsdik; Beitroumine; Belmand; Bkeftine; Btouratige; Déddé; En-Nakhlé; Fih; Kelhate; Kfar Kahel and Zakroune Required works :	
	Priority 1	Construction of 10.5 km transmission lines Construction of 2x100 m <sup>3</sup> ; 2x200 m <sup>3</sup> ; 300 m <sup>3</sup> ; 1x350 m <sup>3</sup> ; 2x500 m <sup>3</sup> ; 1x600 m <sup>3</sup> ; 2x1000 m <sup>3</sup> new reservoirs Drilling and equipping 2 new wells	3 365 500 \$
	Priority 2	Construction of 17 km distribution networks	1 442 000 \$
NL-W. C.2		Distribution System 3 Supplying Ras Maska Required works :	
	Priority 1	Drilling and equipping 2 new wells 8 km transmission line Construction of 1x3000 m <sup>3</sup> new reservoir	2 141 000 \$
	Priority 2		- \$
NL-W. C.3		Distribution System 4 Supplying Aba; Amioune; Bdebba; Bechmezzine; Bsarma; Ain Akrine; Dar Chmezzine; Kfar Akka; Kfar Hazir; Bterram; Kfar Saroun; Kousba and Rechdebline Required works :	
	Priority 1	Construction of 9 km transmission lines Construction of 3 pumping stations Construction of 2x1500 m <sup>3</sup> ; 1000 m <sup>3</sup> ; 500 m <sup>3</sup> ; 300 m <sup>3</sup> ; 100 m <sup>3</sup> ; 200 m <sup>3</sup> and 400 m <sup>3</sup> new reservoirs Drilling and equipping one new well	3 938 000 \$
	Priority 2	Construction of 47 km distribution networks	3 986 000 \$
NL-W. C.4		Distribution System 5 Supplying Bhabbouche; Zghartet el mtewle; Bziza and Dar Behtar Required works :	
	Priority 1	Construction of 10 km Distribution networks Construction of 500 m <sup>3</sup> new reservoir	127 000 \$
	Priority 2		848 000 \$
NL-W. C.5		Distribution System 6 Supplying Kaftoune and Majdel Required works :	
	Priority 1	Construction of 1x200 m <sup>3</sup> new reservoir	85 000 \$
	Priority 2	Construction of 3.5 km Distribution networks	297 000 \$
NL-W. C.7		Distribution System 7 Supplying Bednayel; Ejdabrine and Kefraya Required works :	
	Priority 1		- \$
	Priority 2	Construction of 5 km Distribution networks	- \$
NL-W. C.8		Distribution System 10 Ejdabrine and Ouajh el Hajjar Required works :	
	Priority 1	1.5 km Transmission Lines Construction of 1x100 m <sup>3</sup> new reservoir	207 000 \$
	Priority 2		424 000 \$
NL-W. C.9		Distribution System Supplying Btaaboura Required works :	
	Priority 1	Construction of 1x100 m <sup>3</sup> new reservoir	64 000 \$
	Priority 2		- \$
NL-W. C.10		For All Systems: Required works :	
	Priority 1	Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Koura district</b>			<b>31 924 500</b>
Out of which : Priority 1			19 927 500
Priority 2			11 997 000
Priority 3			-



ANNEX IV  
PROPOSED PROJECTS

Project code	Priority	Description	Estimated cost (USD)
<b><u>NL-W D. District of Minieh (see drawing NL-W.D)</u></b>			
NL-W. D.1		Distribution System 1a supplying Al Minieh	
		Required works :	
	Priority 1	Construction of 23 km Transmission lines Construction of 2x3000 m <sup>3</sup> + 1x4000 m <sup>3</sup> new reservoirs Drilling and equipping 10 new wells	9 084 000 \$
	Priority 2	Construction of 10 km Distribution networks	848 000 \$
NL-W. D.2		Distribution System 2a supplying Markabta	
		Required works :	
	Priority 1	Construction of 3 km Transmission lines Drilling and equipping 1 new well	1 028 000 \$
	Priority 2	Construction of 2 km Distribution networks	170 000 \$
NL-W. D.3		Distribution System 3a supplying Borge el Yahoudiyeh; Deir Omar	
		Required works :	
	Priority 1	Construction of 1 km Transmission lines Construction of 500 m <sup>3</sup> + 2000 m <sup>3</sup> new reservoirs	466 500 \$
	Priority 2	Construction of 17 km Distribution networks	1 442 000 \$
NL-W. D.4		Distribution System 4a Supplying Nabi Youchaa	
		Required works :	
	Priority 1	Construction of 1 km Transmission lines Construction of 200 m <sup>3</sup> new reservoir	180 000 \$
	Priority 2	Construction of 3 km Distribution networks	254 500 \$
NL-W. D.5		Distribution System 5a supplying Tourbol	
		Required works :	
	Priority 1	Construction of 1 km Transmission lines Construction of 100 m <sup>3</sup> new reservoir	159 000 \$
	Priority 2	Construction of 2 km Distribution networks	170 000 \$
NL-W. D.6		Distribution System 6a Supplying Zouk Bhannine; Al Rihanieh; Aadoua	
		Required works :	
	Priority 1	Construction of 5 km Transmission lines Construction of 1500 m <sup>3</sup> + 500 m <sup>3</sup> and 100 m <sup>3</sup> new reservoirs Drilling and equipping 1 new well	1 426 000 \$
	Priority 2	Construction of 8 km Distribution networks	678 500 \$
NL-W. D.7		For All Systems:	
		Required works :	
	Priority 1	Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Minieh district</b>			<b>30 906 500</b>
Out of which : Priority 1			22 343 500
Priority 2			8 563 000
Priority 3			-



Project code	Priority	Description	Estimated cost (USD)
<b><u>NL-W E. District of Ed Danniyeh (see drawing NL-W.E)</u></b>			
NL-W. E.1	Distribution System 1 Supplying Sir Required works :		
	Priority 1	Construction of 1 km Transmission line Construction of 2x300 m <sup>3</sup> new reservoirs	286 000 \$
	Priority 2	Construction of 25 km Distribution networks	2 120 000 \$
NL-W. E.2	Distribution System 2 supplying Al-Sfiré, Assoun, Bkaa Safrine, Bkarsouna, Mrah-El-Sfiré Required works :		
	Priority 1	Construction of 15.5 km Transmission line Construction of 1x1000 m <sup>3</sup> + 1x400 m <sup>3</sup> new reservoirs Drilling and equipping 1 new well	2 332 000 \$
	Priority 2	Construction of 5 km Distribution networks	424 000 \$
NL-W. E.3	Distribution System 3 Supplying Azka, Btermaz, El-Watié et Harf Siad, Kfar Chlane, Kfar Habou, Mrah-el-Sreige, Tarane Required works :		
	Priority 1	Construction of 7 km Transmission line Construction of 1000 m <sup>3</sup> + 2x500 m <sup>3</sup> + 1x300 m <sup>3</sup> + 1x100 m <sup>3</sup> + 1x200 m <sup>3</sup> new reservoirs	1 378 000 \$
	Priority 2	Construction of 5 km Distribution networks	424 000 \$
NL-W. E.4	Distribution System 4 & 5 supplying Bakhourne, Haql el Aazimé, Kattiné, Kharnoub Required works :		
	Priority 1	Construction of 1 km Transmission line Construction of 1x350 m <sup>3</sup> + 1x300 m <sup>3</sup> new reservoirs	297 000 \$
	Priority 2	Construction of 5 km Distribution networks	424 000 \$
NL-W. E.5	Distribution System 6 Supplying Bechhara, Izal, Jarjoura, Mazraat Ketrane Required works :		
	Priority 1	Construction of 4 km Transmission line Construction of 100 m <sup>3</sup> + 2x500 m <sup>3</sup> new reservoirs Drilling and equipping 1 new well	1 230 000 \$
	Priority 2	Construction of 8 km Distribution networks	678 500 \$
NL-W. E.6	Distribution System 8 supplying Aassaymout, Debaael, Jaroun, Qarhaiya Required works :		
	Priority 1	Construction of 7.5 km Transmission line Construction of 100 m <sup>3</sup> new reservoir	779 000 \$
	Priority 2		- \$
NL-W. E.7	Distribution System 9 Supplying Ain-El-Tiné, Beit-El-Faks, El-Hazmieh, Karseita, Nemrine et Bakoura Required works :		
	Priority 1	Construction of 9.5 km Transmission line Construction of 300 m <sup>3</sup> + 100 m <sup>3</sup> + 200 m <sup>3</sup> new reservoirs	1 150 000 \$
	Priority 2	Construction of 8 km Distribution networks	678 500 \$
NL-W. E.8	Distribution System 10 Supplying Beit Haouik, Hawara, Kfar Bibnine Required works :		
	Priority 1	Construction of 6 km Transmission line Construction of 1x100 m <sup>3</sup> new reservoir	636 000 \$
	Priority 2	Construction of 3 km Distribution networks	254 500 \$





Project code	Priority	Description	Estimated cost (USD)
NL-W. E.9	Distribution System 12 Supplying Kahf-EI-Malloul Required works :		
	Priority 1	Construction of 2 km Transmission line Drilling and equipping 1 new well	721 000 \$
	Priority 2	Construction of 1 km Distribution networks	85 000 \$
NL-W. E.10	Distribution System 13 Supplying Zaghrtegrine Required works :		
	Priority 1	Construction of 2 km Transmission line Drilling and equipping 1 new well	721 000 \$
	Priority 2	Construction of 2 km Distribution networks	170 000 \$
NL-W. E.11	Distribution System 14 Supplying Behweité Required works :		
	Priority 1		- \$
	Priority 2	Construction of 1 km Distribution networks	85 000 \$
NL-W. E.12	Distribution System 15 Supplying Bchnnata, Btehline, Omar Required works :		
	Priority 1	Construction of 1.5 km Transmission line	143 000 \$
	Priority 2	Construction of 5 km Distribution networks	424 000 \$
NL-W. E.13	Distribution System 16 supplying Deir Nebouh Required works :		
	Priority 1	Construction of 5 km Transmission line Drilling and equipping 2 new wells Construction of 500 m <sup>3</sup> + 300 m <sup>3</sup> new reservoirs	1 760 000 \$
	Priority 2	4 km Distribution networks	339 000 \$
NL-W. E.14	Distribution System 17 Supplying Beit Zaoud Required works :		
	Priority 1	Construction of 3 km Transmission line	286 000 \$
	Priority 2		- \$
NL-W. E.15	For All Systems: Required works :		
	Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)		10 000 000 \$
	Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)		5 000 000 \$
<b>Total Danniyeh district</b>			<b>32 825 500</b>
Out of which : Priority 1			21 719 000
Priority 2			11 106 500
Priority 3			-



Project code	Priority	Description	Estimated cost (USD)
<b><u>NL-W F. District of Zgharta (see drawing NL-W.F)</u></b>			
NL-W. F.1	Distribution System 1 Supplying Hailan and Mzraat Kefraya Required works :		
	Priority 1	Construction of 2 km Transmission lines Construction of 300 m <sup>3</sup> new reservoir Drilling and Equipping of 1 new well	816 000 \$
	Priority 2		- \$
NL-W. F.2	Distribution System 2 Supplying Aalma Required works :		
	Priority 1	Construction of 2 km Transmission lines Construction of 2000 m <sup>3</sup> new reservoir Drilling and Equipping of 1 new well	965 000 \$
	Priority 2	Construction of 10 km Distribution network	848 000 \$
NL-W. F.3	Distribution System 3 Supplying Kfarhoura Required works :		
	Priority 1	Construction of 2 km Transmission lines Drilling and Equipping of 1 new well	721 000 \$
	Priority 2	Construction of 5 km Distribution network	424 000 \$
NL-W. F.4	Distribution System 4 Supplying Kfar chakhna Required works :		
	Priority 1	Construction of 2 km Transmission lines Drilling and Equipping of 1 new well	721 000 \$
	Priority 2		- \$
NL-W. F.5	Distribution System 5 Supplying Daraiya Zgharta Required works :		
	Priority 1	Construction of 2 km transmission lines Construction of 250 m <sup>3</sup> new reservoir Drilling and Equipping of 1 new well	811 000 \$
	Priority 2		- \$
NL-W. F.6	Distribution System 6 Supplying Aarjis and Bnechaai Required works :		
	Priority 1	2 km Transmission lines Construction of 250 m <sup>3</sup> new reservoir Drilling and Equipping of 1 new well	811 000 \$
	Priority 2		- \$
NL-W. F.7	Distribution System 7 Supplying Seraal Required works :		
	Priority 1	Construction of 200 m <sup>3</sup> new reservoir	85 000 \$
	Priority 2	Construction of 6 km Distribution Network	509 000 \$
NL-W. F.8	Distribution System 8 supplying Aintourine Required works :		
	Priority 1	Construction of 100 m <sup>3</sup> new reservoir	64 000 \$
	Priority 2	Construction of 5 km Distribution network	424 000 \$
NL-W. F.9	Distribution System 9 Supplying Mazraat Et-Teffah Required works :		
	Priority 1	Construction of 6 km Transmission lines	572 500 \$
	Priority 2	Construction of 12 km Distribution network	1 018 000 \$





Project code	Priority	Description	Estimated cost (USD)
NL-W. F.20		Distribution System 20 Supplying Kfarsghab Required works :	
	Priority 1	Construction of 3 km Transmission lines Construction of 1x1000 m <sup>3</sup> new reservoirs Drilling and Equipping of 1 new well	1 028 000 \$
	Priority 2		- \$
NL-W. F.21		Distribution System 21 Supplying Bchannine, Bsebaal, Kfaryachit and Morh Kfarsghab Required works :	
	Priority 1	Construction of 6.5 km Transmission lines Construction of 2x250 m <sup>3</sup> , 1x200 m <sup>3</sup> new reservoirs Drilling and Equipping one new well	1 182 000 \$
	Priority 2		- \$
NL-W. F.22		Distribution System 22 Supplying Bharet Toula and Toula Zgharta Required works :	
	Priority 1	Construction of 1.5 km Transmission lines Construction of 1x100 m <sup>3</sup> , 1x250 m <sup>3</sup> new reservoirs	297 000 \$
	Priority 2		- \$
NL-W. F.23		For All Systems: Required works :	
	Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)		10 000 000 \$
	Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)		5 000 000 \$
<b>Total Zgharta district</b>			<b>48 754 000</b>
Out of which : Priority 1			32 644 000
Priority 2			16 110 000
Priority 3			-
<b>NL-W G. District of Tripoli (see drawing NL-W.G)</b>			
NL-W. G.1		Required works :	
	Priority 1	Construction of 10 km Transmission lines Drilling and equipping 4 new wells	3 074 000 \$
	Priority 2	Construction of 150 km Distribution networks	12 720 000 \$
NL-W. G.2		For All Systems: Required works :	
	Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)		10 000 000 \$
	Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)		5 000 000 \$
<b>Total Tripoli district</b>			<b>30 794 000</b>
Out of which : Priority 1			13 074 000
Priority 2			17 720 000
Priority 3			-



ANNEX IV  
PROPOSED PROJECTS

Project code	Priority	Description	Estimated cost (USD)
<b>NL-W H. District of Qobayate (see drawing NL-W.B)</b>			
NL-W. H.1		Distribution System 0 Supplying Dayret Nahr El-Kabir; Ouadi Khaled; Qarha; Hnaïder; Al-Kneissé	
		Required works :	
	Priority 1	Construction of 1x250 m <sup>3</sup> and 1x350 m <sup>3</sup> new reservoirs Construction of 1 new Pumping station	567 000 \$
	Priority 2	Construction of 10 km Distribution networks	848 000 \$
NL-W. H.2		Distribution System 1 Supplying Mouanse	
		Required works :	
	Priority 1	Construction of 1 new Pumping station	371 000 \$
	Priority 2		- \$
NL-W. H.3		Distribution System 2 Supplying Sahle, Qenia, Mrah el Khokh, Wata el Sahle and Bsatine	
		Required works :	
	Priority 1	Construction of 1 new Pumping station	371 000 \$
	Priority 2	Construction of 6 km Distribution networks	509 000 \$
NL-W. H.4		Distribution System 3 Supplying Akroum	
		Required works :	
	Priority 1	Construction of 1 new Pumping station	371 000 \$
	Priority 2		- \$
NL-W. H.5		Distribution System 4 Supplying Andeket	
		Required works :	
	Priority 1	Construction of 1 new Pumping station	371 000 \$
	Priority 2		- \$
NL-W. H.6		Distribution System 6 and 7 Supplying Aaouainat; Khalsa; Khirbet Er Remmane; Mazraet-El-Nahrieh; El-Bardé;Al Moghraka and El Kobayet	
		Required works :	
	Priority 1	Construction of 5.5 km Transmission lines Construction of 1x300 m <sup>3</sup> + 1x1200 m <sup>3</sup> + 1x5000 m <sup>3</sup> new reservoirs Drilling and equipping of 1 new well	1 903 000 \$
	Priority 2	Construction of 48 km Distribution networks	4 070 500 \$
NL-W. H.7		Distribution System 8 Supplying Aaidamoun	
		Required works :	
	Priority 1	Construction of 2 km Transmission lines Construction of 1x500 m <sup>3</sup> new reservoirs Drilling and equipping of 1 new well Construction of 1 pumping station	1 219 000 \$
	Priority 2		- \$





Project code	Priority	Description	Estimated cost (USD)
NL-W. H.8	Distribution System 9 Supplying Chadra Required works :		
	Priority 1	Construction of 2 km Transmission lines Construction of 300 m <sup>3</sup> new reservoirs Drilling and equipping of 1 new well Construction of 1 new Pumping station	1 187 000 \$
	Priority 2	Construction of 20 km Distribution networks	1 696 000 \$
NL-W. H.9	Distribution System 10 Supplying Machta Hammoud & Machta Hassan Required works :		
	Priority 1	Construction of 6 km Transmission lines Construction of 2x1000 m <sup>3</sup> new reservoirs Drilling and equipping of 3 new wells Construction of 3 new Pumping stations	3 699 500 \$
	Priority 2	Construction of 42 km Distribution networks	3 562 000 \$
NL-W. H.10	Distribution System 11 Supplying Sindianet Zeidan Required works :		
	Priority 1	Construction of 4 km Transmission lines Construction of 450 m <sup>3</sup> new reservoirs Drilling and equipping of 2 new wells	1 558 000 \$
	Priority 2	Construction of 2 km Distribution networks	170 000 \$
NL-W. H.11	Distribution System 13 Supplying Freidice; Daoucet Baghdadi; El-Kousseir; Denket el Required works :		
	Priority 1	Construction of 4 km Transmission lines Drilling and equipping of 2 new wells Construction of 100 m <sup>3</sup> + 200 m <sup>3</sup> and 300 m <sup>3</sup> new reservoirs	1 685 500 \$
	Priority 2	Construction of 35 km Distribution networks	2 968 000 \$
NL-W. H.12	Distribution System 14 supplying Chikhlar; Rmah Required works :		
	Priority 1	Construction of 1x150 m <sup>3</sup> new reservoir Drilling and equipping of 1 new well Construction of 1 km Transmission line	700 000 \$
	Priority 2	Construction of 20 km Distribution networks	1 696 000 \$
NL-W. H.13	Distribution System 16 Supplying Mounjez Required works :		
	Priority 1	Construction of 2 km transmission line	191 000 \$
	Priority 2		- \$
NL-W. H.14	Distribution System 17 Supplying El Kouachra Required works :		
	Priority 1	Construction of 2 km Transmission lines Construction of 1x1000 m <sup>3</sup> new reservoir Drilling and equipping 1 new well	933 000 \$
	Priority 2		- \$



Project code	Priority	Description	Estimated cost (USD)
NL-W. H.15		Distribution System 18 Supplying Dabbabieh Charkeyeh; Noura el Faouka and el Tahta Required works :	
	Priority 1	Construction of 4 km Transmission lines Drilling and equipping 2 new wells	1 442 000 \$
	Priority 2	Construction of 25 km Distribution networks	2 120 000 \$
NL-W. H.16		Distribution System 19 Supplying Qachlaq; Aamaret El-Baykat; Wadi el Haour Required works :	
	Priority 1	Construction of 2 km Transmission lines Drilling and equipping 1 new well	721 000 \$
	Priority 2		- \$
NL-W. H.17		Distribution System 21 Supplying Jannine, Aarme and Srar Required works :	
	Priority 1	Construction of 2 km Transmission lines Construction of 1x100 m <sup>3</sup> new reservoir Drilling and equipping 1 new well	806 000 \$
	Priority 2	Construction of 2 km Distribution network	170 000 \$
NL-W. H.18		Distribution System 22 Supplying El-Msallé; Ain El-Zeit; Kafr; Charbila; Ain Tanta; Al-Rihanié; Douair Adouiyé; Hmais Required works :	
	Priority 1	Construction of 8 km Transmission lines Construction of 3x100 m <sup>3</sup> + 1x250 m <sup>3</sup> + 2x300 m <sup>3</sup> + 1x200 m <sup>3</sup> new reservoirs	2 910 000 \$
	Priority 2	Construction of 42 km Distribution networks	3 562 000 \$
NL-W. H.19		Distribution System 23, 24 and 12 Supplying Kherbet Daoud; Sfinet Ed-Draib; Fseikine et Ain Achma; El-Daghlé; Kherbet Char; Majdel; Barbara; Deir-Janine; Knissé; Mazraat Baldé; El-Hed; Al-Souaissé, Kfar Harra and el Bire Required works :	
	Priority 1	Construction of 22 km Transmission lines Construction of 1x100 m <sup>3</sup> + 1x150 m <sup>3</sup> + 1x200 m <sup>3</sup> + 2x350 m <sup>3</sup> + 1x400 m <sup>3</sup> + 1x500 m <sup>3</sup> + 1x1000 m <sup>3</sup> and 1x5000 m <sup>3</sup> new reservoirs Drilling and equipping 6 new wells	6 694 000 \$
	Priority 2	Construction of 104 km Distribution networks	8 819 000 \$
NL-W. H.20		For All Systems: Required works :	
	Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)		10 000 000 \$
	Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)		5 000 000 \$
<b>Total Qobayate district</b>			<b>72 890 500</b>
Out of which : Priority 1			37 700 000
Priority 2			35 190 500
Priority 3			-
<b>NL-W I. District of Bcharre (see drawing NL-W.E)</b>			
NL-W. I.1		For All Systems: Required works :	
	Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)		10 000 000 \$
	Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)		5 000 000 \$
<b>Total Tripoli district</b>			<b>15 000 000</b>
Out of which : Priority 1			10 000 000
Priority 2			5 000 000
Priority 3			-



TOTAL COST OF WATER PROJECTS IN THE BEQAA

Priority 1	Priority 2	Priority 3	Total
122 596 900 \$	68 770 300 \$	-	191 367 200 \$

Project code	Priority	Description	Estimated cost (USD)
<b><u>BQ-W.A. District of Baalbeck (see drawing BQ-W.A)</u></b>			
BQ-W. A.1	Laboue distribution scheme, Including : Required works :		
		Priority 1 - 34.5 km transmission lines - Drilling of 1 new well	4 014 600 \$
		Priority 2 - 115 km Distribution network	5 485 500 \$
BQ-W. A.2	Ouyoun Orghosh distribution scheme Including : Required works :		
		Priority 1 - 5.75 km transmission lines - Construction of 3 new reservoirs - Rehabilitation of 26 existing reservoirs	1 892 100 \$
		Priority 2 - 55 km Distribution network	1 874 800 \$
BQ-W. A.3	Younine, Maqne and Nahle distribution scheme, including : Required works :		
		Priority 1 - 20.25 km transmission lines - Construction of 1 new reservoir	2 835 400 \$
		Priority 2 - 25 km Distribution network	1 192 500 \$
BQ-W. A.4	Yammouneh distribution scheme Including : Required works :		
		Priority 1 - 20 km transmission lines - Construction of 8 new reservoirs - Construction of a new tunnel - Construction of a WTP - Rehabilitation of 24 existing reservoirs	17 774 700 \$
		Priority 2 - 65 km Distribution network	3 581 700 \$
BQ-W. A.5	Yahfoufa - Ain Sikkeh distribution scheme Including : Required works :		
		Priority 1 - 6.4 km transmission lines - Construction of 1 new reservoir	1 889 700 \$
		Priority 2 - 4 km Distribution network	190 800 \$
BQ-W. A.6	Nabi Sbat distribution scheme Including : Required works :		
		Priority 1 - 6 km transmission lines - Construction of 3 new reservoirs	890 400 \$
		Priority 2 - 4 km Distribution network	190 800 \$
BQ-W. A.7	Aarsal distribution scheme Including : Required works :		
		Priority 1 - 16 km transmission lines - Drilling of 6 new wells	4 884 500 \$
		Priority 2 - 50 km Distribution network	2 385 000 \$



Project code	Priority	Description	Estimated cost (USD)
BQ-W. A.8	Yammouneh local distribution scheme Including :		
	Required works :		
	Priority 1 - 4 km transmission lines - Drilling of 1 new well - Construction of 1 new reservoir		954 000 \$
	Priority 2 - 1 km Distribution network		47 700 \$
BQ-W. A.9	Halbata - El Kharayeb distribution scheme Including :		
	Required works :		
	Priority 1 - 3 km transmission lines - Construction of 1 new reservoir		297 900 \$
	Priority 2 - 6.75 km Distribution network		322 000 \$
BQ-W. A.10	Fekha & Jdeideh distribution scheme Including :		
	Required works :		
	Priority 1 - 4 km transmission lines		606 400 \$
	Priority 2 - 8.5 km Distribution network		405 500 \$
BQ-W. A.11	Baalbeck, Aamechki & Ain Bourday distribution scheme Including :		
	Required works :		
	Priority 1 - Drilling of 1 new well - 4 km transmission lines - Construction of 1 new reservoir		954 000 \$
	Priority 2 -		
BQ-W. A.12	Ras Baalbeck local distribution scheme Including :		
	Required works :		
	Priority 1 - 4 km transmission lines		339 200 \$
	Priority 2 -		
BQ-W. A.13	Mazna3 Ez Zohra local distribution scheme Including :		
	Required works :		
	Priority 1 - Drilling of 1 new well - 2 km transmission lines		699 600 \$
	Priority 2 - 25 km Distribution network		1 192 500 \$
BQ-W. A.14	Local distribution separate system - Including :		
	Required works :		
	Priority 1 - 16 km transmission lines - Rehabilitation of 13 existing reservoirs - Construction of 8 new reservoirs		3 683 500 \$
	Priority 2 - 20 km Distribution network		954 000 \$
BQ-W. A.15	For All Systems:		
	Required works :		
	Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)		10 000 000 \$
	Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)		5 000 000 \$
<b>Total Baalbeck district</b>			<b>74 538 800</b>
Out of which : Priority 1			51 716 000
Priority 2			22 822 800
Priority 3			-



Project code	Priority	Description	Estimated cost (USD)
<b><u>BQ-W B. District of Hermel (see drawing BQ-W.B)</u></b>			
BQ-W. B.1	Upper Hermel, Ras El Mai & Ain Zarqa distribution scheme Including : Required works :		
	Priority 1	- 10 km transmission lines - Ras El Mal spring rehabilitation - Rehabilitation of existing reservoirs	3 528 000 \$
	Priority 2	- 71 km Distribution network	4 648 700 \$
BQ-W. B.2	Ain el Haour distribution scheme Including : Required works :		
	Priority 1	- 22.5 km transmission lines - Construction of 2 new reservoirs - Construction of a new pumping station	2 851 900 \$
	Priority 2	- 40 km Distribution network	1 681 800 \$
BQ-W. B.3	Naanaah-El Kharbe and El Wardeh distribution scheme Including : Required works :		
	Priority 1	- 14.5 km transmission lines - Construction of 1 new reservoir - Drilling 1 new well	1 644 100 \$
	Priority 2	- 13 km Distribution network	538 000 \$
BQ-W. B.4	Beit Et Tochem, El Charqe, Mazraat Chelman distribution scheme Including : Required works :		
	Priority 1	- 4 km transmission lines - Construction of 1 new reservoir - Drilling and equipping 1 new well	954 000 \$
	Priority 2	- 9 km Distribution network	421 400 \$
BQ-W. B.5	Ouadi En Naira, Ouadi Bnit-Zouetini, Wadi El karem, Kaeb Wadi El Karem distribution scheme Required works :		
	Priority 1	- 4.5 km transmission lines - Construction of 1 new reservoir - Equipment of Wadi el Naira existing well + new control room - Rehabilitation of Zouetini existing well and pumping station	976 800 \$
	Priority 2	- 12 km Distribution network	572 200 \$
BQ-W. B.6	Ouadi Faara, Mrah El Aaqbet distribution scheme Including : Required works :		
	Priority 1		
	Priority 2	- 8 km Distribution network	355 000 \$
BQ-W. B.7	Maabour Spring distribution scheme Including : Required works :		
	Priority 1	- 21 km transmission lines - Construction of 1 new reservoir - Drilling 1 new well	2 177 500 \$
	Priority 2	- 5.2 km Distribution network	217 200 \$



Project code	Priority	Description	Estimated cost (USD)
BQ-W. B.8		Lezabbe Spring distribution scheme Including :	
		Required works :	
	Priority 1	- 15.5 km transmission lines - Construction of a new pumping station	1 517 200 \$
	Priority 2		
BQ-W. B.9		Aarouba El Hariq distribution scheme Including :	
		Required works :	
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	254 400 \$
	Priority 2		
BQ-W. B.10		Ouyoun Obeid distribution scheme Including :	
		Required works :	
	Priority 1	- 2 km transmission lines - Drilling 1 new well	699 600 \$
	Priority 2		
BQ-W. B.11		Kouakh local distribution scheme Including :	
		Required works :	
	Priority 1	- Rehabilitation of well and pumping station	265 000 \$
	Priority 2		
BQ-W. B.12		El Qasr distribution scheme Including :	
		Required works :	
	Priority 1	- Drilling and equipping of a new well - 4 km transmission lines - Construction of 1 new reservoir	996 400 \$
	Priority 2		
BQ-W. B.13		Haouch Saeid Ali & Haouch Beit Ismaïl local distribution scheme Including :	
		Required works :	
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	296 800 \$
	Priority 2		
BQ-W. B.14		Jbeb El Homor local distribution scheme Including :	
		Required works :	
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	254 400 \$
	Priority 2		
BQ-W. B.15		For All Systems:	
		Required works :	
	Priority 1	- Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	- Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Hermel district</b>			<b>39 850 400</b>
Out of which : Priority 1			26 416 100
Priority 2			13 434 300
Priority 3			-



Project code	Priority	Description	Estimated cost (USD)
<b><u>BQ-W.C. District of West Beqaa &amp; Rachaiya (see drawings BQ-W.C)</u></b>			
BQ-W. C.1	Ain Horche distribution scheme Including :		
	Required works :		
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	254 400 \$
	Priority 2		
BQ-W. C.2	Kfarqouq distribution scheme Including :		
	Required works :		
	Priority 1		
	Priority 2	- 1 km Distribution network	84 800 \$
BQ-W. C.3	Yanta distribution scheme Including :		
	Required works :		
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	265 000 \$
	Priority 2	- 0.5 km Distribution network	42 400 \$
BQ-W. C.4	Kherbet Qanafar distribution scheme Including :		
	Required works :		
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	254 400 \$
	Priority 2		
BQ-W. C.5	Bab Mareh distribution scheme Including :		
	Required works :		
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	254 400 \$
	Priority 2	- 1 km Distribution network	84 800 \$
BQ-W. C.6	Ain Ata distribution scheme Including :		
	Required works :		
	Priority 1		
	Priority 2	- 20.7 km Distribution network	1 755 400 \$
BQ-W. C.7	Bakka distribution scheme Including :		
	Required works :		
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	254 400 \$
	Priority 2		





Project code	Priority	Description	Estimated cost (USD)
BQ-W. C.8	Kefraya distribution scheme Including :		254 400 \$
	Required works :		
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	
	Priority 2		
BQ-W. C.9	Saghbine distribution scheme Including :		254 400 \$
	Required works :		
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	
	Priority 2		
BQ-W. C.10	Machghara distribution scheme Including :		296 800 \$ 1 144 800 \$
	Required works :		
	Priority 1	- 4 km transmission lines - Construction of 1 new reservoir	
	Priority 2	- 13.5 km Distribution network	
BQ-W. C.11	Baaloul distribution scheme Including :		4 982 000 12 974 400
	Required works :		
	Priority 1	- 22 km transmission lines - Rehabilitation of Loussi Pumping station	
	Priority 2	- 153 km Distribution network	
BQ-W. C.12	Qaraoun distribution scheme Including :		2 035 200 3 900 800
	Required works :		
	Priority 1	- 13 km transmission lines - Drilling of 2 new wells - Construction of 2 new reservoirs	
	Priority 2	- 46 km Distribution network	
BQ-W. C.13	For All Systems:		10 000 000 \$ 5 000 000 \$
	Required works :		
	Priority 1	- Remote Control And Monitoring Of Water Systems (SCADA And DMA)	
	Priority 2	- Remote Control And Monitoring Of Water Systems (SCADA and DMA)	
<b>Total West Beqaa &amp; Rachaiya district</b>			<b>44 092 800</b>
Out of which : Priority 1			19 105 400
Priority 2			24 987 400
Priority 3			-



Project code	Priority	Description	Estimated cost (USD)
<b><u>BQ-W D. District of Zahleh (see drawing BQ-W.D)</u></b>			
BQ-W. D.1	Rayak distribution scheme Including :		
	Required works :		
	Priority 1	- 2 km transmission lines - Drilling of 1 new well - Construction of 1 new reservoir	911 600 \$
	Priority 2		
BQ-W. D.2	Niha Distribution System :		
	Required works :		
	Priority 1		
	Priority 2	- 11.5 km Distribution lines	975 200 \$
BQ-W. D.3	Touaite distribution scheme Including :		
	Required works :		
	Priority 1	- 2 km transmission lines - Drilling of 1 new well	699 600 \$
	Priority 2		
BQ-W. D.4	Jdita distribution scheme Including :		
	Required works :		
	Priority 1	- 10 km transmission lines - Construction of 5 new reservoirs	2 088 200 \$
	Priority 2		
BQ-W. D.5	Ablah distribution scheme Including :		
	Required works :		
	Priority 1	- 6 km transmission lines - Drilling of 3 new wells - Construction of 1 new reservoir	2 310 800 \$
	Priority 2		
BQ-W. D.6	Zahle distribution scheme Including :		
	Required works :		
	Priority 1	- 10 km transmission lines - Drilling of 5 new wells	3 498 000 \$
	Priority 2		
BQ-W. D.7	Kabb Elias distribution scheme Including :		
	Required works :		
	Priority 1	- 4 km transmission lines - Construction of 2 new reservoirs	694 300 \$
	Priority 2		
BQ-W. D.8	Boueirje distribution scheme Including :		
	Required works :		
	Priority 1	- 4 km transmission lines - Drilling of 1 new well - Construction of 1 new reservoir	954 000 \$
	Priority 2		



Project code	Priority	Description	Estimated cost (USD)
BQ-W. D.9		Ali Nahri distribution scheme Including :	
		Required works :	
	Priority 1	- 4 km transmission lines - Construction of 2 new reservoirs	551 200 \$
	Priority 2		
BQ-W. D.10		Nabi Ayla distribution scheme Including :	
		Required works :	
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	254 400 \$
	Priority 2		
BQ-W. D.11		Fourzol distribution scheme Including :	
		Required works :	
	Priority 1	- 4 km transmission lines - Drilling of 1 new well - Construction of 1 new reservoir	1 097 100 \$
	Priority 2		
BQ-W. D.12		Bar Elias - Chamsine distribution scheme Including :	
		Required works :	
	Priority 1	- 2 km transmission lines - Construction of 1 new reservoir	296 800 \$
	Priority 2		
BQ-W. D.13		Bar Elias - Chamsine distribution scheme Including :	
		Required works :	
	Priority 1	- 6 km transmission lines - Construction of 3 new reservoirs	848 000 \$
	Priority 2	- 1 km Distribution lines	84 800 \$
BQ-W. D.14		Bar Elias - Chamsine distribution scheme Including :	
		Required works :	
	Priority 1	- 8 km transmission lines - Construction of 4 new reservoirs	1 155 400 \$
	Priority 2	- 17.3 km Distribution lines	1 465 800 \$
BQ-W. C.15		For All Systems:	
		Required works :	
	Priority 1	- Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	- Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Zahleh district</b>			<b>32 885 200</b>
Out of which : Priority 1			25 359 400
Priority 2			7 525 800
Priority 3			-





Project code	Priority	Description	Estimated cost (USD)
SL-W. A.6		Middle Distribution system supplying Aabba, Harouf, Jibchit, Choukine, Choukine-Ain Dahab, Maifadoun	
		Required works : Priority 1 - Construction of 19 km of transmission lines - Construction of 5 reservoirs	3 195 900 \$
		Priority 2 - Construction of 50 km of distribution lines	2 120 000 \$
SL-W. A.7		Southern Distribution system supplying Aadchit, Braiqaa, El Qsaibe, Kfar Sir, Qaaqaiet Ej Jisr, Sir El Gharbiyeh	
		Required works : Priority 1 - Construction of 1 regional reservoir C = 3000m3 - Construction of 25 km of transmission lines - Construction of 5 reservoirs	4 361 900 \$
		Priority 2 - Construction of 65 km of distribution lines	2 756 000 \$
SL-W. A.8		For All Systems: Required works :	
		Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
		Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Nabatiye district</b>			<b>85 723 200</b>
Out of which : Priority 1			67 155 200
Priority 2			18 568 000
Priority 3			-
<b>SL-W B. District of Jezzine (see drawing SL-W.B)</b>			
SL-W. B.1		Ain Toghra system supplying Wadi Jezzine, Baba, Btedine El-Leqch, Taaid, Bisri, Harf Jezzine, Machmouché, Sabbah , El-Ghabbatieh, Midane Jezzine, Homsiyé, Roum, Aazour, Anane, Qtalé Jezzine, Mazraat El-Mathane, Qabaa Jezzine, Qaytoulé, Mrah Bou Chedid, Maknounet Jezzine, Haytoura, Zhilta, Sanaya, Bouslaya, Hidab, Saydoun , Rimat, Sfaray	
		Required works : Priority 1 - Construction of 2 regional reservoirs (C=3000m3 & 3500m3) - Transmission lines: 62 km - Drilling of 5 wells - Construction of 2 pumping stations - Construction of 3 reservoirs - Rehabilitation of 1 spring catchment	15 741 000 \$
		Priority 2 - Distribution lines: 22 km	932 800 \$
SL-W. B.2		Ain Majdalain system supplying Ain Majdalain, Jezzine, Roummanet, Jabal Toura	
		Required works : Priority 1	
		Priority 2 - Distribution lines: 3.5 km	148 400 \$
SL-W. B.3		Kfarhoune system supplying Kfarhoune	
		Required works : Priority 1 - Construction of 1 reservoir	190 800 \$
		Priority 2 - Distribution lines: 8 km	339 200 \$
SL-W. B.4		Jezzine system supplying Jezzine	
		Required works : Priority 1 - Construction of 1 reservoir - Transmission lines: 6.9 km - Rehabilitation of 1 spring catchment	4 473 200 \$
		Priority 2 - Distribution lines: 7 km	296 800 \$



Project code	Priority	Description	Estimated cost (USD)
SL-W. B.5		Benwati system supplying Benwati, Dahr ed Deir	
		Required works :	
		Priority 1 - Transmission lines: 2 km	212 000 \$
		Priority 2 - Distribution lines: 1 km	42 400 \$
SL-W. B.6		Bkassine system supplying Bkassine, Bhannine	
		Required works :	
		Priority 1	
		Priority 2 - Distribution lines: 2.5 km	106 000 \$
SL-W. B.7		Aaray system supplying Aaray	
		Required works :	
		Priority 1	
		Priority 2 - Distribution lines: 1 km	42 400 \$
SL-W. B.8		Rihane system supplying Rihane	
		Required works :	
		Priority 1 - Construction of 1 reservoir	190 800 \$
		Priority 2 - Distribution lines: 3 km	127 200 \$
SL-W. B.9		Sejod system supplying Sejod	
		Required works :	
		Priority 1 - Construction of 1 reservoir	84 800 \$
		Priority 2 - Distribution lines: 2 km	84 800 \$
SL-W. B.10		Jarmaq system supplying Jarmaq	
		Required works :	
		Priority 1	
		Priority 2 - Distribution lines: 2 km	84 800 \$
SL-W. B.11		Aaychiye system supplying Aaychiye	
		Required works :	
		Priority 1 - Construction of 1 reservoir	95 400 \$
		Priority 2 - Distribution lines: 4 km	169 600 \$
SL-W. B.12		Aaramta system supplying Aaramta	
		Required works :	
		Priority 1 - Construction of 1 reservoir	95 400 \$
		Priority 2 - Distribution lines: 2.5 km	106 000 \$
SL-W. B.13		Qatrani system supplying Qatrani, Chbail	
		Required works :	
		Priority 1	
		Priority 2 - Distribution lines: 3.5 km	148 400 \$



Project code	Priority	Description	Estimated cost (USD)
SL-W. B.14		Srayri system supplying Srayri	
		Required works : Priority 1 Priority 2 - Distribution lines: 2 km	84 800 \$
SL-W. B.15		Mlikh system supplying Mlikh	
		Required works : Priority 1 Priority 2 - Distribution lines: 2 km	84 800 \$
SL-W. B.16		Louaize system supplying Louaize	
		Required works : Priority 1 - Construction of 1 reservoir Priority 2 - Distribution lines: 1 km	95 400 \$ 42 400 \$
SL-W. B.17		Independent systems including Ouardiyé, Mazraat El-Aarqoub, Mazraat Ouazaiyé, Mazraat Khamlet Khazen, Mazraat Zighrine, Mazraat Tamra, El-Demachkiyeh, Mahmoudiye , Mazraat Qrouh, Mazraat Er-Rouhbane, Mazraat Louzid (Louayziyé)	
		Required works : Priority 1 Priority 2 - Distribution lines: 8 km	339 200 \$
SL-W. B.18		For All Systems: Required works :	
		Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA) Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)	10 000 000 \$ 5 000 000 \$
<b>Total Jezzine district</b>			<b>39 358 800</b>
Out of which :			
Priority 1			31 178 800
Priority 2			8 180 000
Priority 3			-





Project code	Priority	Description	Estimated cost (USD)
<b>SL-W C. District of Sour (see drawing SL-W.C)</b>			
SL-W. C.1		Kfardounine system supplying Kfar Dounine , Qalaouiye , Tair Falsay , Silaa , Deir Kifa , Froun , Srifa-Niha , Naffakhiye , Derdaghaiya , Arzoun , Chehour , Ghandouriye , Borj Qalaouiye , Bestiyat , Hmairi , Bafliye , Barich , Debaal	
		Required works : Priority 1 - Transmission lines: 49km - Construction of 3 reservoirs	7 568 400 \$
		Priority 2 - Distribution lines: 39 km	1 807 300 \$
SL-W. C.2		Maaroub system supplying Maaroub , Jennata , Toura El Mantra , Deir Qanoun , Aabbassiye , Bedias , Borj Rahhal , Hallousiye , Tair Falsay	
		Required works : Priority 1 - Transmission lines: 32km - Construction of 5 reservoirs	3 487 400 \$
		Priority 2 - Distribution lines: 39 km	1 807 300 \$
SL-W. C.3		Borj ech Chemali system supplying Borj Ech Chemali, Sour	
		Required works : Priority 1 - Rehabilitation of 2 WWTP - Rehabilitation of 1 pumping station - Construction of 1 reservoir	10 446 300 \$
		Priority 2 - Distribution lines: 10 km	492 900 \$
SL-W. C.4		Saddiqine system supplying Qana El Jalil , Hanaouay , Deir Qanoun , Rmaidiye , Knaïsse , Ech Chaaitiye , El Malkiye	
		Required works : Priority 1 - Rehabilitation of 1 pumping station - Transmission lines: 7.5km - Construction of 4 reservoirs	5 236 400 \$
		Priority 2 - Distribution lines: 28 km	1 314 400 \$
SL-W. C.5		Hanaouay system supplying Ain Baal-El Hoch , Batoulay , Es Smaïye	
		Required works : Priority 1 - Construction of 1 regional reservoir C=2000m3 - Rehabilitation of 1 pumping station - Construction of 2 reservoirs	2 300 200 \$
		Priority 2 - Distribution lines: 7 km	328 600 \$



Project code	Priority	Description	Estimated cost (USD)
SL-W. C.6		Mansouri system supplying Mansouri, El Qlaile, Izziye - El Henniye	
		Required works : Priority 1 - Construction of 1 regional reservoir C=500m3 - Transmission lines: 17.5km	1 187 200 \$
		Priority 2 - Distribution lines: 21 km	985 800 \$
SL-W. C.7		Kafra system supplying Kafra , Beit Lif , Hanine , Aita Ech Chaab , Rmaysh , Qaouzah , Zebqine, Jbal El Botm , Debel Srobbine , Yater	
		Required works : Priority 1 - Rehabilitation of 1 pumping station - Construction of 3 reservoirs	1 293 200 \$
		Priority 2 - Distribution lines: 56 km	2 628 800 \$
SL-W. C.8		Ramiye system supplying Ramiye , Marouahine , Mazraat Ez-Zalloutiyeh , Boustane Al Kasayer , Chihine , Ej Jibbain , Majdel Zoun , Chamaa Al Qalaa , Yarine , Ed Dhaira , Aalma , En Naqoura , Tair Harfa	
		Required works : Priority 1 - Construction of 1 regional reservoir C=2000m3 - Construction of 1 pumping station - Transmission lines: 4.6km - Construction of 3 reservoirs	3 201 200 \$
		Priority 2 - Distribution lines: 63 km	2 957 400 \$
SL-W. C.9		Chehabiyeh system supplying Chehabiyeh, El Majdel, Jouaiya, Mahrouna	
		Required works : Priority 1 - Rehabilitation of 1 pumping station - Transmission lines: 8.5km - Construction of 2 reservoirs - Haddatha system	3 906 100 \$
		Priority 2 - Distribution lines: 14 km	657 200 \$
SL-W. C.10		Haddaththa system supplying Haddeththa, Aita el Jabal, Rachaf, Haris	
		Required works : Priority 1 - Construction of 1 regional reservoir C=1500m3 - Transmission lines: 9.5km - Construction of 2 reservoirs	1 415 100 \$
		Priority 2 - Distribution lines: 14 km	657 200 \$



Project code	Priority	Description	Estimated cost (USD)
SL-W. C.11		Deir Aames system supplying Deir Aames, Recheknay, Saddiqine, El Biyad, Mazraet Michrif	
		Required works :	
		Priority 1 - Transmission lines: 15.5km - Construction of 1 regional reservoir C=1000m3 - Construction of 3 reservoirs	2 427 400 \$
	Priority 2 - Distribution lines: 14 km	657 200 \$	
SL-W. C.12		Aitit system supplying Aitit, El Bazouriye, Jabal Hanine, Yanouh	
		Required works :	
		Priority 1 - Rehabilitation of 1 pumping station - Drilling of 1 well - Construction of 1 reservoir	6 444 800 \$
	Priority 2 - Distribution lines: 14 km	657 200 \$	
SL-W. C.13		El Souttaniyeh system supplying Es Souttaniye , Tibnine , Safad El Batikh , Jmaijme , Khirbet Selm , Deir Ntar	
		Required works :	
		Priority 1 - Construction of 1 regional reservoir C=1500m3 - Construction of 2 reservoirs	397 500 \$
	Priority 2 - Distribution lines: 21 km	985 800 \$	
SL-W. C.14		Ouadi Jilo 2 supplying Maarake, Tayr Debbe	
		Required works :	
		Priority 1 - Rehabilitation of 1 pumping station - Construction of 1 reservoir	1 717 200 \$
	Priority 2 - Distribution lines: 10 km	492 900 \$	
SL-W. C.15		For All Systems:	
		Required works :	
		Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$	
<b>Total Sour district</b>			<b>82 458 400</b>
Out of which : Priority 1			61 028 400
Priority 2			21 430 000
Priority 3			-



Project code	Priority	Description	Estimated cost (USD)
<b>SL-W D. District of Zahrani (see drawing SL-W.D)</b>			
SL-W. D.1		Northern & Eastern Distribution system supplying Ech Charqiye , El Aaddoussiye , El Merouaniye , En Najjariye , En Nmairiye , Zefta , Insar , Kaoutariet Es Siyad , Khartoum , Mazraat Kaoutariyet er Rizz , Mazraat Sinai	
		Required works : Priority 1 - Construction of 13 km of transmission lines	3 036 900 \$
		Priority 2 - Distribution lines: 60 km	2 544 000 \$
SL-W. D.2		Middle Distribution system supplying Bissariye , Ghassaniye , Qaaqaiet Es Snaoubar , Teffahta	
		Required works : Priority 1 - Construction of 26 km of transmission lines - Construction of 1 regional reservoir (C = 1000m3) - Rehabilitation of Teffahta wells - Upgrade of Teffahta pumping station - Construction of 2 reservoirs	7 753 900 \$
		Priority 2 - Distribution lines: 15 km	636 000 \$
SL-W. D.3		Coastal Distribution system supplying Aadloun , El Babliye , Loubiye , Es Saksakiye , Insariye , Sarafand	
		Required works : Priority 1 - Drilling of 2 wells - Construction of 1 pumping station - Construction of 5 reservoirs	2 989 200 \$
		Priority 2 - Distribution lines: 45 km	1 908 000 \$
SL-W. D.4		Southern Distribution system supplying Arzai , El Kharayeb , Ez Zrariye	
		Required works : Priority 1 - Construction of 55.5 km of transmission lines - Drilling of 2 wells - Construction of 1 regional reservoir (C = 1000m3) - Construction of 3 reservoirs - Construction of 4 pumping stations	19 599 400 \$
		Priority 2 - Distribution lines: 30 km	1 272 000 \$
SL-W. D.5		For All Systems: Required works :	
		Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
		Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Zahrani district</b>			<b>54 739 400</b>
Out of which : Priority 1			43 379 400
Priority 2			11 360 000
Priority 3			-



Project code	Priority	Description	Estimated cost (USD)
<b>SL-W E. District of Saida (see drawing SL-W.E)</b>			
SL-W. E.1		Houmine el Faouqa system Mazraat Al Khraibe, Sarba, Hmaile Required works : Priority 1 - Transmission lines: 8 km - Construction of 1 reservoir - Construction of 1 regional reservoir C=2000m3	2 416 800 \$
		Priority 2 - Distribution lines: 7 km	283 550 \$
SL-W. E.2		Kfar Melki system supplying Kfar Beit, Jernaya , Kfar Chellal , Kfar Hatta , Mjeidil , Haitoule , Hassaniyeh Required works : Priority 1 - Transmission lines: 26.5 km - Construction of 3 reservoirs - Construction of 1 regional reservoir C=2000m3	7 711 500 \$
		Priority 2 - Distribution lines: 9 km	364 640 \$
SL-W. E.3		Fouar-Serail System supplying Saida Dekerman , Old Saida , Saida Wastani , Harat Saida , Hlaliyeh , Bramieh , Miye w Miye , Ghazieh , Bqosta Required works : Priority 1 - Transmission lines: 26.5 km - Construction of 1 regional reservoir C=35000m3 - Rehabilitation of 3 wells - Construction of 1 pumping station - Rehabilitation of 1 WWTP - Rehabilitation of 1 spring catchment	15 476 000 \$
		Priority 2 - Distribution lines: 18 km	731 400 \$
SL-W. E.4		Kfar Falous system supplying Jensaïya, Mharbiye , Lebaa , Hlaliyeh , Bramieh , Bqosta , Aabra , Salhiye , Qraye , Miye w Miye , Ein El Deleb , Darb Es Sim , Bayssour , Ein El Mir , Ouadi Baanqoudine , Shwaliq , Kfar Jarra , Karkha , Kefraya , Mrah Hbas , Majdelyoun Required works : Priority 1 - Transmission lines: 48 km - Construction of 20 reservoirs - Rehabilitation and upgrade of 1 irrigation and domestic system - Rehabilitation of 1 spring catchment	14 378 900 \$
		Priority 2 - Distribution lines: 26 km	1 060 000 \$
SL-W. E.5		Nabaa el Tasse system supplying Kfar Falous, Barti , Sfenti , Kfar Melki , Houmine Faouqa , Kfar Fila , Ain Qana , Ouadi Laymoun , Mazraat Qalaat Meis Required works : Priority 1 - Transmission lines: 2.2 km - Construction of 4 reservoirs	699 600 \$
		Priority 2 - Distribution lines: 23 km	954 000 \$



Project code	Priority	Description	Estimated cost (USD)
SL-W. E.6		Qennarit system supplying Aatanit, Bnaafoul , Qennarit	
		Required works :	
		Priority 1 - Construction of 1 reservoir	227 900 \$
		Priority 2 - Distribution lines: 6 km	243 800 \$
SL-W. E.7		Hajje system supplying Hajje	
		Required works :	
		Priority 1 - Construction of 1 reservoir	84 800 \$
		Priority 2 - Distribution lines: 2 km	79 500 \$
SL-W. E.8		Ain Bou Souar system supplying Ain Bou Souar	
		Required works :	
		Priority 1	
		Priority 2 - Distribution lines: 1 km	42 400 \$
SL-W. E.9		Jbaa system supplying Jbaa	
		Required works :	
		Priority 1 - Construction of 1 reservoir	291 500 \$
		Priority 2 - Distribution lines: 7 km	286 200 \$
SL-W. E.10		Aaqtanit system supplying Aaqtanit	
		Required works :	
		Priority 1 - Construction of 1 reservoir	116 600 \$
		Priority 2 - Distribution lines: 4 km	121 900 \$
SL-W. E.11		Qnaitra - Jinjlaja system supplying Qnaitra, Jinjlaja	
		Required works :	
		Priority 1 - Construction of 2 reservoirs	
		Priority 2 - Distribution lines: 1 km	79 500 \$
SL-W. E.12		Bnaafoul system supplying Bnaafoul, Aanqoun	
		Required works :	
		Priority 1 - Transmission lines: 6.2 km - Construction of 1 reservoir	1 065 300 \$
		Priority 2 - Distribution lines: 9 km	318 000 \$
SL-W. E.13		Zeita system supplying Zeita	
		Required works :	
		Priority 1	
		Priority 2 - Distribution lines: 2 km	79 500 \$
SL-W. E.14		Arkey system supplying Arkey, Khzeiz, Aazze	
		Required works :	
		Priority 1 - Transmission lines: 5.7 km - Construction of 3 reservoirs	837 400 \$
		Priority 2 - Distribution lines: 5 km	212 000 \$
SL-W. E.15		Maamriyeh system supplying Maamriyeh, Ghaziye	
		Required works :	
		Priority 1 - Construction of 1 reservoir	116 600 \$
		Priority 2 - Distribution lines: 8 km	318 000 \$



Project code	Priority	Description	Estimated cost (USD)
SL-W. E.16		Roumine system supplying Roumine	
		Required works :	
	Priority 1	- Construction of 1 reservoir	212 000 \$
	Priority 2	- Distribution lines: 4 km	159 000 \$
SL-W. E.17		Arab Tobbaya system supplying Arab Tobbaya	
		Required works :	
	Priority 1	- Construction of 1 reservoir	90 100 \$
	Priority 2	- Distribution lines: 1 km	42 400 \$
SL-W. E.18		Houmine el Tahta system supplying Houmine el Tahta	
		Required works :	
	Priority 1	- Construction of 1 reservoir	111 300 \$
	Priority 2	- Distribution lines: 3 km	121 900 \$
SL-W. E.19		Aanqoun system supplying Aanqoun	
		Required works :	
	Priority 1	- Construction of 1 reservoir	227 900 \$
	Priority 2	- Distribution lines: 6 km	243 800 \$
SL-W. E.20		Tanbourit system supplying Tanbourit	
		Required works :	
	Priority 1		
	Priority 2	- Distribution lines: 2 km	79 500 \$
SL-W. E.21		Maghdouche system supplying Maghdouche, Zeghdayra , Mtairiyeh , Zeita	
		Required works :	
	Priority 1	- Construction of 1 reservoir	291 500 \$
	Priority 2	- Distribution lines: 5 km	212 000 \$
SL-W. E.22		Darb Es Sim system supplying Darb Es Sim	
		Required works :	
	Priority 1	- Transmission lines: 30 km - Construction of 1 reservoir	6 587 900 \$
	Priority 2	- Distribution lines: 2 km	79 500 \$
SL-W. E.23		Ghaziye system supplying Ghaziye	
		Required works :	
	Priority 1		
	Priority 2	- Distribution lines: 6 km	243 800 \$
SL-W. E.24		Mazraat Arab Al Sukkar - Aarab el jall system supplying KMazraat Arab Al Sukkar, Aarab el	
		Required works :	
	Priority 1		174 900 \$
	Priority 2	- Distribution lines: 6 km	42 400 \$
SL-W. E.25		For All Systems:	
		Required works :	
	Priority 1	- Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	- Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Saida district</b>			<b>72 517 190</b>
Out of which : Priority 1			61 118 500
Priority 2			11 398 690
Priority 3			-





Project code	Priority	Description	Estimated cost (USD)
<b>SL-W F. District of Bint Jbeil (see drawings SL-W.F)</b>			
SL-W. F.1		Taybeh system supplying Chaqra , Baraachit , Safad Al Battikh , Kounin , Saf el Hawa , Aynata , Tamriyyeh , Bani Hayyan , Qabrikha , Toulina , Souwana , Majdel Selm , Taybeh , Deir Seriane , Salaa , Aalman , Aadchit Al Qser , Qantara , Aadaisseh, Talloussa , Rob Tlateen , Markaba , Aadaisseh , Houla , Mais el Jabal , Mhaybib , Blida	
	Required works :		
	Priority 1 - Transmission lines: 15.2 km	- Rehabilitation of 1 WTP & Construction of 1 pumping station and 1 reservoir	21 899 600 \$
		- Construction of 2 regional reservoirs C=3000m3 each	
		- Rehabilitation of 2 pumping stations	
		- Construction of 14 reservoirs	
	Priority 2 - Distribution lines: 290 km		13 144 000 \$
SL-W. F.2		Kafra PS system supplying Tiri , Bait Yphoon, Aynata, Aytaroun	
	Required works :		
	Priority 1 - Transmission lines: 11.65 km	- Construction of 4 reservoirs	3 042 200 \$
	Priority 2 - Distribution lines: 45 km		2 120 000 \$
SL-W. F.3		Saf el Hawa system supplying Yaroun , Bint Jbeil , Ain Ebel, Maroun El Ras	
	Required works :		
	Priority 1 - Rehabilitation of 2 pumping stations		2 215 400 \$
	Priority 1 - Construction of 3 reservoirs		
	Priority 2 - Distribution lines: 65 km		2 968 000 \$
SL-W. F.4		For All Systems:	
	Required works :		
	Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)		10 000 000 \$
	Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)		5 000 000 \$
<b>Total Bint Jbeil district</b>			<b>60 389 200</b>
Out of which : Priority 1			37 157 200
Priority 2			23 232 000
Priority 3			-



Project code	Priority	Description	Estimated cost (USD)
<b>SL-W G. District of Marjaayoun &amp; Hasbaya (see drawing SL-W.G)</b>			
SL-W. G.1		Halta system supplying Halta, Kfarchouba Required works : Priority 1 - Transmission lines: 3 km - Drilling of 1 well - Construction of 1 reservoir	1 070 600 \$
		Priority 2 - Distribution lines: 18 km	795 000 \$
SL-W. G.2		Hebbariyeh system supplying Hebbariye , Fardis , Abou Qamha , Kawkaba , Ain Jarfa , Chwayya , Ain Qenia Required works : Priority 1 - Rehabilitation of 2 pumping stations - Construction of 6 reservoirs	2 946 800 \$
		Priority 2 - Distribution lines: 39 km	1 643 000 \$
SL-W. G.3		Hasbani system supplying Hasbaya, Ain jarfa Required works : Priority 1 - Rehabilitation of 1 pumping station - Construction of 1 reservoir	1 219 000 \$
		Priority 2 - Distribution lines: 20 km	848 000 \$
SL-W. G.4		Ebl el Saqi/Marj el Khaoukh system supplying Deir Mimes, Bourj Al Mlouk, Qlaiaa, Marjeyoun, Ebel El Saqi , Blat , Debbine , Khiam Required works : Priority 1 - Rehabilitation of 2 pumping stations - Drilling of 1 well - Construction of 7 reservoirs	2 703 000 \$
		Priority 2 - Distribution lines: 62 km	2 650 000 \$
SL-W. G.5		Wazzani system supplying Kfarkila , Khiam , Ain arab , Majideyye, Sarada, Arab Louziye Required works : Priority 1 - Rehabilitation of 1 pumping station - Construction of 1 pumping station - Transmission lines: 2 km - Construction of 1 regional reservoir C=30000m3 - Construction of 5 reservoirs	8 639 000 \$
		Priority 2 - Distribution lines: 50 km	2 120 000 \$



Project code	Priority	Description	Estimated cost (USD)
SL-W. G.6		Mghara system supplying Rachaya ElFoukhar, Kfar Hamam, Dahayrjet, Merri	
		Required works :	
		Priority 1 - Construction of 2 reservoirs	148 400 \$
		Priority 2 - Distribution lines: 10 km	424 000 \$
SL-W. G.7		Marj El Zhour system supplying Marj El Zhour	
		Required works :	
		Priority 1 - Construction of 1 reservoir	84 800 \$
		Priority 2 - Distribution lines: 5 km	212 000 \$
SL-W. G.8		Khalouat system supplying Khalouat	
		Required works :	
		Priority 1 - Construction of 1 reservoir	84 800 \$
		Priority 2 - Distribution lines: 13 km	530 000 \$
SL-W. G.9		Kfeir system supplying Kfeir	
		Required works :	
		Priority 1 - Construction of 1 reservoir	111 300 \$
		Priority 2 - Distribution lines: 15 km	636 000 \$
SL-W. G.10		Local systems including Al Dallafi, Berghoz, Chebaa, Mimes	
		Required works :	
		Priority 1 - Construction of 2 reservoirs - Drilling of 3 wells - Construction of 1 pumping station	2 819 600 \$
		Priority 2 - Distribution lines: 53 km	2 226 000 \$
SL-W. G.11		For All Systems:	
		Required works :	
		Priority 1 - Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
		Priority 2 - Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Bint Marjaayoun &amp; Hasbaya district</b>			<b>46 911 300</b>
			<b>Out of which : Priority 1</b>
			<b>Priority 2</b>
			<b>Priority 3</b>



**TOTAL COST OF WATER PROJECTS IN BEIRUT AND MOUNT LEBANON**

Priority 1	Priority 2	Priority 3	Total
284 660 317 \$	312 881 973 \$	-	597 542 290 \$

Project code	Priority	Description	Estimated cost (USD)
<b>BML-W A. District of Beirut (see drawing BML-W.A and BML-W.G)</b>			
BML-W. A.1	Janneh Dam scheme Required works :		51 500 000 \$
	Priority 1	Construction of 21 km transmission Line between Janneh Dam and Dbayeh Water Treatment Plant	
	Priority 2		
BML-W. A.2	Awali/Bisri project scheme Required works :		23 700 000 \$
	Priority 1	- Rehabilitation of Naameh Lower Pumping Station - Rehabilitation of Naameh Lower and Upper Reservoirs - Construction of two Reservoirs in Baabda to supply Beirut in potable water - 17 km Transmission lines	
	Priority 2	- 85 km Distribution networks	8 200 000 \$
BML-W. A.3	Tallet El Khayat and Borj Abi Haidar Networks System including: Required works :		4 700 000 \$
	Priority 1	- Rehabilitation of TEK and BAH Reservoirs - Rehabilitation of TEK and BAH pumping stations - 3 km Transmission lines	
	Priority 2	- 46 km Distribution networks - Installation of 9000 Service connection + 120000 Water Meters	23 800 000 \$
BML-W. A.4	Achrafieh Lower and Upper Networks System including: Required works :		11 500 000 \$
	Priority 1	- 9 km Transmission lines - Rehabilitation of Achrafieh Lower and Upper Reservoirs - Rehabilitation of Achrafieh Lower and Upper Pumping Stations - Construction of Achrafieh Reservoirs	
	Priority 2	- 40 km Distribution networks	4 200 000 \$
BML-W. A.5	For All Systems: Required works :		10 000 000 \$
	Priority 1	- Remote Control And Monitoring Of Water Systems (SCADA And DMA)	
	Priority 2	- Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Beirut district</b>			<b>142 600 000</b>
Out of which :			
Priority 1			101 400 000
Priority 2			41 200 000
Priority 3			-





ANNEX IV  
PROPOSED PROJECTS

Project code	Priority	Description	Estimated cost (USD)
		<b>Total Jbeil district</b>	<b>64 128 740</b>
		Out of which : Priority 1	36 209 567
		Priority 2	27 919 173
		Priority 3	-



Project code	Priority	Description	Estimated cost (USD)
<b><u>BML-W.C. District of Baabda Aley (see drawing BML-W.C)</u></b>			
BML-W. C.1	Bmaryam Distribution system :		
	Required works :		
	Priority 1	- Construction of 1 X 300 m <sup>3</sup> reservoir	95 400 \$
	Priority 2	- 130 km Distribution networks	11 000 000 \$
BML-W. C.2	Chweifat Distribution system :		
	Required works :		
	Priority 1		- \$
	Priority 2	- 55 km Distribution networks	4 700 000 \$
BML-W. C.3	El Daychounieh Distribution system :		
	Required works :		
	Priority 1	- Drilling and equipping 11 wells	
		- 24 km Distribution networks	
		- Rehabilitation of Daychouniyeh WTP	
		- Treatment for Galery Semaan Well	
		- Rehabilitation Of Jamhour Pumping Station	
	Priority 2	- Artificial Recharge of Hadath-Hazmieh Underground Water Basin	15 500 000 \$
BML-W. C.4	Ain el Delbeh Distribution system :		
	Required works :		
	Priority 1		
	Priority 2	- 1.5 km Distribution networks	130 000 \$
BML-W. C.5	Local Distribution system :		
	Required works :		
	Priority 1	- Constructon of 1 pumping stations	
		- Drilling and equipping 2 wells	
		- 12 km Distribution networks	
		- Construction of 1 X 450 m <sup>3</sup> , 1 X 1500 m <sup>3</sup> , 1 X 250 m <sup>3</sup> , 1 X 200 m <sup>3</sup> reservoirs	3 000 000 \$
	Priority 2	- 260 km Distrbution networks	22 000 000 \$
BML-W. C.6	Raayan Distribution system including:		
	Required works :		
	Priority 1	- 30 km Distribution networks	
		- Catchment Works Of Ain El Saouda And Ain El Jawzeh Spring	
		- Construction of 1 X 500 m <sup>3</sup> , 1 X 400 m <sup>3</sup> , 2 X 250 m <sup>3</sup> , 2 X 100 m <sup>3</sup> , 5 X 150 m <sup>3</sup> , 2 X 1000 m <sup>3</sup> reservoirs	5 200 000 \$
	Priority 2	- 467 km Distribution networks	39 300 000 \$
BML-W. C.7	For All Systems:		
	Required works :		
	Priority 1	- Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	- Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Baabda Aley district</b>			<b>115 925 400</b>
Out of which : Priority 1			33 795 400
Priority 2			82 130 000
Priority 3			-





Project code	Priority	Description	Estimated cost (USD)
<b><u>BML-W D. District of Keserwan (see drawing BML-W.D)</u></b>			
BML-W. D.1	Al Moudiq system including: Required works :		
	Priority 1	- 1.5 km Transmission lines - Rehabilitation of Ouadi Hantouche Pumping Station	159 530 \$
	Priority 2	- 38.7 km Distribution networks	3 281 760 \$
BML-W. D.2	Chabrouh-Assal system including: Required works :		
	Priority 1	- 3 km Transmission lines - Construction of 1 x 200 + 1 x 1000 m³ reservoirs	509 860 \$
	Priority 2	- 45.1 km Distribution networks	3 824 480 \$
BML-W. D.3	Al Assal system including: Required works :		
	Priority 1	- Construction of 1 x 1500 m³ reservoir	227 900 \$
	Priority 2	- 95 km Distribution networks	8 056 000 \$
BML-W. D.4	Chahtoul system including: Required works :		
	Priority 1	- Construction of 1 x 250 m³ reservoir	90 100 \$
	Priority 2		- \$
BML-W. D.5	Hayata system including: Required works :		
	Priority 1	- Construction of 1 x 200 m³ reservoir	84 800 \$
	Priority 2		- \$
BML-W. D.6	Chabrouh-Ain El Delbe-Afqan system including: Required works :		
	Priority 1	- Construction of 5 x 150 m³ reservoir, 1 x 200 m³ reservoir, 2 x 500 m³ reservoir + 1 elevated reservoir - 79 km Transmission lines	11 316 560 \$
	Priority 2	- 87.2 km Distribution networks	7 394 560 \$
BML-W. D.7	For All Systems: Required works :		
	Priority 1	- Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	- Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Keserwan district</b>			<b>49 945 550</b>
Out of which : Priority 1			22 388 750
Priority 2			27 556 800
Priority 3			-



Project code	Priority	Description	Estimated cost (USD)
<b><u>BML-W E. District of Chouf (see drawing BML-W.E)</u></b>			
BML-W. E.1	Barouk Kafra system : Required works :		
	Priority 1	- Drilling and equipping 1 well - 11 km Transmission lines - Construction of 2 x 300 m <sup>3</sup> , 1 x 250 m <sup>3</sup> , 1 x 150 m <sup>3</sup> , 2 x 1000 m <sup>3</sup> reservoirs	2 400 000 \$
	Priority 2	- 353 km Distribution networks	29 900 000 \$
BML-W. E.2	El Qaa system : Required works :		
	Priority 1	- 28 km Transmission lines - Construction of 4 x 500 m <sup>3</sup> , 1 x 200 m <sup>3</sup> , 2 x 150 m <sup>3</sup> , 2 x 1000 m <sup>3</sup> , 1 x 300 m <sup>3</sup> , 1 x 350 m <sup>3</sup> reservoirs - Rehabilitation of El Qaa spring catchment	4 500 000 \$
	Priority 2	- 538 km Distribution networks	45 600 000 \$
BML-W. E.3	Mristi system : Required works :		
	Priority 1	- 1 km Transmission line	95 400 \$
	Priority 2	- 21 km Distribution networks	1 781 000 \$
BML-W. E.4	Raayan system : Required works :		
	Priority 1	- 13 km Transmission line	1 240 200 \$
	Priority 2	- 39 km Distribution networks	3 310 000 \$
BML-W. E.5	Independent systems: Required works :		
	Priority 1	- Drilling and equipping 8 wells - 27 km Transmission lines - Construction of 1 x 150 m <sup>3</sup> , 1 x 350 m <sup>3</sup> reservoirs	7 000 000 \$
	Priority 2	- 173 km Distribution networks	14 630 000 \$
BML-W. E.6	For All Systems: Required works :		
	Priority 1	- Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	- Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$
<b>Total Chouf district</b>			<b>125 456 600</b>
Out of which : Priority 1			25 235 600
Priority 2			100 221 000
Priority 3			-
<b><u>BML-W F. District of Maten (see drawing BML-W.F)</u></b>			
BML-W. F.1	Upper Metn system : Required works :		
	Priority 1	- 56 km Transmission lines - Drilling and equipping 12 wells - Construction of 4 x 500 m <sup>3</sup> , 1 x 400 m <sup>3</sup> , 5 x 200 m <sup>3</sup> , 4 x 1000 m <sup>3</sup> , 2 x 300 m <sup>3</sup> , 2 x 1500 m <sup>3</sup> , 2 x 2000 m <sup>3</sup> , 2 x 2500 m <sup>3</sup> , 1 x 5000 m <sup>3</sup> reservoirs - Water Treatment Plant, Transmission Lines And Reservoirs For Boqaata Dam	52 440 000 \$
	Priority 2	- 189 km Distribution networks	16 050 000 \$
BML-W. F.2	Coastal Metn system including: Required works :		
	Priority 1	- Construction of 2 x 1000 m <sup>3</sup> , 2 x 1500 m <sup>3</sup> , 3 x 5000 m <sup>3</sup> , 1 x 2000 m <sup>3</sup> and 1 x 4000 m <sup>3</sup> reservoirs	3 191 000 \$
	Priority 2	- 151 km Distribution networks	12 805 000 \$
BML-W. F.3	For All Systems: Required works :		
	Priority 1	- Remote Control And Monitoring Of Water Systems (SCADA And DMA)	10 000 000 \$
	Priority 2	- Remote Control And Monitoring Of Water Systems (SCADA and DMA)	5 000 000 \$



ANNEX IV  
PROPOSED PROJECTS

Project code	Priority	Description	Estimated cost (USD)
		<b>Total Maten district</b>	<b>99 486 000</b>
		Out of which : Priority 1	65 631 000
		Priority 2	33 855 000
		Priority 3	-



**TOTAL COST OF WASTEWATER PROJECTS IN NORTH LEBANON**

Priority 1	Priority 2	Priority 3	Total
351 945 000 \$	226 958 000 \$	-	578 903 000 \$

Priority	Project code	Description	Estimated cost (USD)
<b><u>NL-WW A. District of Akkar (see drawing NL-WW.A)</u></b>			
1	NL-WW. A.1	Collection system Sahel 2 Required works : - 235 km Collection network	32 677 000
1	NL-WW. A.2	Collection system Sahel 3 Required works : - 490 km Collection network	68 135 000
1	NL-WW. A.3	Collection system Jebrayel Required works : - 80 km Collection network - 1 WWTP activated sludge	27 520 000
1	NL-WW. A.4	Collection system Michmich Required works : - 26 km Collection network	3 721 000
1	NL-WW. A.5	Collection system Qabbait Required works : - 19 km Collection network	2 719 000
2	NL-WW. A.6	Other Collection systems covering 46 villages in Akkar District Required works : - 314 km Collection network - 1 WWTP Activated sludge - 30 WWTP Trickling filter - 14 WWTP Wetland	226 958 000
<b>Total Akkar district</b>			<b>361 730 000</b>
Out of which : Priority 1			134 772 000
Priority 2			226 958 000
Priority 3			-
<b><u>NL-WW B. District of Koura (see drawing NL-WW.B)</u></b>			
1	NL-WW. B.1	Ejdabrine Collection systems Required works : - 15 km Collection network - 1 WWTP Trickling filter	7 125 000
1	NL-WW. B.2	Btaaboura Collection systems Required works : - 1 km Collection network - 1 WWTP Wetland	730 000
1	NL-WW. B.3	Kaftoune Collection systems Required works : - 10 km Collection network - 1 WWTP Trickling filter	9 330 000
<b>Total Koura district</b>			<b>17 185 000</b>
Out of which : Priority 1			17 185 000
Priority 2			-
Priority 3			-



Priority	Project code	Description	Estimated cost (USD)
<b><u>NL-WW C. District of Minieh (see drawing NL-WW.C)</u></b>			
1	NL-WW. C.1	Local schemes in district of Minieh Construction of 17 local collection and treatment schemes (excluding the cities connected to Tripoli WWTP) Total required works : - 250 km Collection network - 5 WWTP Trickling filter - 2 WWTP Activated sludge - 10 WWTP Wetland	99 888 000
<b>Total Minieh district</b>			<b>99 888 000</b>
Out of which : Priority 1			99 888 000
Priority 2			-
Priority 3			-
<b><u>NL-WW D. District of Zgharta (see drawing NL-WW.D)</u></b>			
1	NL-WW. D.1	Kfar Zghab Collection systems - 6 km Collection network - 1 WWTP Trickling filter	4 283 000
1	NL-WW. D.2	Arbet Qozhaiya Collection systems Required works : - 5 km Collection network - 1 WWTP Trickling filter	4 416 000
1	NL-WW. D.3	El Buhaira Collection systems Required works : - 3 km Collection network - 1 WWTP Wetland	1 243 000
1	NL-WW. D.4	Asloute Collection systems Required works : - 8 km Collection network - 1 WWTP Trickling filter	4 558 000
1	NL-WW. D.5	Collection system directed to WWTP in Tourza Required works : - 20 km Collection network - 1 WWTP Trickling filter	8 995 000
1	NL-WW. D.6	Collection system directed to Ehden WWTPs Required works : - 25 km Collection network	3 577 500
1	NL-WW. D.6	Collection system directed to Ehden-Ejbeh WWTP Required works : - Rehabilitation of the existing Ehden-Ejbeh WWTP	785 000
1	NL-WW. D.6	Collection system directed to Ehden-Aintourin WWTP Required works : - Rehabilitation of the existing Ehden-Aintourin WWTP	700 500
1	NL-WW. D.7	Collection system directed to Tripoli WWTP Required works : - 166 km Collection network + collector	22 410 000
<b>Total Zgharta district</b>			<b>50 968 000</b>
Out of which : Priority 1			50 968 000
Priority 2			-
Priority 3			-



Priority	Project code	Description	Estimated cost (USD)
<b>NL-WW E. District of Batroun (see drawing NL-WW.E)</b>			
1	NL-WW. E.1	Dahr Abi Yaghi Collection system Required works : - 10 km Collection network - 1 WWTP	2 491 000
1	NL-WW. E.2	Jrabta Collection system Required works : - 21 km Collection network - 1 WWTP	4 595 000
1	NL-WW. E.3	Ram Collection system Required works : - 3 km Collection network - 1 WWTP	1 277 500
1	NL-WW. E.4	Kfarhelda Collection system Required works : - 56 km Collection network - 1 WWTP	32 458 000
1	NL-WW. E.5	Collection to Chekka main collector Required works : - 24 km Collector	3 434 500
1	NL-WW. E.6	Collection system directed to Chekka WWTP Required works : -Upgrade Chekka WWTP	1 908 000
1	NL-WW. E.7	Collection system directed to Selaata WWTP Required works : -Upgrade Selataa WWTP	2 968 000
<b>Total Batroun district</b>			<b>49 132 000</b>
Out of which : Priority 1			49 132 000
Priority 2			-
Priority 3			-



TOTAL COST OF WASTEWATER PROJECTS IN THE BEQAA

Priority 1	Priority 2	Priority 3	Total
366 425 500 \$	70 649 100 \$	-	437 074 600 \$

Priority	Project code	Description	Estimated cost (USD)
<b>BQ-WW A. District of Baalbeck (see drawing BQ-WW.A)</b>			
1	BQ-WW. A.1	Yammouneh collection system Required works : - 7 km Collection network - 1 WWTP activated sludge	2 591 700
1	BQ-WW. A.2	Iaat collection system Required works : - 10 km Collection network	1 431 000
1	BQ-WW. A.3	Qaa collection system Required works : - 145 km Collection network - 1 WWTP activated sludge	24 883 500
1	BQ-WW. A.4	Ras Baalbeck collection system Required works : - 207 km Collection network - 1 WWTP activated sludge	60 361 700
1	BQ-WW. A.5	Chaat collection system Required works : - 135 km Collection network - 1 WWTP activated sludge	37 338 500
1	BQ-WW. A.6	Deir el Ahmar collection system Required works : - 82 km Collection network - 1 WWTP activated sludge	24 136 200
1	BQ-WW. A.7	Boudai collection system Required works : - 115 km Collection network - 1 WWTP activated sludge	23 876 500
1	BQ-WW. A.8	Chlifa collection system Required works : - 50 km Collection network - 1 WWTP activated sludge	8 745 000
2	BQ-WW. A.9	Ouyoun Orghoch collection system Required works : - 6 km Collection network - 1 WWTP activated sludge	1 070 600
2	BQ-WW. A.10	Ainata collection system Required works : - 7 km Collection network - 1 WWTP activated sludge	1 743 700
2	BQ-WW. A.11	Maaraboun collection system Required works : - 12 km Collection network - 1 WWTP activated sludge	2 777 200
2	BQ-WW. A.12	Jenta collection system Required works : - 9 km Collection network - 1 WWTP activated sludge	1 923 900
2	BQ-WW. A.13	Tfeil collection system Required works : - 5 km Collection network - 1 WWTP activated sludge	1 033 500
<b>Total Baalbeck district</b>			<b>191 913 000</b>
Out of which : Priority 1			183 364 100
Priority 2			8 548 900
Priority 3			-



Priority	Project code	Description	Estimated cost (USD)
<b><u>BQ-WW B. District of Hermel (see drawing BQ-WW.B)</u></b>			
1	BQ-WW. B.1	Hermel Phase 1 Collection system Required works : - 354 km Collection network - 1 WWTP activated sludge	70 267 400
2	BQ-WW. B.2	Hermel Phase 2 Collection system Required works : - 111 km Collection network - 1 WWTP activated sludge	35 494 100
2	BQ-WW. B.3	Wadi Faara Collection system Required works : - 70 km Collection network - 1 WWTP (Mrah Yassine) MBBR	10 229 000
2	BQ-WW. B.4	Marjhine Collection system Required works : - 20 km Collection network - 1 WWTP (Mdaouiche) MBBR	3 498 000
2	BQ-WW. B.5	Jouar el Hachiche Collection system Required works : - 25 km Collector - 1 WWTP (El Boustane) MBBR	4 213 500
<b>Total Hermel district</b>			<b>123 702 000</b>
Out of which : Priority 1			70 267 400
Priority 2			53 434 600
Priority 3			-





Priority	Project code	Description	Estimated cost (USD)
<b>BQ-WW C. District of Zahleh - West Beqaa (see drawings BQ-WW.C and BQ-WW.E)</b>			
1	BQ-WW. C.1	Joub Jannine System, serving Ana,Houch El Harime and Kefraya Required works : - 36.4 km Collection network	5 210 300
1	BQ-WW. C.2	Es Srairi WWTP collection system; serving Ain el Tineh, Maidoun, Zelleya, Yohmor, Loucia, Qelia and Lebbeya Required works : - 88 km Collection network - 1 Pumping station - 1 WWTP Activated sludge	19 437 600
1	BQ-WW. C.3	Sohmor Collection system, serving Sohmor Required works : - 4.6 km Collection network - 1 WWTP Activated sludge	7 919 000
<b>Total Zahleh - West Beqaa districts</b>			<b>32 566 900</b>
Out of which : Priority 1			32 566 900
Priority 2			-
Priority 3			-
<b>BQ-WW D. District of Rachaya (see drawing BQ-WW.D)</b>			
1	BQ-WW. D.1	Hasbaiya WWTP System Required works : - 90 km Collection network - 1 WWTP	18 854 600
1	BQ-WW. D.2	Kfar Qouq System Required works : - 53 km Collection network - 1 WWTP	11 791 000
1	BQ-WW. D.3	Beit Lahia System Required works : - 77 km Collection network - 1 WWTP	18 640 700
1	BQ-WW. D.4	Haouche el Kennabe System Required works : - 139 km Collection network - 1 WWTP	30 940 800
2	BQ-WW. D.5	Deir el Achayer System Required works : - 6.25 km Collection network - 1 WWTP	2 064 200
2	BQ-WW. D.6	Helouet Rachaya System Required works : - 3.5 km Collection network - 1 WWTP	784 200
2	BQ-WW. D.7	Majdel Balhis System Required works : - 26 km Collection network - 1 WWTP	5 817 200
<b>Total Rachaya district</b>			<b>88 892 700</b>
Out of which : Priority 1			80 227 100
Priority 2			8 665 600
Priority 3			-





Priority	Project code	Description	Estimated cost (USD)
<b>SL-WW C. District of Bint Jbeil (see drawing SL-WW.C)</b>			
1	SL-WW. C.1	<u>Wadi el Houjair system</u> Required works : - 623 km Collection network - 1 WWTP	122 300 000
1	SL-WW. C.2	<u>Bent Jbeil system</u> Required works : - 25 km Collection network - 1 WWTP	12 058 000
2	SL-WW. C.3	<u>Tibnine system</u> Required works : - 120 km Collection network - 1 WWTP Activated sludge	17 055 000
2	SL-WW. C.4	<u>Salhani system</u> Required works : - 218 km Collection network - 1 WWTP	51 128 000
3	SL-WW. C.5	<u>Kafra Bint Jbeil system</u> Required works : - 44 km Collection network - 1 WWTP	15 318 000
<b>Total Bint Jbeil district</b>			<b>217 859 000</b>
Out of which : Priority 1			134 358 000
Priority 2			68 183 000
Priority 3			15 318 000
<b>SL-WW D. District of Jezzine (see drawing SL-WW.ADE)</b>			
1	SL-WW. D.1	Construction of sewer networks serving : Jezzine Required works : - 65 km Collection network - 1 WWTP Activated sludge	17 794 000
2	SL-WW. D.2	Construction of sewer networks serving : Qaytouleh Required works : - 1 km Collection network - 1 WWTP Activated sludge	87 602 000
3	SL-WW. D.3	Construction of sewer networks serving : El Rihane Required works : - 10 km Collection network - 1 WWTP Activated sludge	2 223 000
3	SL-WW. D.4	Construction of sewer networks serving : Azour Required works : - 3 km Collection network - 1 WWTP Reed bed	1 402 000
3	SL-WW. D.5	Construction of sewer networks serving : Bisri Required works : - 23 km Collection network - 1 WWTP Reed bed	5 112 000
3	SL-WW. D.6	Construction of sewer networks serving : Roum Required works : - 10 km Collection network - 1 WWTP Reed bed	3 580 000
3	SL-WW. D.7	Construction of sewer networks serving : Zhilta Required works : - 3 km Collection network - 1 WWTP Reed bed	930 000
3	SL-WW. D.8	Construction of sewer networks serving : Sfaray Required works : - 14 km Collection network - 1 WWTP Reed bed	4 445 000
<b>Total Jezzine district</b>			<b>123 088 000</b>
Out of which : Priority 1			17 794 000
Priority 2			87 602 000
Priority 3			17 692 000



Priority	Project code	Description	Estimated cost (USD)
<b>SL-WW E. District of Saida (see drawing SL-WW.ADE)</b>			
1	SL-WW. E.1	<u>Sainik system</u> Required works : - 230 km Collection network - 1 WWTP	74 947 000
1	SL-WW. E.2	<u>Sarafand system</u> Required works : - 210 km Collection network - 1 WWTP	30 051 000
<b>Total Saida district</b>			<b>104 998 000</b>
Out of which : Priority 1			104 998 000
Priority 2			-
Priority 3			-
<b>SL-WW F. District of Marjaayoun (see drawing SL-WW.F)</b>			
1	SL-WW. F.1	Construction of sewer networks serving : El Khiyam Required works : - 170 km Collection network	24 327 000
1	SL-WW. F.2	Construction of sewer networks serving : Kfar Chouba Required works : - 30 km Collection network - 1 WWTP	23 903 000
1	SL-WW. F.3	Construction of sewer networks serving : Chebaa Required works : - 15 km Collection network - 1 WWTP	20 697 000
1	SL-WW. F.4	Construction of sewer networks serving : Meri Required works : - 25 km Collection network - 1 WWTP	12 588 000
1	SL-WW. F.5	Construction of sewer networks serving : Al Wazzani Required works : - 7 km Collection network - 1 WWTP	8 952 000
1	SL-WW. F.6	Construction of sewer networks serving : Rachaya Required works : - 35 km Collection network - 1 WWTP	15 609 000
<b>Total Marjaayoun district</b>			<b>106 076 000</b>
Out of which : Priority 1			106 076 000
Priority 2			-
Priority 3			-



**TOTAL COST OF WASTEWATER PROJECTS IN SOUTH LEBANON**

Priority 1	Priority 2	Priority 3	Total
296 000 000 \$	233 000 000 \$	116 000 000 \$	645 000 000 \$

Priority	Project code	Description	Estimated cost (USD)
<b><u>BML-WW A. District of Beirut (see drawing BML-WW.A)</u></b>			
1	BML-WW. A.1	Rehabilitation, Replacement and upgrade of sewer in various sectors of Beirut	50 000 000
<b>Total Beirut district</b>			<b>50 000 000</b>
Out of which : Priority 1			50 000 000
Priority 2			-
Priority 3			-
<b><u>BML-WW B. District of Jbeil (see drawing BML-WW.B)</u></b>			
1	BML-WW. B.1	Construction of sewer networks serving Lassa system Required works: - 42 Km collection networks - 1 WWTP	9 500 000
1	BML-WW. B.2	Construction of sewer networks serving Hdeideh system Required works: - 48 Km collection networks - 1 WWTP	11 500 000
2	BML-WW. B.3	Construction of sewer networks serving Ghalboun system Required works: - 80 Km collection networks - 1 Activated Sludge WWTP	19 400 000
2	BML-WW. B.4	Construction of sewer networks serving Kfar Mashoun systems Required works: - 36 Km collection networks - 1 Activated Sludge WWTP	9 300 000
2	BML-WW. B.5	Construction of sewer networks serving Ferhet systems Required works: - 88 Km collection networks - 1 Activated Sludge WWTP	18 000 000
3	BML-WW. B.6	Construction of sewer networks serving Kherbet Jbail systems Required works: - 61 Km collection networks - 1 WWTP	14 800 000
3	BML-WW. B.7	Construction of sewer networks serving Fatre systems Required works: - 56 Km collection networks - 1 MBBR WWTP	13 700 000
3	BML-WW. B.8	Construction of sewer networks serving Haqel systems Required works: - 8 Km collection networks - 1 WWTP	2 000 000
3	BML-WW. B.9	Construction of sewer networks serving Zibdine systems Required works: - 30 Km collection networks - 1 Activated Sludge WWTP	7 000 000
3	BML-WW. B.10	Construction of sewer networks serving Tartij systems Required works: - 14 Km collection networks - 1 WWTP	3 900 000
3	BML-WW. B.11	Construction of sewer networks serving Tartij systems Required works: - 13 Km collection networks - 1 WWTP	2 300 000
<b>Total Jbeil district</b>			<b>111 400 000</b>
Out of which : Priority 1			21 000 000
Priority 2			46 700 000
Priority 3			43 700 000



Priority	Project code	Description	Estimated cost (USD)
<b><u>BML-WW C. District of Baabda Aley (see drawing BML-WW.C)</u></b>			
1	BML-WW. C.1	Construction of sewer networks serving El Kneisseh system Required works: - 80 Km collection networks - 1 Activated Sludge WWTP	29 400 000
1	BML-WW. C.2	Construction of sewer networks serving El Hlaliyeh system Required works: - 58 Km collection networks - 1 Activated Sludge WWTP	29 400 000
1	BML-WW. C.3	Construction of sewer networks serving Kartada system Required works: - 24 Km collection networks - 1 Activated Sludge WWTP	14 000 000
1	BML-WW. C.4	Construction of sewer networks serving El Ghadir system Required works: - 329 Km collection networks	47 000 000
2	BML-WW. C.5	Construction of sewer networks serving Bchetfie system Required works: - 50 Km collection networks - 1 WWTP	26 000 000
2	BML-WW. C.6	Construction of sewer networks serving Bou Zride system Required works: - 141 Km collection networks - 1 WWTP	38 000 000
2	BML-WW. C.7	Construction of sewer networks serving Chourit system Required works: - 165 Km collection networks - 1 WWTP	46 000 000
2	BML-WW. C.8	Construction of sewer networks serving El Aabadiyeh system Required works: - 56 Km collection networks - 1 Sludge WWTP	19 500 000
3	BML-WW. C.9	Construction of sewer networks serving Aghmidh system Required works: - 27 Km collection networks - 1 WWTP	19 300 000
3	BML-WW. C.10	Construction of sewer networks serving Bhamdoun system Required works: - 24 Km collection networks - 1 WWTP	8 600 000
<b>Total Baabda Aley district</b>			<b>277 200 000</b>
Out of which : Priority 1			119 800 000
Priority 2			129 500 000
Priority 3			27 900 000
<b><u>BML-WW D. District of Keserwan (see drawing BML-WW.D)</u></b>			
1	BML-WW. D.1	Construction of sewer networks serving Hrajel Required works: - 64 Km collection networks - 1 Activated Sludge WWTP	2 700 000
2	BML-WW. D.2	Construction of sewer networks serving Achqout Required works: - 71 Km collection networks - 1 WWTP	21 000 000
<b>Total Keserwan district</b>			<b>23 700 000</b>
Out of which : Priority 1			2 700 000
Priority 2			21 000 000
Priority 3			-



Priority	Project code	Description	Estimated cost (USD)
<b>BML-WW E. District of Chouf (see drawing BML-WW.E)</b>			
1	BML-WW. E.1	Construction of sewer networks serving Deir Baba system Required works: - 68 Km collection networks - 1 WWTP Activated sludge	16 200 000
1	BML-WW. E.2	Construction of sewer networks serving Sirjbal system (including Nahr el Hamam area) Required works: - 193 Km collection networks - 1 WWTP Biofilters	7 000 000
1	BML-WW. E.3	Construction of sewer networks serving Ras Nabi Younes System Required works: - 159 Km collection networks	22 000 000
1	BML-WW. E.4	Remaining budget regarding protection of Bisri dam project Required works: - 117 Km collection networks - 1 WWTP in Chouf (Mazraet El-Chouf)	-
2	BML-WW. E.5	Construction of sewer networks serving Ainbal system Required works: - 9 Km collection networks	1 200 000
3	BML-WW. E.6	Construction of sewer networks serving El Fouara system Required works: - 36 Km collection networks - 1 WWTP	12 000 000
3	BML-WW. E.7	Construction of sewer networks serving Mazraet El Mehtaqra system - 9 Km collection networks - 1 WWTP	2 000 000
3	BML-WW. E.8	Construction of sewer networks serving Bkifa system Required works: - 57 Km collection networks - 1 WWTP	11 000 000
<b>Total Chouf district</b>			<b>71 400 000</b>
Out of which : Priority 1			45 200 000
Priority 2			1 200 000
Priority 3			25 000 000
<b>BML-WW F. District of Metn (see drawing BML-WW.F)</b>			
1	BML-WW. F.1	Construction of sewer networks serving Zabbougha system Required works: - 46 Km collection networks - 1 MBR WWTP	12 300 000
1	BML-WW. F.2	Construction of sewer networks serving Khouchara system Required works: - 116 Km collection networks	16 000 000
1	BML-WW. F.3	Construction of sewer networks serving Bourj Hammoud WWTP system Required works: - 207Km collection networks	29 000 000
2	BML-WW. F.4	Construction of sewer networks serving El Souan system Required works: - 58 Km collection networks - 1 WWTP	21 000 000
2	BML-WW. F.5	Construction of sewer networks serving Mchikha system Required works: - 60 Km collection networks - 1 Activated Sludge WWTP	13 600 000
3	BML-WW. F.6	Construction of sewer networks serving Abou Mizane Required works: - 24 Km collection networks - 1 WWTP	7 000 000
3	BML-WW. F.7	Construction of sewer networks serving Hasbaya el Maten Required works: - 52 Km collection networks - 1 WWTP	12 400 000
<b>Total Metn district</b>			<b>111 300 000</b>



ANNEX IV  
PROPOSED PROJECTS

Priority	Project code	Description	Estimated cost (USD)
		Out of which : Priority 1	57 300 000
		Priority 2	34 600 000
		Priority 3	19 400 000





TOTAL COST OF IRRIGATION PROJECTS IN NORTH LEBANON

Priority 1	Priority 2	Priority 3	Total
29 120 000 \$	11 200 000 \$	103 265 000 \$	143 585 000 \$

Priority	Project code	Description	Estimated cost (USD)
<b>NL-IR A. District of Akkar (see drawings NL-IR.A)</b>			
1	NL-IR. A.1	<u>Akkar el Bared Scheme</u> Required works : - 0.3 km Concrete channels to rehabilitate - 3.3 km Earth channels to concrete	600 000
1	NL-IR. A.2	<u>Mouniez Scheme</u> Required works : - 26 km Earth channels to concrete	4 000 000
1	NL-IR. A.3	<u>Omar el Breikat Scheme</u> Required works : - 18 km Earth channels to concrete	1 820 000
1	NL-IR. A.4	<u>Rahbeh Scheme</u> Required works : - 3 km Earth channels to concrete	450 000
1	NL-IR. A.5	<u>El Koubayet Scheme</u> Required works : - 1.5 km Concrete channels to rehabilitate - 15 km Earth channels to concrete	2 500 000
1	NL-IR. A.6	<u>Bougaiaa - Machta Hamoud - Machta Hassan Scheme</u> Required works : - 42 km Earth channels to concrete	10 600 000
3	NL-IR. A.8	<u>Akkar plain Scheme</u> Required works : - 50 m Concrete channels to rehabilitate - 78 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	30 000 000
3	NL-IR. A.9	<u>Akkar el Atika Scheme</u> Required works : - 2 km Concrete channels to rehabilitate - 29 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	4 900 000
3	NL-IR. A.10	<u>Fneidek and Michmich Scheme</u> Required works : - 14 km Concrete channels to rehabilitate - 18 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	5 700 000
<b>Total Akkar district</b>			<b>60 570 000</b>
Out of which : Priority 1			19 970 000
Priority 2			-
Priority 3			40 600 000





TOTAL COST OF IRRIGATION PROJECTS IN THE BEQAA

Priority 1	Priority 2	Priority 3	Total
109 709 000 \$	83 000 000 \$	4 524 000 \$	197 233 000 \$

Priority	Project code	Description	Estimated cost (USD)
<b>BQ-IR A. District of Baalbeck (see drawings BQ-IR.A, BQ-IR.B and BQ-IR.C)</b>			
1	BQ-IR. A.1	<u>Ayneta Baalbeck Scheme</u> Required works : - 2 km Concrete channels to rehabilitate	28 000
1	BQ-IR. A.2	<u>Baalbeck Plain Scheme</u> Required works : - 8 km Concrete channels to rehabilitate - 4 km Earth channels to concrete	830 000
1	BQ-IR. A.3	<u>Chmistar Scheme</u> Required works : - 0.1 km Concrete channels to rehabilitate - 1.5 km Earth channels to concrete	1 900 000
1	BQ-IR. A.4	<u>Ham Scheme</u> Required works : - 0.8 km Concrete channels to rehabilitate - 0.2 km Earth channels to concrete	29 000
1	BQ-IR. A.5	<u>Haouch Er-Rafqa Scheme</u> Required works : - 2 km Concrete channels to rehabilitate - 2 km Earth channels to concrete	940 000
1	BQ-IR. A.6	<u>Hizzine Scheme</u> Required works : - 3.5 km Earth channels to concrete	500 000
1	BQ-IR. A.7	<u>Kfar Dabach Scheme</u> Required works : - 1 km Earth channels to concrete	135 000
1	BQ-IR. A.8	<u>Labboue Scheme</u> Required works : - 20 km Concrete channels to rehabilitate - 40 km Earth channels to concrete	3 900 000
1	BQ-IR. A.9	<u>Maaraboun Scheme</u> Required works : - 0.5 km Earth channels to concrete	43 000
1	BQ-IR. A.10	<u>Marhine and Jbab Scheme</u> Required works : - 5 km Concrete channels to rehabilitate	78 000
1	BQ-IR. A.11	<u>Ras Baalbeck Scheme</u> Required works : - 2 km Concrete channels to rehabilitate - 0.5 km Earth channels to concrete	200 000
1	BQ-IR. A.12	<u>Taibet Baalbeck Scheme</u> Required works : - 1.2 km Earth channels to concrete	175 000
1	BQ-IR. A.13	<u>Taraya Scheme</u> Required works : - 7 km Earth channels to concrete	990 000
1	BQ-IR. A.14	<u>Wadi Nahle and Maqne Scheme</u> Required works : - 6 km Concrete channels to rehabilitate - 10 km Earth channels to concrete	2 600 000
1	BQ-IR. A.15	<u>Yahfoufa, Jenta and Serraine Scheme</u> Required works : - 15 km Concrete channels to rehabilitate - 10 km Earth channels to concrete	1 300 000
1	BQ-IR. A.16	<u>Yammoune Scheme</u> Required works : - 1.5 km Concrete channels to rehabilitate - 11 km Earth channels to concrete	3 500 000



ANNEX IV  
PROPOSED PROJECTS

Priority	Project code	Description	Estimated cost (USD)
1	BQ-IR. A.17	<u>Younine Scheme</u> Required works : - 2.5 km Concrete channels to rehabilitate - 1.2 km Earth channels to concrete	330 000
3	BQ-IR. A.18	<u>Temnine and Bednayeel Scheme</u> Required works : - 0.2 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	3 600 000
1	BQ-IR. A.19	<u>Assi Dam Phase I related irrigation network</u> Required works : - Network to cover 3 254 ha of land to irrigate	84 272 000
2	BQ-IR. A.20	<u>Assi Dam Phase II related irrigation network</u> Required works : - Network to cover 3 870 ha of land to irrigate	83 000 000
<b>Total Baalbeck district</b>			<b>188 350 000</b>
Out of which :			
Priority 1			101 750 000
Priority 2			83 000 000
Priority 3			3 600 000



Priority	Project code	Description	Estimated cost (USD)
<b><u>BQ-IR B. District of Zahle (see drawings BQ-IR.A, BQ-IR.B and BQ-IR.C)</u></b>			
1	BQ-IR. B.1	<u>Aanjar (Haouch Moussa) Scheme</u> Required works : - 0.1 km Earth channels to concrete - Extention of Networks to Cover Present Dry Farm Area	29 000
1	BQ-IR. B.2	<u>Zahle Scheme</u> Required works : - 3 km Earth channels to concrete	2 100 000
1	BQ-IR. B.3	<u>Ablah and Niha Scheme</u> Required works : - 4.5 km Earth channels to concrete	3 000 000
1	BQ-IR. B.4	<u>Chtaura Scheme</u> Required works : - 9 km Concrete channels to rehabilitate - 1 km Earth channels to concrete	630 000
1	BQ-IR. B.5	<u>Kfarzabad Scheme</u> Required works : - 4 km Earth channels to concrete	2 200 000
3	BQ-IR. B.6	<u>Mrayjet Zahle Scheme</u> Required works : - 2 km Concrete channels to rehabilitate	31 000
3	BQ-IR. B.7	<u>Bouarej Scheme</u> Required works : - 2.5 km Concrete channels to rehabilitate	53 000
3	BQ-IR. B.8	<u>Touaite Zahle Scheme</u> Required works : - 0.2 km Concrete channels to rehabilitate - 1 km Earth channels to concrete	840 000
<b>Total Zahle district</b>			<b>8 883 000</b>
Out of which : Priority 1			7 959 000
Priority 2			-
Priority 3			924 000



TOTAL COST OF IRRIGATION PROJECTS IN SOUTH LEBANON

Priority 1	Priority 2	Priority 3	Total
86 550 000 \$	408 880 000 \$	299 700 000 \$	795 130 000 \$

Priority	Project code	Description	Estimated cost (USD)
<b>SL-IR A. Major irrigation schemes (see drawing SL-IR.A)</b>			
1	SL-IR. A.1	<u>Saida - Jezzine scheme</u> Irrigated area : 430 ha Required works : - 45 km Distribution Networks	7 650 000
1	SL-IR. A.2	<u>Conveyor 800 Distribution Networks Phase II - A</u> Irrigated area : 3420 ha Required Works : - 465 km Distribution networks	78 900 000
2	SL-IR. A.3	<u>Conveyor 800 Distribution Networks Phase II - B</u> Irrigated area : 9830 ha Required Works : - 1 335 km Distribution networks	227 100 000
3	SL-IR. A.4	<u>Khardaleh Dam scheme distribution networks</u> Required Works : - 1 300 km Distribution networks	221 000 000
2	SL-IR. A.5	<u>Choumariyeh Dam scheme distribution networks</u> Required Works : - 660 km Distribution networks	112 200 000
<b>Total Major schemes</b>			<b>646 850 000</b>
Out of which : Priority 1			86 550 000
Priority 2			339 300 000
Priority 3			221 000 000
<b>SL-IR B. Local irrigation schemes (see drawing SL-IR.A)</b>			
2	SL-IR. B.1	<u>Bint Jbeil district</u> - Villages covered : Ayta El Jabal, Beit Lif, Debel, El Tairi, Es Salhani, Haddatha, Rouaissa, Srobbine, Yatar - Total Irrigated area : 1100 ha - Required works : 100 km distribution network	20 400 000
2	SL-IR. B.2	<u>Hasbaya district</u> - Villages covered : Mazraat Islamiyeh - Total Irrigated area : 94 ha - Required works : 8 km distribution network	1 650 000
2	SL-IR. B.3	<u>Jezzine district</u> - Villages covered : Haffet Bou Hajji, Mazraat Khamlet Khazene, Fouzour, Qalaat Dabboura - Total Irrigated area : 142 ha - Required works : 13 km distribution network	2 650 000



Priority	Project code	Description	Estimated cost (USD)
2	SL-IR. B.4	<b><u>Nabatiyeh district</u></b> - Villages covered : Nabaa el Tasse, Tahounet el Badaouiyeh - Total Irrigated area : 75 ha - Required works : 6 km distribution network	1 225 000
2	SL-IR. B.5	<b><u>Saida district</u></b> - Bqosta scheme - Total Irrigated area : 19 ha - Required works : 1 km distribution network	205 000
2	SL-IR. B.6	<b><u>Sour district</u></b> - Villages covered : Aaitit, Ain Baal, Al Aabsiye, Bafliye, Chehour, El Bazouniye, El Izziye, El Khraybeh, El Malkiyeh, Jabal El Botm, Jennata, Jouaya, Knaisse, Maaroub, Recheknanay, Saddiqine, Tair Debba, Zebqine - Total Irrigated area : 2 240 ha - Required works : 213 km distribution network	43 450 000
<b>Total Local schemes</b>			<b>69 580 000</b>
Out of which : Priority 1			-
Priority 2			69 580 000
Priority 3			-
<b>SL-IR C. Construction/Rehab of concrete channels (see drawing SL-IR.A)</b>			
3	SL-IR. C.1	<b><u>Construction of new (or rehabilitation of existing) concrete channels within the following schemes :</u></b> Ain el Kbir, Ain el Rihane, Ain el Tineh, Ain Rkiz, Ain Toghra, Baklleh, Berket el Djej, Chamaliye, El Aaichiye, El Bayad, El Choab - Ain Saha, El Fawar , El Fawar, El Harf, El Jawz - Wadih, El Meshreh, El Mghara, El Rabiaa - Jawzeh -Qaitoule, El Tineh, El-Dayaa, Ghraybeh - Azzoubiyeh, Jezzine, Jlikha, Kobay - Cheikh, Machereh, Majdaleen, Nabaa Ain Jbaa, Nabaa el Ain, Nabaa Sader, Nahr el Zahrani, Qobeiss - Majdaline, Wadi Chebaa, Zaarour  Required works : - 141 km concrete channels	14 100 000
3	SL-IR. C.2	<b><u>Ibl es Saqi Dam scheme distribution networks</u></b> Irrigated area : 3800 ha Required works : - 380 km Distribution network	64 600 000
<b>Total concrete channels</b>			<b>78 700 000</b>
Out of which : Priority 1			-
Priority 2			-
Priority 3			78 700 000



TOTAL COST OF IRRIGATION PROJECTS IN BEIRUT AND MOUNT LEBANON

Priority 1	Priority 2	Priority 3	Total
1 020 000 \$	1 150 000 \$	5 220 000 \$	7 390 000 \$

Priority	Project code	Description	Estimated cost (USD)
<b>BML-IR A. District of Jbeil (see drawings BML-IR.A)</b>			
3	BML-IR. A.1	<u>Aaqoura and Laqloug Scheme</u> Required works : - 6 km Concrete channels to rehabilitate - 2 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	390 000
3	BML-IR. A.2	<u>Lassa, Ghabat, Mezarib, Mghairi, Afqa &amp; Surrounding Scheme</u> Required works : - 2 km Concrete channels to rehabilitate - 2.5 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	300 000
2	BML-IR. A.3	<u>Qartaba and Surrounding Scheme</u> Required works : - 8 km Concrete channels to rehabilitate - 10 km Earth channels to concrete	1 150 000
<b>Total Jbeil district</b>			<b>1 840 000</b>
Out of which : Priority 1			-
Priority 2			1 150 000
Priority 3			690 000





Priority	Project code	Description	Estimated cost (USD)
<b><u>BML-IR B. District of Maten (see drawings BML-IR.A)</u></b>			
3	BML-IR. B.1	<u>Baskinta Scheme</u> Required works : - 16 km Concrete channels to rehabilitate - 8 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	1 050 000
<b>Total Halba district</b>			<b>1 050 000</b>
Out of which : Priority 1			-
Priority 2			-
Priority 3			1 050 000
<b><u>BML-IR C. District of Keserouane (see drawings BML-IR.A)</u></b>			
1	BML-IR. C.1	<u>Mayrouba and Hrajel Scheme</u> Required works : - 9 km Concrete channels to rehabilitate - 3 km Earth channels to concrete	530 000
3	BML-IR. C.3	<u>Adonis (Keserouane) Scheme</u> Required works : - Extension of Networks to Cover Present Dry Farm Area	230 000
3	BML-IR. C.4	<u>Kfar Dibiane and Faraya Scheme</u> Required works : - 25 km Concrete channels to rehabilitate - 8 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	1 900 000
3	BML-IR. C.5	<u>Nahr el Kalb Wata Scheme</u> Required works : - 5 km Concrete channels to rehabilitate	145 000
<b>Total Keserouane district</b>			<b>2 805 000</b>
Out of which : Priority 1			530 000
Priority 2			-
Priority 3			2 275 000



Priority	Project code	Description	Estimated cost (USD)
<b>BML-IR D. District of Baabda (see drawings BML-IR.B)</b>			
3	BML-IR. D.1	<u>Baabda Scheme</u> Required works : - 4 km Concrete channels to rehabilitate - 1.5 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	280 000
3	BML-IR. D.2	<u>Tarchich Scheme</u> Required works : - 0.5 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	85 000
<b>Total Baabda district</b>			<b>365 000</b>
Out of which : Priority 1			-
Priority 2			-
Priority 3			365 000
<b>BML-IR E. District of Chouf (see drawings BML-IR.B)</b>			
1	BML-IR. E.1	<u>Damour Scheme</u> Required works : - 16 km Concrete channels to rehabilitate	490 000
3	BML-IR. E.2	<u>Barouk Scheme</u> Required works : - 17 km Concrete channels to rehabilitate - 0.8 km Earth channels to concrete - Extension of Networks to Cover Present Dry Farm Area	610 000
3	BML-IR. E.3	<u>Nbaa El Safa Scheme</u> Required works : - Extension of Networks to Cover Present Dry Farm Area	230 000
<b>Total Chouf district</b>			<b>1 330 000</b>
Out of which : Priority 1			490 000
Priority 2			-
Priority 3			840 000



TOTAL COST OF DAMS PROJECTS IN LEBANON

Priority 1	Priority 2	Priority 3	Total
860 020 000 \$	673 000 000 \$	790 060 000 \$	2 323 080 000 \$

Priority	Project code	Description	Estimated cost (USD)
<b>NL-D. Dams in North Lebanon</b>			
1	NL-D. 1	El Bared dam: Construction of Water Supply dam (37-90 MCM) and associated water treatment plant and transmission network	196 020 000
3	NL-D. 4	Noura el Tahta Dam: Construction of dam (35-50MCM) for Nour el Tahta and surrounding villages for drinking water and irrigation	150 000 000
2	NL-D. 6	Dar Baaechtar Dam: Construction of Water and Irrigation Dam (7 MCM) for Koura and Batroun	50 000 000
<b>Total dams in North Lebanon</b>			<b>396 020 000</b>
Out of which :			
Priority 1			196 020 000
Priority 2			50 000 000
Priority 3			150 000 000
<b>BQ-D. Dams in the Bekaa</b>			
1	BQ-D. 1	Assi Phase I Dam: Completion of execution works for Assi Phase 1 Water and Irrigation Dam, and supervision works.	52 000 000
2	BQ-D. 2	Assi Phase 2 Dam: Construction of Assi Phase 2 Water and Irrigation Dam (15 MCM).	150 000 000
3	BQ-D. 3	Younine Dam: Providing additional storage capacity of 5.8 MCM for the irrigation of 1200 ha	69 960 000
3	BQ-D. 4	Massa Dam: Providing additional storage capacity of 8 MCM for the irrigation of 1600 ha	37 100 000
<b>Total dams in the Bekaa</b>			<b>309 060 000</b>
Out of which :			
Priority 1			52 000 000
Priority 2			150 000 000
Priority 3			107 060 000
<b>SL-D. Dams in South Lebanon</b>			
2	SL-D. 1	Ibl es Saqi Dam: Construction of Irrigation and Water supply dam (50 MCM) on the Hasbani river next to Ibl es Saqi, with related transmission lines and reservoirs	145 000 000
2	SL-D. 2	Choumariyeh Dam: Construction of Water supply and Irrigation DAM (28 MCM) on Litani River with related transmission lines and reservoirs	128 000 000
3	SL-D. 3	Khardali Dam: Construction of Irrigation and Water supply dam (128 MCM) on Litani river (Khardali segment) including downstream works (transmission lines and reservoirs)	480 000 000
<b>Total dams in South Lebanon</b>			<b>753 000 000</b>
Out of which :			
Priority 1			-
Priority 2			273 000 000
Priority 3			480 000 000



Priority	Project code	Description	Estimated cost (USD)
<b><u>BML-D. Dams in Beirut and Mount Lebanon</u></b>			
1	BML-D. 1	Aazzounieh Dam (4-5 MCM) Construction of Water Supply dam	65 000 000
1	BML-D. 2	Janneh Dam (37 MCM) : Project cost 350 000 000 USD. Works on hold due to lack of funds. The required budget is for completion of the remaining works	150 000 000
1	BML-D. 3	Boqaata Dam (6.9 MCM) : Construction of Dam, WTP, Transmission Lines and Reservoirs	33 000 000
1	BML-D. 4	Bisri Dam (125 MCM) : Construction of Dam, WTP, Transmission Lines and Reservoirs Projet under construction. Work suspended for lack of funds. The amount is for completion of the remaining works.	364 000 000
2	BML-D. 5	Damour Dam: Construction of Water and Irrigation DAM (42-106 MCM) for Beirut and Damour region.	200 000 000
3	BML-D. 6	Maasser ech Chouf Dam: Construction of Water Supply hill lake (2.2 MCM)	53 000 000
<b>Total dams in Beirut &amp; Mount Lebanon</b>			<b>865 000 000</b>
Out of which :			
Priority 1			612 000 000
Priority 2			200 000 000
Priority 3			53 000 000



TOTAL COST OF HILL LAKES PROJECTS IN LEBANON

Priority 1	Priority 2	Priority 3	Total
33 370 000 \$	319 120 000 \$	22 900 000 \$	375 390 000 \$

Priority	Project code	Description	Estimated cost (USD)
<b>NL-HL.A. Hill Lakes in Akkar</b>			
1	NL-HL.A. 1	Omar El Breiket Hill Lake: Construction of Hill Lake	1 170 000
2	NL-HL.A. 2	Bouqaiaa - Machta Hamoud - Machta Hassan Scheme Hill Lakes: Construction of Hill Lakes	1 170 000
<b>Total hill lakes in Akkar</b>			<b>2 340 000</b>
Out of which : Priority 1			1 170 000
Priority 2			1 170 000
Priority 3			-
<b>NL-HL.B. Hill Lakes in North Lebanon (other than Akkar)</b>			
1	NL-HL.B. 1	Blaita Hill Lake: Construction of Hill Lake (0.18 MCM)	5 000 000
1	NL-HL.B. 2	Tim Rbita Hill Lake: Construction of Hill Lake (0.1 MCM)	2 200 000
1	NL-HL.B. 3	Rahwe Hill Lake: Construction of 20 m high Hill Lake (2.2 MCM), providing an additional capacity for the irrigation of 200 ha	25 000 000
2	NL-HL.B. 4	Bcharre Scheme Hill Lakes: Construction of Hill Lakes	8 750 000
2	NL-HL.B. 5	Ehden Scheme Hill Lakes: Construction of Hill Lakes	3 500 000
2	NL-HL.B. 6	Rahban Hill Lake: Construction of Hill Lake (0.3 MCM)	7 000 000
2	NL-HL.B. 7	Laqlouq Hill Lake: Construction of Hill Lake (0.06 MCM)	400 000
2	NL-HL.B. 8	Arez Tannourine Hill Lake: Construction of Hill Lake (0.4 MCM)	14 000 000
2	NL-HL.B. 9	Hourayta Hill Lake: Construction of Hill Lake (0.21 MCM)	7 000 000
2	NL-HL.B. 10	Ain Rouana Hill Lake: Construction of Hill Lake (1.43 MCM)	30 000 000
2	NL-HL.B. 11	Ech Chir Hill Lake: Construction of Hill Lake (0.3 MCM)	4 500 000
2	NL-HL.B. 12	Ain Saouda Hill Lake: Construction of Hill Lake (0.06 MCM)	400 000
2	NL-HL.B. 13	Ain Lebne Hill Lake: Construction of Hill Lake (1.86 MCM)	34 000 000
3	NL-HL.B. 14	Ain Es Safsafa Hill Lake: Construction of Hill Lake (0.3 MCM)	400 000
3	NL-HL.B. 15	El Khaf Hill Lake: Construction of Hill Lake (0.07 MCM)	500 000
3	NL-HL.B. 16	Midane Hill Lake: Construction of Hill Lake (0.79 MCM)	22 000 000
<b>Total hill lakes in North Lebanon (other than Akkar)</b>			<b>164 650 000</b>



ANNEX IV  
PROPOSED PROJECTS

Priority	Project code	Description	Estimated cost (USD)
		Out of which :	
		Priority 1	32 200 000
		Priority 2	109 550 000
		Priority 3	22 900 000



Priority	Project code	Description	Estimated cost (USD)
<b>BQ-HL. Hill Lakes in the Bekaa</b>			
2	BQ-HL. 1	Ablah and Niha Scheme Hill Lakes: Construction of Hill Lakes	5 900 000
2	BQ-HL. 2	Baalbeck Plain Scheme Hill Lakes: Construction of Hill Lakes	10 000 000
2	BQ-HL. 3	Chmistar Scheme Hill Lakes: Construction of Hill Lakes	9 000 000
2	BQ-HL. 4	Taibet Baalbeck Scheme Hill Lakes: Construction of Hill Lakes	2 300 000
2	BQ-HL. 5	Taraya Scheme Hill Lakes: Construction of Hill Lakes	9 300 000
2	BQ-HL. 6	Yahfoufa, Janta, Serraine Scheme Hill Lakes: Construction of Hill Lakes	5 900 000
2	BQ-HL. 7	Younine Scheme Hill Lakes: Construction of Hill Lakes	12 800 000
<b>Total hill lakes in the Bekaa</b>			<b>55 200 000</b>
Out of which : Priority 1			-
Priority 2			55 200 000
Priority 3			-
<b>SL-HL. Hill Lakes in South Lebanon</b>			
2	SL-HL. 1	Kounine Hill Lakes: Construction of Hill Lakes	13 300 000
2	SL-HL. 2	El Houranieh Hill Lakes: Construction of Hill Lakes	13 300 000
2	SL-HL. 3	Chhour Hill Lakes: Construction of Hill Lakes	13 300 000
2	SL-HL. 4	Barich Hill Lakes: Construction of Hill Lakes	13 300 000
2	SL-HL. 5	Ansar Hill Lakes: Construction of Hill Lakes	13 300 000
2	SL-HL. 6	Jermaq Hill Lakes: Construction of Hill Lakes	13 300 000
2	SL-HL. 7	Alsala-Mimas Hill Lakes: Construction of Hill Lakes	13 300 000
2	SL-HL. 8	El Khyam Hill Lakes: Construction of Hill Lakes	13 300 000
2	SL-HL. 9	Banaafoul Hill Lakes: Construction of Hill Lakes	13 300 000
<b>Total hill lakes in South Lebanon</b>			<b>119 700 000</b>
Out of which : Priority 1			-
Priority 2			119 700 000
Priority 3			-



Priority	Project code	Description	Estimated cost (USD)
<b><u>BML-HL. Hill Lakes in Beirut and Mount Lebanon</u></b>			
2	BML-HL. 1	Birket El Safa, El Mtein Hill Lake: Construction of Hill Lake (0.5 MCM)	5 200 000
2	BML-HL. 2	El Mtein 7 Hill Lake: Construction of Hill Lake (0.3 MCM)	2 800 000
2	BML-HL. 3	El Sannine 1 Hill Lake: Construction of Hill Lake (0.2 MCM)	2 600 000
2	BML-HL. 4	Kfardebiane, Wadi El Boud Hill Lake: Construction of Hill Lake (0.7 MCM)	6 600 000
2	BML-HL. 5	Kfardebiane, Wadi Nabaa Es Saquieh Hill Lake: Construction of Hill Lake (0.4 MCM)	6 200 000
2	BML-HL. 6	Kfardebiane 6 Hill Lake: Construction of Hill Lake (0.17 MCM)	1 900 000
2	BML-HL. 7	Damour Hill Lakes: Construction of Hill Lakes	4 700 000
2	BML-HL. 8	Mayrouba and Hrajel Hill Lakes: Construction of Hill Lakes	3 500 000
<b>Total hill lakes in Beirut &amp; Mount Lebanon</b>			<b>33 500 000</b>
Out of which : Priority 1			-
Priority 2			33 500 000
Priority 3			-





See Volume III - Section III-C for details

**TOTAL COST OF ARTIFICIAL AQUIFER RECHARGE**

Priority 1	Priority 2	Priority 3	Total
3 650 000 \$	11 600 000 \$	16 500 000 \$	31 750 000 \$

Priority	Project code	Description	Estimated cost (USD)
<b><u>AAR A. Artificial recharge at Berdaouni pilot site</u></b>			
1	AAR A.1.	Detailed design of the AAR pilot project facility at Berdaouni site	150 000
1	AAR A.2.	Construction of Berdaouni AAR facility	3 500 000
<b>Total artificial recharge at Berdaouni pilot site</b>			<b>3 650 000</b>
Out of which : Priority 1			3 650 000
Priority 2			-
Priority 3			-
<b><u>AAR B. Artificial recharge at Abou Ali site</u></b>			
2	AAR B.1.	Detailed design of the AAR facility at Abou Ali site	500 000
2	AAR B.2.	Construction of Abou Ali AAR facility	5 000 000
<b>Total artificial recharge at Abou Ali site</b>			<b>5 500 000</b>
Out of which : Priority 1			-
Priority 2			5 500 000
Priority 3			-
<b><u>AAR C. Artificial recharge at Damour site</u></b>			
2	AAR C.1.	Detailed design of the AAR facility at Damour site	500 000
2	AAR C.2.	Construction of Damour AAR facility	5 000 000
<b>Total artificial recharge at Damour site</b>			<b>5 500 000</b>
Out of which : Priority 1			-
Priority 2			5 500 000
Priority 3			-
<b><u>AAR D. Artificial recharge at Hadath-Hazmieh pilot site</u></b>			
2	AAR D.1.	Feasibility study of the AAR pilot project at Hadath-Hazmieh	200 000
3	AAR D.2.	Detailed design of the AAR facility at Hadath-Hazmieh site	500 000
3	AAR D.3.	Construction of Hadath-Hazmieh AAR facility	5 000 000
<b>Total artificial recharge at Hazmieh-Hadath pilot site</b>			<b>5 700 000</b>
Out of which : Priority 1			-
Priority 2			200 000
Priority 3			5 500 000
<b><u>AAR E. Artificial recharge at Daichounie site</u></b>			
2	AAR E.1.	Feasibility study of the AAR pilot project at Daichouniye	200 000
3	AAR E.2.	Detailed design of the AAR facility at Daichouniye site	500 000
3	AAR E.3.	Construction of Daichouniye AAR facility	5 000 000
<b>Total artificial recharge at Daichouniye pilot site</b>			<b>5 700 000</b>
Out of which : Priority 1			-
Priority 2			200 000
Priority 3			5 500 000
<b><u>AAR F. Artificial recharge in Akkar plain</u></b>			
2	AAR F.1.	Feasibility study of the AAR pilot project in Akkar plain	200 000
3	AAR F.2.	Detailed design of the AAR facility in Akkar plain	500 000
3	AAR F.3.	Construction of Akkar plain AAR facility	5 000 000
<b>Total artificial recharge at Daichouniye pilot site</b>			<b>5 700 000</b>
Out of which : Priority 1			-
Priority 2			200 000
Priority 3			5 500 000



See Volume III - Section III-A.6 for details

**TOTAL COST FOR METEOROLOGICAL AND HYDROMETRIC NETWORKS**

Priority 1	Priority 2	Priority 3	Total
15 614 000 \$	-	-	15 614 000 \$

Priority	Project code	Description	Estimated cost (USD)
<b><u>MH A. Meteorological and Hydrometric network expansions and improvements</u></b>			
1	MH-A.1	<u>LMS + LRA Meteorological Network Expansion</u> Coastal Catchments: 9 Uncovered Catchments (+5 stations) 6 Semi-covered Catchments (+3 stations) Snow monitoring stations (+1 station per catchment above 2000m)	790 000
1	MH-A.2	<u>LMS + LRA Meteorological Network Expansion</u> Interior Catchments: 1 Uncovered Catchments (+5 stations) 3 Semi-covered Catchments (+3 stations) Snow monitoring stations (+1 station per catchment above 2000m)	200 000
1	MH-A.3	<u>LARI Meteorological Network Expansion</u> Maintenance instruments for 10 stations	100 000
1	MH-A.4	<u>MoEW Meteorological Network Expansion</u> Natural reserves and Forests	250 000
1	MH-A.5	<u>LRA Hydrometric Network Expansion:</u> Improvement of hydrometric stations as per LWP assessment report Hydrometric monitoring stations for stream connections coverage Hydrometric monitoring stations for hydrogeology coverage Main springs ADCP Installation Groundwater wells monitoring	4 726 000
<b>Total</b>			<b>6 066 000</b>
Out of which : Priority 1			6 066 000
Priority 2			-
Priority 3			-
<b><u>MH-B. Integrated Hydrological Information System</u></b>			
1	MH-B.1	<u>Required studies for IHIS implementation:</u> Assessment studies Update and Analysis of the NLUMP and annexed geodatabase Lebanese Data Rescue Project Design studies for the IHIS implementation Integrated water resources management studies Flood Risk Management plan Drought Mitigation plan Rainwater Harvesting plan	7 180 000
1	MH-B.2	<u>IHIS implementation</u>	2 000 000
1	MH-B.3	<u>IHIS Operation for 24 months</u>	288 000
1	MH-B.4	<u>WEAP Operation and Implementation</u>	80 000
<b>Total</b>			<b>9 548 000</b>
Out of which : Priority 1			9 548 000
Priority 2			-
Priority 3			-



See Volume III - Section III-C for details

**TOTAL COST OF GENERAL STUDIES AND INVESTIGATIONS**

Priority 1	Priority 2	Priority 3	Total
35 777 500 \$	2 500 000 \$	11 150 000 \$	49 427 500 \$

Priority	Project code	Description	Estimated cost (USD)
<b>RS-A Implementation of a Project Management Unit for a 5 years period</b>			
1	RS-A.1	Mobilisation of experts	6 700 000
1	RS-A.2	Purchase of cars, IT equipment, flow monitoring equipment, flow meters, manual dipmeters, misc working tools and required software	325 000
1	RS-A.3	Travel and transportation expenses	1 060 000
1	RS-A.4	Office expenses	420 000
<b>Total Implementation of PMU</b>			<b>8 505 000</b>
Out of which : Priority 1			8 505 000
Priority 2			-
Priority 3			-
<b>RS-B Water Governance priority action plan</b>			
1	RS-B.1	Sector Governance	1 355 000
1	RS-B.2	Financial and Commercial	6 750 000
1	RS-B.3	Reporting and Monitoring	1 257 500
1	RS-B.4	Capacity building	2 950 000
1	RS-B.5	O&M of facilities and services	660 000
<b>Total Water Governance priority action plan</b>			<b>12 972 500</b>
Out of which : Priority 1			12 972 500
Priority 2			-
Priority 3			-
<b>RS-C General Geological and Hydrogeological Studies</b>			
1	RS-C.1	Geology and hydrogeology mapping and studies	12 200 000
3	RS-C.2	Refreshment of water budget studies of major hydrogeological basins	2 000 000
3	RS-C.3	Groundwater vulnerability mapping for springs Q > 10 l/s	1 600 000
3	RS-C.4	Modeling of major karst aquifers hydrogeological basins	3 000 000
3	RS-C.5	Modeling of major porous, saline aquifer systems	3 000 000
<b>Total Geology and hydrogeology mapping and studies</b>			<b>21 800 000</b>
Out of which : Priority 1			12 200 000
Priority 2			-
Priority 3			9 600 000
<b>RS-D Drilling and testing exploratory wells</b>			
1	RS-D.1	In Hadath-Hazmieh - 3 wells	1 500 000
1	RS-D.2	In Daichouniye - 2 wells	600 000
2	RS-D.3	In Akkar plain - 5 wells	2 500 000
3	RS-D.4	In Brak (Zahrani) - 1 well	500 000
3	RS-D.5	In Damour - 3 wells	1 050 000
<b>Total Drilling and testing exploratory wells</b>			<b>6 150 000</b>
Out of which : Priority 1			2 100 000
Priority 2			2 500 000
Priority 3			1 550 000