



United Nations Development Programme

Country: Lebanon

PROJECT DOCUMENT

Project Title Flood Risks Management, water Harvesting and soil conservation in Baalback-Hermel. Phase I and II

UNDAF Outcome(s): 2. Rights based approach to human development

Expected Output(s):
 Output 1: Flood risk management in Aarsal-Fakha and water harvesting in North Bekaa
 Output 2: Flood risks management and soil conservation in Ras Baalback.

Executing Entity: UNDP

Brief Description

This project document combines the earlier project document on "Flood Risk Management and Water Harvesting in North Bekaa" (project ID 00059666) signed on 28 May 2008 with the second phase of the same project funded by the LRF that will be added under the same award ID with the outputs "Flood Risk Management and Soil Conservation in Ras Baalback". The two projects build on each other; they have the similar objectives, the target areas are different.

The project aims at supporting early recovery efforts in the conflict-affected Baalback-Hermel region through the implementation of a flood risk management and water harvesting programme. This will be achieved by the construction of stone walls, check dams and water collection reservoirs to prevent runoff water from reaching villages and farms and through the restoration of land cover to reduce soil erosion. The objectives related to water management will be achieved through construction of several membrane-lined reservoirs to collect wasted water and snow melts and through installation of water-use efficient irrigation networks and systems that will be used by local farmers to increase their agricultural productivity and diversify their crops.

Programme Period:	2008 - 2011
ATLAS Award ID:	00049117
ATLAS Project ID (Phase I)	00059666
ATLAS Project ID (Phase II)	00069789
Start date:	01 February 2008
End Date	31 December 2011
Management Arrangements	DEX

	Phase I	Phase II
Budget: (USD):	2,649,450	3,551,402
Management Support Fee:	185,430	248,598
Total budget:	2,834,880	3,800,000
Allocated resources:		
• LRF	2,834,880*	3,800,000
* Of which 375,349 USD expended in 2008		

Agreed by CDR

Nabil A. el Jisr, Resident CDR

Agreed by UNDP

30 MAR 2009



I. SITUATION ANALYSIS

1. Although water resources in Lebanon are relatively good compared to neighbouring countries, yet the country is likely to suffer from water deficits within the next 20 years because of the absence of clear management policies and the increased water consumptions due to population growth and the expansion of agricultural land. Agriculture is by far the largest consumer of water in Lebanon accounting for 65% - 85% of the total water demand; the rest is shared by industry and domestic use¹.
2. Snowfall and precipitation amounts and distribution are not adequately characterized and documented in Lebanon. Although annual average rainfall is estimated at 850 mm/year, yet irrigation water is greatly needed for most of the year because most of the rainfall is received during a relatively short period during winter (December-March). Moreover, the distribution is highly variable from one region to another reaching 1000 mm/year at the coast, more than 1500 mm/year on the high mountains and only 200 mm/year in North Bekaa where the project's target area Baalback-Hermel is located.
3. From the several streams that are feeding perennial rivers in Lebanon, the two main ones in North Bekaa are: 1) The Litani river which drains the southern Bekaa plateau, transverses the southern edge of the Mount Lebanon range and discharges into the Mediterranean and 2) The El-Assi (Orontes) river which flows northwards into Syria draining the northern Bekaa plain.

A- Flash Floods in North Bekaa

4. Heavy flooding following torrential rains in the Anti-Lebanon mountains are common in Northern Bekaa. They occur during May-June or later in autumn (October-November). In June 1987, heavy rainfall led to road cuts and destruction of bridges, telephones, electricity and water supply. Villages like Fakehe, Jdaide and Ras Baalback became completely isolated. At the agricultural level, heavy losses were reported for field crops, up to 80% of fruit trees in that area were damaged and a large number of cattle were drowned. Soil erosion was noticed over tens of kilometres (UNDRO report 87/1371, June 1987). Floods occurred also in June 1994, October 1999, May 2001, twice in 2004 and recently in May 15th 2007 where severe soil erosion was reported in addition to the substantial agricultural damage and destruction of several aqua farms along the Assi (Orontes) river. Contributing causes for these flash floods are misuse of land, absence of land management, uncontrolled grazing practices, and high land degradation. These factors are, not only contributing to the problem of flash floods, but also leading to a high risk of rapid desertification in the area.
5. In 2006, a project was launched in Al'Qaa region by the Ministry of Agriculture and the German Agency for Technical Cooperation (GTZ), in collaboration with the Arab Centre for the Studies of Arid Zones and Dry Lands (ACSAD). The project handled a 18 km² water shed area and established check dams, contour bunds and stone walls in addition to 3 collection lakes ranging between 20,000-40,000 cu. meter in volume. Early observations recorded after the recent torrential rains in 2007 showed a good level of flood prevention in that location.
6. Flood protection practices in North Bekaa are not at an acceptable level; only local retaining walls have been executed on some rivers and were constructed to prevent collapsing of river's walls rather than to mitigate from floods. The threats and damage caused by the floods in Baalback-Hermel area are expected to increase after the July conflict in 2006. This is mainly because of the direct and indirect damage that affected the forest and vegetation cover in that region (about 400 hectares of Junipers trees were partially affected by fires in this area), thus soil erosion is expected to increase and water retention by the vegetation to decrease, all what could potentially lead to more severe and erosive power of runoff water when torrential rain occurs since the roots of trees and crops hold the soil firmly together and prevent such erosion. Such floods result in the loss of the topsoil, the most fertile layer of soil needed for plant growth.

B- Desertification in North Bekaa

7. The National Action Program to Combat Desertification (NAP), which was developed in 2003 by the Ministry of Agriculture and in collaboration with UNDP and GTZ, classified the Northern part of Bekaa as one of the areas prone to high risks of desertification. This is mainly due to lack of proper land and water management practices, bad rainfall distribution, overgrazing, steep mountains with shallow soil and poor vegetative cover. Summer droughts and uneven rain distribution are the main reasons for poor

¹ Dr. Mutasem El-Fadel, Water Resources in Lebanon, Current Situation and Future Needs, AUB, 2002

agricultural productivity in North Bekaa; most of the rain falls between November and May, leaving long periods of dry conditions and little water for supplementary irrigation in summer.

8. During the July 2006 conflict, North Bekaa, particularly Baalback-Hermel area was directly affected by the war. Large scale destructions in infra structure, biodiversity and agriculture were reported. Agriculture in that area was directly affected: bombing resulted in big losses in crop yields that were either burned, not harvested or became unmarketable. Public irrigation infrastructure in the Bekaa were damaged. Cattle, goats and sheep were killed either because of shelling or due to starvation and thirst. Targeting of aqua farms in Hermel affected more than 30 fish farmers with an estimated total loss of about 300 tons of fish lost from ponds. In addition, the high security risk during the war stopped forest management activities and lack of fuel encouraged people to cut trees in forests and woodlands. Losses from biodiversity destruction were also enormous and could not be estimated.
9. The conflict exacerbated the numerous existing socio-economic and environmental issues already facing this area. Baalback-Hermel in North Bekaa suffers from drought, poor agricultural productivity, loss of biodiversity, poverty (66% poverty in Hermel and 49% in Baalback) and in some years flooding caused by surface runoff water due to torrential rains, poor soil infiltration and deteriorated vegetation cover. Approximately fifty percent of the population of this area is thought to be employed in the agricultural sector.
10. Water harvesting has been used for thousands of years to supplement scarce water resources in arid and semi-arid regions of the world. Rain water and snowmelt runoff can be collected in small reservoirs. The collected water can be used in supplemental irrigation. Supplemental irrigation during the dry growing season could be life saving for rain fed crops cultivated in North Bekaa. Moreover, the extended water availability during the dry season widens the farmers' choices among different cropping patterns and farming systems that can be used. Therefore, water harvesting accompanied by installation of water-use efficient irrigation networks will have a great impact on agricultural productivity and farm income in the Baalback-Hermel region.

II. STRATEGY

11. This project document combines the earlier project document on "Flood Risk Management and Water Harvesting in North Bekaa" (project ID 00059666) signed on 28 May 2008 (Annex I) with the second phase of the same project funded by the LRF that will be added under the same award ID with the output "Flood Risk Management and Soil Conservation in Ras Baalback" (LRF project document Annex II). The two projects build on each other; they have the similar objectives, however the target areas are different. They will be considered as two phases (two outputs) within the same project since all project approaches, partners and activities are the same.
12. The project will assist the Government of Lebanon in its recovery and reform efforts in the conflict-affected and high-poverty region of Baalback-Hermel through better land management practices, namely flood risk reduction and improved access to irrigation water and networks to achieve crop diversification and improve productivity.
13. The project will work in partnership with concerned stakeholders and in collaboration with other relevant on-going projects to ensure proper management of resources and to avoid duplication. For the part related to flood risk management, the project will build on the previous 18 km² model executed by the MoA and GTZ in Al-Qaa; it will cover a new watershed area of around 100 km² which is almost half of the area under risks of floods in North Bekaa. In this regard, check dams, contour bunds and stone walls will be established as per the intended modelling study of the watershed and large safety reservoirs (Hafeers) will be made for collection of flood water.
14. In parallel, the project will also work on the restoration of vegetative cover on the slope hills in target areas. Nurseries for the propagation of forest trees endemic to the region will be established; priority will be given to wild fruit trees which are historically grown in the region such as wild pistachio, wild almonds and wild pears. Efforts will be done to rehabilitate the pastures and forage with drought tolerant shrubs such as Atriplex and others will be planted near the stone walls and contour bunds where soil moisture is expected to be higher.
15. Public awareness campaigns and training sessions will be delivered to local communities and municipalities on subjects related to water management, use and maintenance of modern irrigation systems, maintenance of flood preventing structures and reservoirs and land cover protection.

Results and Resources Framework (phase I.) Intended Outcome as stated in the Results and Resource Framework: Frameworks and Strategies for Sustainable Development

Applicable Goal:

ATLAS Award ID: 00049117

ATLAS Project ID: 00059666

INTENDED OUTPUTS	OUTPUT TARGETS FOR (YEARS)	INDICATIVE ACTIVITIES	RESPONSIBLE PARTIES	INPUTS
<p>Output 1: Flood risk management in Aarsal-Fakha and water harvesting in North Bekaa. Phase I.</p> <p>Baseline: Only 1 pilot flood management plan implemented over a small area (20 km²)</p> <p>Indicator1: Number of established walls and collection reservoirs.</p> <p>Indicator2: Reduced flow of flood water in Fakhe and Aarsal</p>	<p>Targets (2008)</p> <ul style="list-style-type: none"> - Data collection and Identification of target sites - Modelling study for target area. - Establishment of 1 fruit tree nursery. -At least 3 capacity building workshops of target municipalities. <p>Targets (2009)</p> <ul style="list-style-type: none"> -1 water harvesting assessment completed -Constructions of at least 150 stone walls and excavations for 9 collection reservoirs -Establishment of at least 2 water harvesting lakes and installation of irrigation networks 	<p>1-Project management and coordination</p> <ul style="list-style-type: none"> - Technical, financial and operational management. - Establishment of good partnership with relevant ongoing projects and stakeholders. <p>2-Flood risks management</p> <ul style="list-style-type: none"> - Collection of data and identification of target watersheds. - Mapping of target sites. - Constructions of stone walls, check dams, Gabions and water collection reservoirs. <p>3-Water harvesting</p> <ul style="list-style-type: none"> - Assessment of water resources in baalback Hermel, - Establishment of artificial lakes - Installation of modern and water-use efficient irrigation systems. <p>4- Land cover improvement</p> <ul style="list-style-type: none"> - Nursery establishment, forestation with wild fruit trees in soil erosion sensitive areas <p>5- Capacity building and awareness</p> <ul style="list-style-type: none"> - Empowerment of target municipality to ensure sustainable maintenance of walls and reservoirs. Public awareness on soil conservation and flood prevention and control. 	<p>UNDP/ MoA</p>	<p>297,911.00</p> <p>1091,400.00</p> <p>830,320.00</p> <p>513,600.00</p> <p>101,650.00</p>

Intended Outcome as stated in the Results and Resource Framework: Frameworks and Strategies for Sustainable Development

Applicable Goal:

ATLAS Award ID: 00049117

ATLAS Project ID: 00069789

INTENDED OUTPUTS	OUTPUT TARGETS FOR (YEARS)	INDICATIVE ACTIVITIES	RESPONSIBLE PARTIES	INPUTS
<p>Output 2: Flood risks management and soil conservation in Ras Baalback.</p> <p>Baseline: Only 1 pilot flood management plan implemented over a small area (20 km²)</p> <p>Indicator1: Number of established walls and collection reservoirs.</p> <p>Indicator2: Reduced flow of flood water in Ras Baalback</p>	<p>Targets (2009)</p> <ul style="list-style-type: none"> - 1 modelling study for target area completed. - Technical data collection and mapping of target site completed <p>Targets (2010)</p> <ul style="list-style-type: none"> -Constructions of at least 100 stone walls and excavation for at least 5 collection reservoirs - At least 2 public awareness and capacity building campaigns for 2 target municipalities <p>Targets (2011)</p> <ul style="list-style-type: none"> -Constructions of at least 100 stone walls and excavation for at least 5 collection reservoirs -Increased landcover area by at least 5% in Aarsal and Ras Baalback area. -At least 2 public awareness and capacity building campaigns for 2 target municipalities 	<ol style="list-style-type: none"> 1. Project management and coordination <ul style="list-style-type: none"> - Technical, financial and operational management. - Establishment of good partnership with relevant ongoing projects and stakeholders. 2. Flood risks management <ul style="list-style-type: none"> - Collection of data and identification of target watersheds. - Mapping of target sites. - Constructions of stone walls, check dams, Gabions and water collection reservoirs. 3. Land cover improvement <ul style="list-style-type: none"> - Nursery establishment, forestation with wild fruit trees in soil erosion sensitive areas 4. Capacity building and awareness <ul style="list-style-type: none"> - Empowerment of target municipality to ensure sustainable maintenance of walls and reservoirs. Public awareness on soil conservation and flood prevention and control. 	<p>UNDP</p>	<p>462,240.00</p> <p>3,006,700.00</p> <p>240,750.00</p> <p>90,950.00</p>

PHASE II



Annual Work Plan

Lebanon - Beirut

Award Id: 00049117

Report Date: 24/3/2009

Award Title: Flood Risks Management and Water Harvesting

Year: 2009

Project ID	Expected Outputs	Key Activities	Timeframe		Responsible Party	Planned Budget										
			Start	End		Fund	Donor	Budget Descr	Amount US\$							
00059666	Flood Risks Management and Wat	Flood risk reduction			UNDP (Direct Execution)	30000	LRF	71300	Local Consultants	5,000.00						
						30000	LRF	71600	Travel	5,000.00						
						30000	LRF	72100	Contractual Services-Companie	748,300.00						
						30000	LRF	72200	Equipment and Furniture	80,000.00						
						30000	LRF	72300	Materials & Goods	9,000.00						
						30000	LRF	74500	Miscellaneous Expenses	4,000.00						
						30000	LRF	75100	Facilities & Administration	59,560.00						
						30000	LRF	71300	Local Consultants	17,000.00						
						30000	LRF	71600	Travel	10,000.00						
						30000	LRF	72100	Contractual Services-Companie	692,000.00						
						30000	LRF	72300	Materials & Goods	3,000.00						
						30000	LRF	74500	Miscellaneous Expenses	4,000.00						
						30000	LRF	75100	Facilities & Administration	50,819.00						
						30000	LRF	71300	Local Consultants	25,000.00						
								Irrigation water harvesting			UNDP (Direct Execution)	30000	LRF	71600	Travel	5,000.00
30000	LRF	72100	Contractual Services-Companie	430,000.00												
30000	LRF	72300	Materials & Goods	3,000.00												
30000	LRF	74500	Miscellaneous Expenses	4,000.00												
30000	LRF	75100	Facilities & Administration	50,819.00												
30000	LRF	71300	Local Consultants	25,000.00												
30000	LRF	71600	Travel	5,000.00												
30000	LRF	72100	Contractual Services-Companie	430,000.00												
30000	LRF	72300	Materials & Goods	3,000.00												
30000	LRF	74500	Miscellaneous Expenses	4,000.00												
30000	LRF	75100	Facilities & Administration	32,690.00												
30000	LRF	71300	Local Consultants	15,000.00												
30000	LRF	71400	Contractual Services - Individ	115,000.00												
30000	LRF	71600	Travel	8,000.00												
		Project Management & Coordination			UNDP (Direct Execution)							30000	LRF	72400	Communic & Audio Visual Equip	2,000.00
						30000	LRF	72500	Supplies	6,000.00						
						30000	LRF	72800	Information Technology Equipm	3,000.00						
						30000	LRF	73400	Rental & Maint of Other Equip	19,000.00						
						30000	LRF	74500	Miscellaneous Expenses	3,420.00						
						30000	LRF	75100	Facilities & Administration	12,000.00						
						30000	LRF	71300	Local Consultants	20,000.00						
						30000	LRF	71600	Travel	8,000.00						
								Sust, cap bldg & awareness			UNDP (Direct Execution)	30000	LRF	71300	Local Consultants	20,000.00
												30000	LRF	71600	Travel	8,000.00



Annual Work Plan

Lebanon - Beirut

Award Id: 00049117

Report Date: 24/3/2009

Award Title: Flood Risks Management and Water Harvesting

Year: 2009

Project ID	Expected Outputs	Key Activities	Timeframe		Responsible Party	Planned Budget				
			Start	End		Fund	Donor	Budget Descr	Amount US\$	
		Sust. cap bldg & awareness			UNDP (Direct Execution)	30000	LRF	72500	Supplies	6,000.00
					UNDP (Direct Execution)	30000	LRF	74200	Audio Visual&Print Prod Costs	41,936.00
					UNDP (Direct Execution)	30000	LRF	74500	Miscellaneous Expenses	7,000.00
					UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	5,806.00
TOTAL										
00069789	Flood II	Flood Risks Management			UNDP (Direct Execution)	30000	LRF	71300	Local Consultants	10,000.00
					UNDP (Direct Execution)	30000	LRF	72100	Contractual Services-Companie	100,000.00
					UNDP (Direct Execution)	30000	LRF	72200	Equipment and Furniture	20,000.00
					UNDP (Direct Execution)	30000	LRF	72300	Materials & Goods	2,000.00
					UNDP (Direct Execution)	30000	LRF	74500	Miscellaneous Expenses	1,710.00
					UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	8,600.00
		Land cover improvement			UNDP (Direct Execution)	30000	LRF	71300	Local Consultants	2,000.00
					UNDP (Direct Execution)	30000	LRF	72100	Contractual Services-Companie	20,000.00
					UNDP (Direct Execution)	30000	LRF	72300	Materials & Goods	1,000.00
					UNDP (Direct Execution)	30000	LRF	74500	Miscellaneous Expenses	1,000.00
		Proj,management & coordin			UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	1,750.00
					UNDP (Direct Execution)	30000	LRF	71600	Travel	2,000.00
					UNDP (Direct Execution)	30000	LRF	72200	Equipment and Furniture	10,000.00
					UNDP (Direct Execution)	30000	LRF	72400	Communic & Audio Visual Equip	1,000.00
					UNDP (Direct Execution)	30000	LRF	72500	Supplies	2,000.00
					UNDP (Direct Execution)	30000	LRF	72800	Information Technology Equipm	2,000.00
					UNDP (Direct Execution)	30000	LRF	73400	Rental & Maint of Other Equip	10,000.00
					UNDP (Direct Execution)	30000	LRF	74500	Miscellaneous Expenses	4,000.00
					UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	2,860.00
TOTAL										
GRAND TOTAL										201,920.00
GRAND TOTAL										2,661,451.00



Annual Work Plan

Lebanon - Beirut

Award Id: 00049117 Report Date: 24/3/2009
 Award Title: Flood Risks Management and Water Harvesting
 Year: 2010

Project ID	Expected Outputs	Key Activities	Timeframe		Responsible Party	Planned Budget				
			Start	End		Fund	Donor	Budget Descr	Amount US\$	
00069789	Flood II	Capacity building and aware			UNDP (Direct Execution)	30000	LRF	71300	Local Consultants	6,000.00
					UNDP (Direct Execution)	30000	LRF	72500	Supplies	4,000.00
					UNDP (Direct Execution)	30000	LRF	74200	Audio Visual&Print Prod Costs	25,000.00
					UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	2,730.00
		Flood Risks Management			UNDP (Direct Execution)	30000	LRF	71300	Local Consultants	7,907.00
					UNDP (Direct Execution)	30000	LRF	72100	Contractual Services-Companie	1,340,000.00
					UNDP (Direct Execution)	30000	LRF	72200	Equipment and Furniture	20,000.00
					UNDP (Direct Execution)	30000	LRF	72300	Materials & Goods	4,000.00
					UNDP (Direct Execution)	30000	LRF	74500	Miscellaneous Expenses	2,000.00
					UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	95,753.00
		Land cover improvement			UNDP (Direct Execution)	30000	LRF	71300	Local Consultants	4,000.00
					UNDP (Direct Execution)	30000	LRF	72100	Contractual Services-Companie	150,000.00
					UNDP (Direct Execution)	30000	LRF	72300	Materials & Goods	2,000.00
					UNDP (Direct Execution)	30000	LRF	74500	Miscellaneous Expenses	2,000.00
					UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	11,200.00
		Proj,management & coordin			UNDP (Direct Execution)	30000	LRF	71400	Contractual Services - Individ	150,000.00
					UNDP (Direct Execution)	30000	LRF	71600	Travel	2,000.00
					UNDP (Direct Execution)	30000	LRF	72200	Equipment and Furniture	10,000.00
					UNDP (Direct Execution)	30000	LRF	72400	Communic & Audio Visual Equip	1,000.00
					UNDP (Direct Execution)	30000	LRF	72500	Supplies	1,500.00
					UNDP (Direct Execution)	30000	LRF	72800	Information Technology Equipm	1,000.00
					UNDP (Direct Execution)	30000	LRF	73400	Rental & Maint of Other Equip	12,000.00
					UNDP (Direct Execution)	30000	LRF	74500	Miscellaneous Expenses	3,000.00
					UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	12,635.00
TOTAL										
1,869,725.00										
GRAND TOTAL										
1,869,725.00										



Annual Work Plan

Lebanon - Beirut

Award Id: 00049117

Report Date: 24/3/2009

Award Title: Flood Risks Management and Water Harvesting

Year: 2011

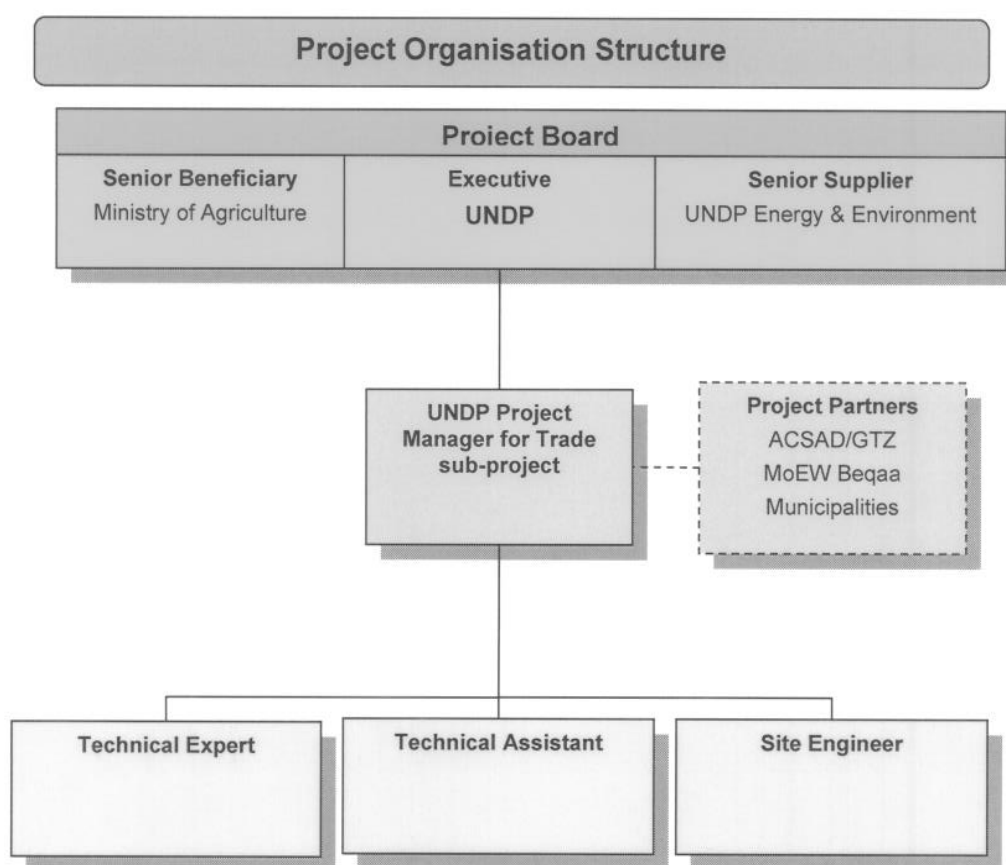
Project ID	Expected Outputs	Key Activities	Timeframe		Responsible Party	Planned Budget					
			Start	End		Fund	Donor	Budget Descr	Amount US\$		
00069789	Flood II	Capacity building and aware			UNDP (Direct Execution)	30000	LRF	71300	Local Consultants	6,000.00	
					UNDP (Direct Execution)	30000	LRF	72500	Supplies	4,000.00	
					UNDP (Direct Execution)	30000	LRF	74200	Audio Visual&Print Prod Costs	20,000.00	
					UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	2,380.00	
					UNDP (Direct Execution)	30000	LRF	71300	Local Consultants	10,000.00	
		Flood Risks Management			UNDP (Direct Execution)	30000	LRF	72100	Contractual Services-Company	1,330,000.00	
					UNDP (Direct Execution)	30000	LRF	72200	Equipment and Furniture	20,000.00	
					UNDP (Direct Execution)	30000	LRF	72300	Materials & Goods	3,785.00	
					UNDP (Direct Execution)	30000	LRF	74500	Miscellaneous Expenses	2,000.00	
					UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	95,185.00	
		Land cover improvement			UNDP (Direct Execution)	30000	LRF	71300	Local Consultants	4,000.00	
					UNDP (Direct Execution)	30000	LRF	72100	Contractual Services-Company	30,000.00	
					UNDP (Direct Execution)	30000	LRF	72300	Materials & Goods	2,000.00	
					UNDP (Direct Execution)	30000	LRF	74500	Miscellaneous Expenses	2,000.00	
					UNDP (Direct Execution)	30000	LRF	75100	Facilities & Administration	2,800.00	
Proj. management & coordin			UNDP (Direct Execution)	30000	LRF	71400	Contractual Services - Individ	150,000.00			
			UNDP (Direct Execution)	30000	LRF	71600	Travel	2,000.00			
			UNDP (Direct Execution)	30000	LRF	72200	Equipment and Furniture	10,000.00			
			UNDP (Direct Execution)	30000	LRF	72400	Communic & Audio Visual Equip	1,000.00			
			UNDP (Direct Execution)	30000	LRF	72500	Supplies	1,500.00			
TOTAL											1,728,355.00
GRAND TOTAL											1,728,355.00

IV. MANAGEMENT ARRANGEMENTS

i. Execution Modality

16. The Project will be executed under the UNDP Direct Execution modality (DEX), whereby UNDP will act as both the implementing and the executing agency in full collaboration with the Ministry of Agriculture.
17. Day-to-day management of the project will be done by the existing project implementation unit (PIU) established by the UNDP project "National Action Programme to Combat Desertification", hosted by the Ministry of Agriculture. The PIU will work under the direct supervision of the Energy and Environment Programme of the UNDP and in close collaboration with the Ministry of Agriculture. The PIU will also work in coordination with the MoEW, concerned municipalities, local beneficiaries and other project partners as specified below. The PIU will be responsible for the overall execution of the project and will be led by a full time national Project Manager, supported by the required project technical assistants. The MoA will provide in-kind contribution in the form of offices, furniture, personnel and cars.
18. International technical backstopping will be undertaken by the Arab Center for the Studies of Arid Zones and Dryland (ACSAD), an autonomous intergovernmental organisation established in 1971, for in watershed modelling, water harvesting techniques, rangeland rehabilitation, reforestation, and water-use efficient irrigation methods. The center was assigned by the Ministry of Agriculture based on the model/pilot flood management project in Al-Qaa area implemented with the Lebanese Ministry of Agriculture and GTZ on which this project in question is based. ACSAD experts not only have access to much critical technical (climatic, topographic, soil and hydrological) data and maps of the region, but are also highly familiar with the target area, can communicate well with the local communities who will be actively participating in the project implementation, and have the experience to deliver good training to the farmers and municipalities in the target site
19. Other short-term National and/or international consultants will be recruited for the above mentioned tasks with emphasis on expertise from collaborating organizations such as MoA, GTZ and ACSAD. The Terms of reference for the proposed consultants are listed in Annex 2.
20. Project partners
The programme shall involve several concerned parties to ensure proper implementation of the programme's phases. These parties are the following:
 - *Government of Spain*: Donor country and international technical backstopper to the proposed programme
 - *United Nations Development Programme* : Implementation agency (technical, management, supervision) of the proposed programme
 - *Ministry of Agriculture*: National project partner (supervision and execution through the NAP to combat desertification project).
 - *Ministry of Energy and Water* : information sharing and coordination
 - German Agency for Technical Cooperation (GTZ): sharing of information and studies, technical backstopping and participation in coordination meetings.
 - Arab Centre for the Studies of Arid Zones and Dry Lands, ACSAD: Modeling of watershed area and technical backstopping in flood risk management.
 - Local Experts : Local consultants, focal points and supervisors
 - Municipalities and local communities: National public institutes or entities and individuals benefiting from the proposed programmes.
21. In accordance with the decisions and directives of UNDP's Executive Board reflected in its Policy on Cost Recovery from Other Resources, the Contribution shall be subject to cost recovery by UNDP for two distinct cost categories related to the provision of support services, namely
UNDP General Management Support recovered with a **flat rate of 7 %** and includes the following services:
 - Project identification, formulation, and appraisal
 - Determination of execution modality and local capacity assessment
 - Briefing and de-briefing of project staff and consultants
 - General oversight and monitoring, including participation in project reviews
 - Receipt, allocation and reporting to the donor of financial resources
 - Thematic and technical backstopping through Bureaus
 - Systems, IT infrastructure, branding, knowledge transfer

22. UNDP Direct costs incurred for **Implementation Support Services (ISS)**, recovered through the **Universal Price List**, as long as they are unequivocally linked to the specific project, these costs are built into the project budget against a relevant budget line and, in the case of clearly identifiable transactional services, charged to the project according to standard service rates. ISS include the following services:
- Payments, disbursements and other financial transactions
 - Recruitment of staff, project personnel, and consultants
 - Procurement of services and equipment
 - Organization of training activities, conferences, and workshops, including fellowships
 - Travel authorization, visa requests, ticketing, and travel arrangements
 - Shipment, custom clearance, vehicle registration, and accreditation
23. The audit of DEX projects is made through the regular external (UN Board of Auditors) or internal audits (audits managed by UNDP's Office of Audit and Performance Review).



ii. UNDP Support Services

In accordance with the decisions and directives of UNDP's Executive Board reflected in its Policy on Cost Recovery from Other Resources, the Contribution shall be subject to cost recovery by UNDP for two distinct cost categories related to the provision of support services, namely

UNDP General Management Support (GMS) recovered with a flat rate of 7% and includes the following services:

- Project identification, formulation, and appraisal
- Determination of execution modality and local capacity assessment
- Briefing and de-briefing of project staff and consultants

- General oversight and monitoring, including participation in project reviews
- Receipt, allocation and reporting to the donor of financial resources
- Thematic and technical backstopping through Bureaus
- Systems, IT infrastructure, branding, knowledge transfer

UNDP direct costs incurred for **Implementation Support Services (ISS)**, recovered through the Universal Price List, as long as they are unequivocally linked to the specific project, these costs are built into the project budget against a relevant budget line and, in the case of clearly identifiable transactional services, charged to the project according to standard service rates. ISS include the following services:

- Payments, disbursements and other financial transactions
- Recruitment of staff, project personnel, and consultants
- Procurement of services and equipment
- Organization of training activities, conferences, and workshops, including fellowships
- Travel authorization, visa requests, ticketing, and travel arrangements
- Shipment, custom clearance, vehicle registration, and accreditation

iii. Audit

The audit of DEX projects is made through the regular external (UN Board of Auditors) or internal audits (audits managed by UNDP's Office of Audit and Performance Review).

V. MONITORING FRAMEWORK AND EVALUATION

24. UNDP CO will undertake periodic monitoring of the implementation progress through regular meetings with the project team. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion and to ensure smooth implementation of project activities. Furthermore, UNDP CO will be responsible for financial monitoring and reporting on all disbursements of the programme, and will ensure continued reporting to the Government of Lebanon/Lebanon Recovery Fund and the Donor Country. Financial disbursements and auditing, as well as the procurement of goods and services, and the recruitment of personnel shall be based on UNDP procedures and guidelines.
25. Monitoring will be a continuous and systematic process review of the various activities and will be intended to (i) measure input, output, and performance indicators; (ii) provide regular and up-to-date information on the progress towards meeting the overall Project Objectives; (iii) alert the implementing partners with problems in implementation, and provide basis on which performance may be improved, and (iv) determine whether the relevant stakeholders are responding as expected.
26. The regular reporting from the Project is governed by UNDP reporting requirements, and will include the following reports:
 - i. Six-monthly progress reports which will reflect progress on works, goods procured, technical assistance, performance indicators and financial reports;
 - ii. Annual Project Progress Report (APR) as per UNDP format to be submitted annually as of project initiation. [The APR will be discussed during the annual Tripartite Project Review (TPR) meeting in the presence of project donors, national counterparts and all concerned stakeholders.]
 - iii. Final Project Evaluation Report carried out by an independent external consultant
27. Furthermore, a number of timely milestone review events will be undertaken in the presence of project donors, national counterparts and all concerned stakeholders and beneficiaries. These events will include: i) a Project Inception workshop, ii) an Annual Tripartite Project Review (TPR) meeting, and iii) a Terminal Project workshop.

i. **Quality Management for Project Activity Results**

Below is a preliminary Quality Management table for the project. This table shall be further refined during the initiation phase of the project.

OUTPUT 1: Flood risk management in Aarsal-Fakha and water harvesting in North Bekaa. Phase I.		
Activity Result 1	<i>Project Management</i>	Start Date: February 2008 End Date: December 2009
Purpose	<i>Ensure the smooth technical and operational management of the project and build partnership with project stakeholders</i>	
Description	<ul style="list-style-type: none"> • Technical, financial and operational management. • Establishment of good partnership with relevant ongoing projects and stakeholders 	
Quality Criteria	Quality Method	Date of Assessment
Positive performance of personnel	Positive evaluation of project team	End of first quarter
TORs and RFQs issued	Qualified contractors/consultants selected	Last quarter
Capacity of stakeholders built	Stakeholder questionnaires	Last quarter
Activity Result 2	<i>Flood Risks Management</i>	Start Date: February 2008 End Date: December 2009
Purpose	<i>Reduce risks and damages caused by flash floods in Baalback-Hermel</i>	
Description	<ul style="list-style-type: none"> - Collection of data and identification of target watersheds. - Mapping of target sites. - Constructions of stone walls, check dams, Gabions and water collection reservoirs. 	
Quality Criteria	Quality Method	Date of Assessment
Recruitment of qualified consultants and contractors	Clear TORs	First quarter
Collection of data from reliable sources	Coordination and information exchange	Second quarter
Number and quality of established walls and lakes	Supervision, photographs and field visits	Last quarter
Activity Result 3	<i>Water Harvesting</i>	Start Date: February 2008 End Date: December 2009
Purpose	<i>Improve availability of irrigation water during summer</i>	
Description	<ul style="list-style-type: none"> - Assessment of water resources in baalback Hermel, - Establishment of artificial lakes - Installation of modern and water-use efficient irrigation systems. 	
Quality Criteria	Quality Method	Date of Assessment
Volume of harvested water	Measurements and Observations	Last quarter
Activity Result 4	<i>Land cover improvement</i>	Start Date: February 2008 End Date: December 2009
Purpose	<i>Increase vegetative cover and reduce soil erosion</i>	
Description	- Nursery establishment, forestation with wild fruit trees in soil erosion sensitive areas	
Quality Criteria	Quality Method	Date of Assessment
Number of trees and forested area	GIS maps	Last quarter
Activity Result 5	<i>Capacity building and awareness</i>	Start Date: February 2008 End Date: December 2009
Purpose	<i>Create awareness and insure sustainability of structures</i>	
Description	Empowerment of target municipality to ensure sustainable maintenance of walls and reservoirs. Public awareness on soil conservation and flood prevention and control.	

Quality Criteria	Quality Method	Date of Assessment
Participation and involvement of local communities	Workshops, training, brochures	Last quarter

OUTPUT 2: Flood risks management and soil conservation in Ras Baalback.		
Activity Result 1	<i>Project Management</i>	Start Date: February 2009 End Date: December 2011
Purpose	<i>Ensure the smooth technical and operational management of the project and build partnership with project stakeholders</i>	
Description	<ul style="list-style-type: none"> • Technical, financial and operational management. • Establishment of good partnership with relevant ongoing projects and stakeholders 	
Quality Criteria	Quality Method	Date of Assessment
Positive performance of personnel	Positive evaluation of project team	End of first quarter
TORs and RFQs issued	Qualified contractors/consultants selected	Last quarter
Capacity of stakeholders built	Stakeholder questionnaires	Last quarter
Activity Result 2	<i>Flood Risks Management</i>	Start Date: February 2009 End Date: December 2011
Purpose	<i>Reduce risks and damages caused by flash floods in Baalback-Hermel</i>	
Description	<ul style="list-style-type: none"> - Collection of data and identification of target watersheds. - Mapping of target sites. - Constructions of stone walls, check dams, Gabions and water collection reservoirs. 	
Quality Criteria	Quality Method	Date of Assessment
Recruitment of qualified consultants and contractors	Clear TORs	First quarter
Collection of data from reliable sources	Coordination and information exchange	Second quarter
Number and quality of established walls and lakes	Supervision and field visits	Last quarter
Activity Result 3	<i>Land cover improvement</i>	Start Date: February 2009 End Date: December 2011
Purpose	Increase vegetative cover and reduce soil erosion	
Description	- Nursery establishment, forestation with wild fruit trees in soil erosion sensitive areas	
Quality Criteria	Quality Method	Date of Assessment
Number of trees and forested area	GIS maps	Last quarter
Activity Result 4	<i>Capacity building and awareness</i>	Start Date: February 2009 End Date: December 2011
Purpose	<i>Create awareness and insure sustainability of structures</i>	
Description	Empowerment of target municipality to ensure sustainable maintenance of walls and reservoirs. Public awareness on soil conservation and flood prevention and control.	
Quality Criteria	Quality Method	Date of Assessment
Participation and involvement of local communities	Workshops, training, brochures	Last quarter

VI. LEGAL CONTEXT

This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Lebanon and the United Nations Development Programme, signed by the parties on 10 February 1986.

The UNDP Resident Representative in Lebanon is authorized to effect in writing the following types of revisions to the Project Document, after consultation with the project partners:

- Revision of, or addition to, any of the annexes to the Project Document;
- Revisions which do not involve significant changes to the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of inputs already agreed to or by cost increases due to inflation;
- Mandatory annual revisions which re-phase the delivery of agreed project outputs or increased expert or other costs due to inflation, or take into account agency expenditure flexibility; and
- Inclusion of additional annexes and attachments

VII. RISK ANALYSIS

#	Description	Date Identified	Type	Impact & Probability (1= low, 5=high)	Countermeasures / Mngt response	Owner	Submitted, updated by	Last Update	Status
1	Increase in fuel prices and excavations costs	Project initiation date	Financial	<i>This will affect the budget of the project</i> P = 2 I = 5	<i>Modifications in the flood management plan including number and volume of lakes</i>	UNDP			
2	Political differences among target communities	Project initiation date	Political	<i>This will delay the project implementation</i> P = 1 I = 5	Close coordination with local communities at all levels	UNDP			
3	Landownership problems	Project initiation date	Operational	<i>This will affect the project's workplan</i> P = 3 I = 5	Look for public locations and coordination with the municipality.	UNDP			
5	Political instability and security situation in the country	Project initiation date	Political	Political or security changes can hinder access to site and delay in receiving legal issues P = 4 I = 5	Close coordination with UN DSS	UNDP			

Terms of Reference

Contractual Services for FLOOD RISK MANAGEMENT EXPERTS (ACSAD)

I. Background

Within the context of the project “Flood Risk Prevention and Management in Baalback-Hermel” executed by the United Nations Development Program (UNDP,) Lebanon Country Office wishes to contract the services of experts in flood risk management and prevention.

The goal of the project “Flood Risk Prevention and Management in Baalback-Hermel” is to assist the government of Lebanon in its recovery efforts in the conflict-affected and desertification-prone region of Baalback-Hermel through better land management practices, namely: flood risk reduction, improvement of vegetation cover and conservation of soil and moisture.

The Project includes four major outputs namely:

- 1- Establish Coordination and linkages with relevant projects executed in the target area.
- 2- Flood risk management and prevention
- 4- Improvement of land cover and reduction of soil erosion.
- 5- Building the capacity of target communities and raising public awareness.

II. Scope of Work

Under the supervision of the project manager and through the management of UNDP office in Lebanon, the contracting organization shall undertake the following tasks:

1. Prepare and provide all needed geographical and hydrological data for the target region including information about topography, soil types and characteristics, land cover, soil erosion sensitive areas and climatic data.
2. Study and analyze the hydrologic parameters of the project area, taking into consideration the various prepared maps
3. Study the topography of the project area through field visits and using suitable topographic maps.
4. Propose appropriate flood control measures for the target area and specify their technical details.
5. Define and design hydraulic structures needed for flood risk management in target area.
6. Utilize simulation models capable of predicting runoff information based on rainfall records.
7. Preparing relevant hydrological and modelling maps showing all information (location, kind of structure, etc.) of the proposed flood control measures
8. Supervise the execution phase of the project until completion of the project field work related to flood management
9. Preparation of bills of quantities and cost estimations of the proposed reservoirs.
10. Preparing a tentative work plan for the implementation
11. Prepare a technical report, including all relevant information, which are required for the implementation of various measures
12. Propose measures for the maintenance and protection of the constructions.
13. Assist the project staff in the process of capacity building and awareness raising of target communities.

All tasks will be carried out in close cooperation with the project implementation unit, UNDP, GTZ, the Ministry of Agriculture and the UNRC hub in Bekaa.