



Development Programme

Country: LEBANON

PROJECT DOCUMENT

**Project Title: Sustainable Land Management in the Qaraoun Catchment, Lebanon**

**UNDP Strategic Plan Environment and Sustainable Development Primary Outcome:**

Outcome 1: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded.

**Expected CPD Outcome(s):** Environmental considerations are mainstreamed in sector/local-level strategies/plans

**Executing Entity:** Ministry of Environment

**Implementing Entities/Responsible Partners:** United Nations Development Programme

**Brief Description**

The project will set a goal of wise land use on a sustainable long-term basis for the Qaraoun Catchment by developing institutional tools upstream at national level which will provide the Ministry of the Environment and the Ministry of Agriculture as well as related agencies such as the Commission for Development and Reconstruction (CDR), the Ministry of Interior and Municipalities, the Bekaa Governorate, and District Administrations and Municipalities in West Bekaa, Zahle and Rachaya Districts with the know-how, means and mechanisms for promoting sustainable land use as in the best interest of the land owners, farmers and communities as well as the nation. Land-use plans at the landscape level will benefit from the project through the identification of land productivity values and ecosystem services and how they can be protected, and an effective monitoring system will be established to maintain all data up to date and discover any worrying trends before they become irreversible. At site-specific level, forests, rangelands and arable land that are currently weakly managed and poorly funded will benefit from comprehensive land use plans that will provide information and education as well as livelihoods and financial security.

The implementation of the proposed project will have an immediate global environmental benefit, albeit on a small scale, through the increased management efficiency of arable land and rangelands and the expansion of the area under forests through land use plans, buffer zones, and riparian strips. This will lead to the restoration of natural productivity and conservation of the habitats of a number of plant and animal species and valuable ecosystems and will secure migratory bird pathways. As a result, globally significant biodiversity will be conserved and valuable ecosystem services will be safeguarded.

As a result of the significant effort that the project will make on institutional capacity building and the mainstreaming of a sustainability ethic into land use, these benefits will be sustainable.

Programme Period:	2014-2017	Total resources required	21,237,671USD
Atlas Award ID:	00081592	Total allocated resources:	21,237,671USD
Project ID:	00090788	<i>Contributions</i>	<i>3,487,671USD</i>
PIMS #	4642	o GEF	3,187,671USD
Start date:	January 2015	o UNDP as IA	300,000USD
End Date	December 2018	<i>Contributions (parallel)</i>	<i>17,750,000USD</i>
Management Arrangements	Support to NIM	o Government	17,600,000USD
PAC Meeting Date	21 August 2014	o UNDP	150,000USD

Agreed by Council for Development and Reconstruction: Mr. Nabil el-Jisr, President

Date/Month/Year

Agreed by Ministry of Environment: H.E. Mr. Mohamad Al Mashnouk, Minister

Date/Month/Year

Agreed by (UNDP): Mr. Luca Renda, Country Director



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## ACRONYMS AND ABBREVIATIONS

AFDC	Association for Forests, Development and Conservation
APAC	Appointed Protected Area Committees
APIPNM	Asia-Pacific network on Integrated Plant Nutrient Management
APR/PIR	Annual Performance Report / Project Implementation Review
ARDP	Agriculture and Rural Development Project
BWE	Bekaa Water Establishment
CAS	Central Administration for Statistics
CBO	Community Based Organization
CC	Climate Change
CDR	Council for Development and Reconstruction
DDT	Dichlorodiphenyltrichloroethane
DGUP	Directorate General of Urban Planning
DRNDR	Directorate of Rural Development and Natural Resources
EA/IP	Executing Agency/Implementing Partner
EIA	Environmental Impact Assessment
EU	European Union
FAO	Food and Agriculture Organization (of the UN)
GDP	Gross Domestic Product
GEF	Global Environment Fund
GHG	Green House Gases
GIS	Geographic Information System
GIZ	Gesellschaft für Internationale Zusammenarbeit
ha	Hectare
HCUP	Higher Council of Urban Planning
IA	Implementing Agency (of the GEF)
IBA	Important Bird Area
IDAL	Investment Development Authority of Lebanon
ILUMP	Integrated Land Use Management Plan
INRM	Integrated Natural Resource Management
ISF	Internal Security Forces
IUCN	International Union for Conservation of Nature
LARI	Lebanese Agricultural Research Institute
LD	Land Degradation
LEPAP	Lebanon Pollution Abatement Project
LRA	Litani River Authority
LRI	Lebanon Reforestation Initiative
LTL	Local Team Leader
LUIMS	Land Use Information Management System
LUP	Land Use Plan
MAP	Medicinal and Aromatic Plants
M&E	Monitoring and Evaluation
MoA	Ministry of Agriculture
MoE	Ministry of Environment
MOEW	Ministry of Energy and Water
MOIM	Ministries of Interior and Municipalities
MOPWT	Ministry of Public Works and Transport
NAP	National Action Programme (to Combat Desertification)
NFP	National Focal Point
NGO	Non-Governmental Organization
NLUMP	National Land Use Master Plan
NRP	National Reforestation Plan
OWL	Other Wooded Lands
PEB	Project Executive Board

PIF	Project Identification Form
PM	Project Manager
PMU	Project Management Unit
RSCN	Royal Society for the Conservation of Nature
SEA	Strategic Environment Assessment
SLM	Sustainable Land Management
SMART	Specific, Measureable, Achievable, Relevant, Time-bound (of Indicators)
SPNL	Society for the Protection of Nature in Lebanon
TAG	Technical Advisory Group
UNCCD	United Nations Convention to Combat Desertification
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNESCO	United Nations Education Scientific and Cultural Organization
UN-HABITAT	United Nations Human Settlement Programme
UNHCR	United Nations High Commissioner for Refugees
USAID	United States Agency for International Development
USD	United State Dollar

# 1 SITUATION ANALYSIS

## 1.1 Introduction

The Government of Lebanon is requesting GEF funds to address the problem of land degradation in the Bekaa Valley, more specifically in the Qaraoun Catchment.

The catchment is a critical source of water for urban use and food production, an important source of ecosystem services and a habitat for threatened biodiversity. But notwithstanding this significance, the catchment suffers from accelerating land degradation, which is undermining ecosystem functions and derivative services. Land degradation is attributable to historic deforestation, excessive firewood collection, overgrazing, expansion of urban settlements, and inappropriate infrastructure placement.

As noted by the National Action Programme to Combat Desertification<sup>1</sup>, development and productivity are essential but should not be at the expense of the environment and the project is designed to engineer a paradigm shift from unsustainable to sustainable land management in the Qaraoun Catchment. The project will promote an integrated approach towards fostering sustainable land management – seeking to balance environmental management with development needs. Amongst other things, it will set-up a multi-sector planning platform to balance competing environmental, social and economic objectives in district development plans and associated investments. In doing so, it will reduce conflicting land-uses and improve the sustainability of land management so as to maintain the flow of vital ecosystem services and sustain the livelihoods of local and downstream communities. Land use plans will be underpinned by a robust decision support system, including a Strategic Environmental Assessment, and a monitoring framework which will inform the planning process, development investments and enforcement. This will help determine where development should be avoided (in the most ecologically sensitive areas), where and how impacts should be reduced, and where and how land should be rehabilitated. The project will also adapt land use practices in different economic sectors – testing new land management measures to reduce environmental stress.

The project advances the strategic objectives of the UNCCD 10-year strategic plan namely: 1) To improve the living conditions of affected populations; 2) To improve the condition of affected ecosystems; 3) To generate global benefits through effective implementation of the UNCCD.

## 1.2 The Lebanese environment

### 1.2.1 The physical environment

Lebanon has a total land area of 10,452 km<sup>2</sup>, and lies entirely within the Mediterranean Basin Ecoregion. It is situated east of the Mediterranean Sea and has a coastline of 210 km and stretches 50 km inland (Figure 1).

Jurassic, Cretaceous and Tertiary Karstic limestone, Cretaceous and Quaternary sandstone, and Conglomerate make up most of Lebanon's geology. Carbonated rock formations make up more than two-thirds of the territory. These make up most of the mountain ranges making them exposed to groundwater contamination. The agricultural plains of the Bekaa Valley contain Terra-Rossa and Rendzinas soils as the most prevalent. Soils in Lebanon are young and shallow and have a poor consistency. Soil degradation and soil erosion may result from natural and anthropogenic factors that hamper soil fertility<sup>2</sup>.

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<sup>1</sup> Ministry of Agriculture, Lebanon (2003) *National Action Programme to Combat Desertification*.

<sup>2</sup> UNDP / MOE / ECODIT (2011) *State and Trends of the Lebanese Environment*

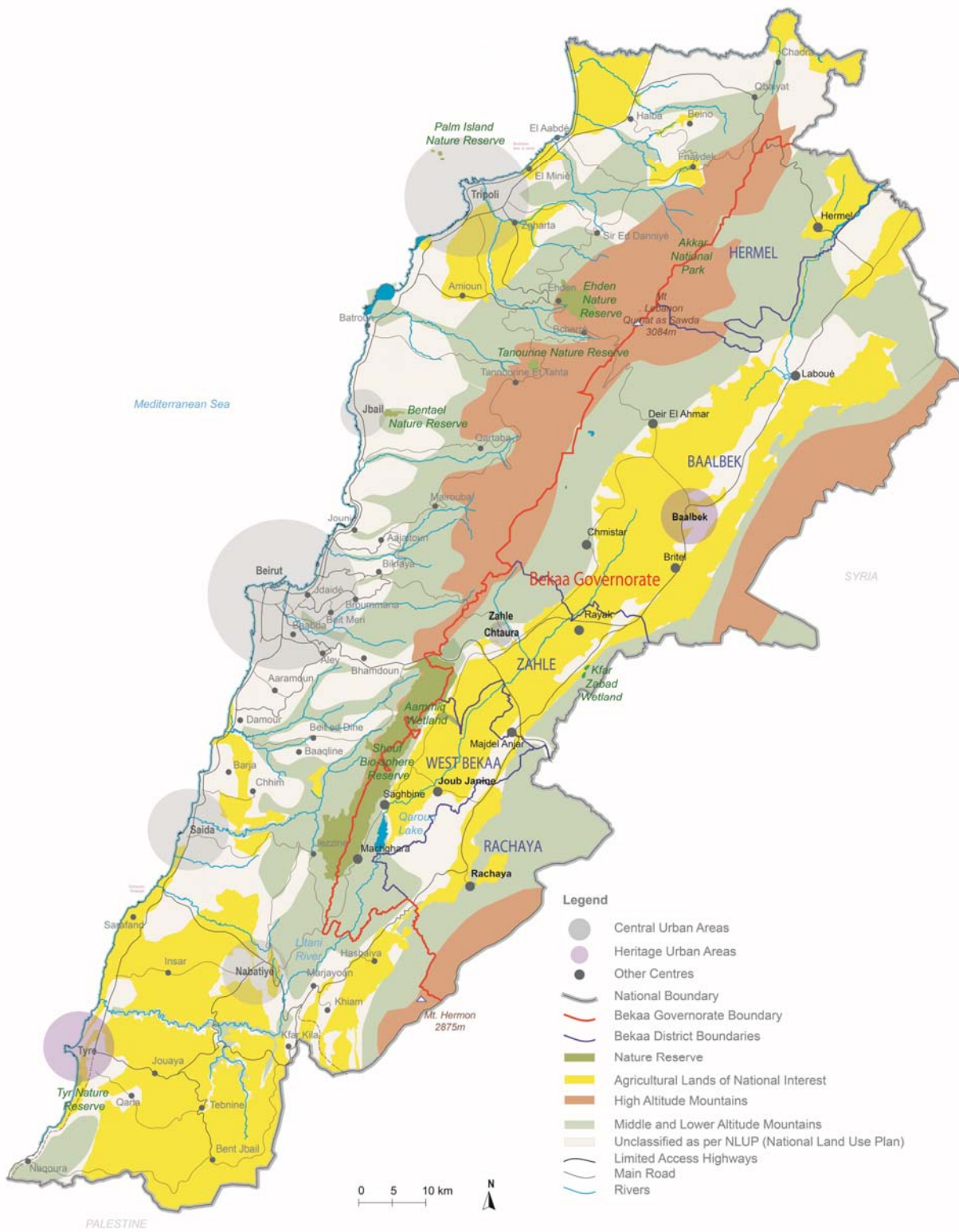


Figure 1 Map of Lebanon



The lands bordering the Mediterranean Sea in southern Europe, North Africa, and western Asia constitute the Mediterranean Basin Eco-region and share a climate characterized by generally mild, rainy winters and hot, dry summers. Lebanon has a Mediterranean climate influenced by the Asian monsoon, with rainy winters and long hot dry summers. In the western areas of Lebanon, the climate is typical maritime coastal whereas the eastern side exhibits continental characteristics<sup>3</sup>.

Precipitation averages 840 mm/year, an amount that may appear relatively large in comparison to neighbouring countries but which masks high temporal and spatial disparities. Temporally, precipitation occurs during a short period (about 80 rainy days between September and May). Spatially, it is not evenly distributed – varying from 200 mm/year in the northern inland region to more than 1,500 mm/year on the peaks of Mount Lebanon. 40% of Lebanon is arid and semi-arid, 20% is dry-sub-humid and 40% is sub-humid and humid.

## 1.2.2 Ecosystems and biodiversity

The Mediterranean Basin is considered as one of 25 biodiversity global hotspots by Conservation International<sup>4</sup>. The mosaic of Mediterranean forests, woodlands and scrub are home to 25,000 vascular plant species of which 13,000 are endemic. In Lebanon, 9,119 species have been documented - 4,633 flora and 4,486 fauna. Of these species, 96 are considered rare or threatened. Eleven tree species are on the IUCN red list at low risk levels while *Arbutus*, *Ceratonia*, *Pistacia*, *Pinus*, *Quercus* and *Laurus* are among the surviving remnants of ancient forests<sup>5</sup>.

Of the 61 mammal species recorded in Lebanon, 10 are already extinct while the wild cat, the mongoose, and the squirrel are close to becoming extinct. Out of 395 species of birds, three have vanished, 25 are threatened, 126 are rare, eight are vulnerable, 17 are nearly threatened, two are endangered, and one is critically endangered. There are seven amphibian and 55 reptile species, of which two and seven respectively are threatened. Of the 25 freshwater fish species one is considered vulnerable, three are endangered, and two are critically endangered<sup>6</sup>.

The country makes up only 0.007% of the world land surface area but is home to 1.11% of world plant species and 2.63% of reptile, bird and mammal species. Lebanon's floral diversity is one of the highest in the Mediterranean, a region which is considered to be one of the most biologically diverse in the world. About 12% of plant species in Lebanon are endemic and this is considered a high rate of endemism. Lebanon is also home to nine nature reserves, three biosphere reserves, one UNESCO World Heritage Site and 15 Important Bird Areas (IBAs) recognized by Birdlife International<sup>7</sup>.

The Mediterranean Eco-region containing Lebanon counts as one of the world's most endangered with only 4% of the original vegetation remaining intact. Human induced pressures, including overgrazing, deforestation and conversion of land for pasture, agriculture, or urban settlement have resulted in widespread land degradation. Formerly, these lands were largely cloaked by forests and woodlands, but human actions have reduced much of the area to sclerophyll shrublands.

Most of the country's forests are located in two mountain ranges, Mount Lebanon and the Anti-Lebanon massif. These ranges are considered as the 'water towers' of Lebanon as they provide crucial water provisioning services and quality regulation services vital to the economy<sup>8</sup>.

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<sup>3</sup> MOE / GEF / UNDP (2011) Lebanon's Second National Communication to the UNFCCC

<sup>4</sup> Myers, N, et. al. (2000) Biodiversity Hotspots for Conservation Priorities. *Nature*, Vol403, 24 February 2000. See also [http://www.conservation.org/where/priority\\_areas/hotspots/europe\\_central\\_asia/Mediterranean-Basin/Pages/default.aspx](http://www.conservation.org/where/priority_areas/hotspots/europe_central_asia/Mediterranean-Basin/Pages/default.aspx)

<sup>5</sup> MOE / GEF / UNDP (2011) Lebanon's Second National Communication to the UNFCCC

<sup>6</sup> Ibid

<sup>7</sup> UNDP / MOE / ECODIT (2011) State and Trends of the Lebanese Environment

<sup>8</sup> Beydoun, Genane Younes (FAO) and Estephan, Jean (MOA) (Undated) National Forest Assessment Program

There are four Ramsar Wetlands of International Importance in Lebanon: Tyre Coast Nature Reserve (380 ha), Aammiq wetland (280 ha), Raas El Chaqaa, and Palm Islands Nature Reserve (420 ha). Due to excessive abstraction, groundwater levels have decreased, risking the drying up of wetlands including these important ones<sup>9</sup>.

### 1.2.3 The socio-political environment

The population of Lebanon increased from 2.6 million in 1980 to 4.3 million in 2010. It is expected that the population will keep increasing and may reach 5.3 million by 2050. The annual population growth rate of Lebanon during 1980-2010 fluctuated between 0.2% and 4.18%. Urban population increased from 73.7% to 87.1% between 1980 and 2010. This percentage is expected to increase to 91.2% by 2050<sup>10</sup>.

As a result of the civil war in Syria, the past two years have seen a massive influx of refugees into Lebanon. According to UNHCR, there are currently over one million registered refugees in Lebanon, almost 25% of the Lebanese population. Around 280,000 of these refugees are currently residing in the Bekaa, many in informal settlements and lacking basic services.

Lebanon is a service-based economy, the service sector accounting for almost 70% of GDP and industry for 18%. Agriculture in Lebanon is the third most important sector in the country. It contributes 7% to the country's GDP and employs 15% of the population.

Around 300,000 people in Lebanon (8% of the population) are considered to be living under conditions of extreme poverty; while 28.5% are considered relatively poor. The poverty rate of the Bekaa Valley is almost equal to the national rate at 29%. The Gini coefficient of Lebanon is estimated at 0.36 for real consumption; while it stands at 0.336 in the Bekaa. The Theil index of Lebanon is estimated at 0.215; and that of the Bekaa is 0.1887<sup>11</sup>.

The land under agriculture production amounts to 248,000 ha (25% of the country) and 144,000 ha of this are irrigated. The following table shows the most traditional common crops grown in Lebanon.

**Table 1. Crop Production in Lebanon<sup>12</sup>**

Crop	Production (Tons/Year)	Varieties
Olive	117,330	12+
Cereals	116,200	10+
Barley	33,100	
Potato	514,600	5+
Citrus	3,451,000	24+
Grapes	106,000	30+
Apples	125,200	2+
Cherry	30,000	5+
Apricot	32,000	5+
Almond	29,400	2+
Banana	89,700	2+

<sup>9</sup> Karam, Fadi (undated) Climate Change and Variability in Lebanon: Impact on Land Use and Sustainable Agriculture Development

<sup>10</sup> ESCWA 2012 (Undated) The Demographic Profile of Lebanon

<sup>11</sup> UNDP (Undated), Poverty, Growth and Income Distribution in Lebanon

<sup>12</sup> UNDP / MOE / ECODIT (2011) State and Trends of the Lebanese Environment

Newly introduced crops such as kiwi fruit, avocado, and custard apple have been replacing citrus plantations and are reaching local and international markets. There are other crops that can be easily adapted to the Lebanese climate but the lack of exploitation and mechanization has prevented them from being a reliable export. Such crops include wild almond, pear, plums, pistachio, fig, walnut, pomegranate, carob and apple<sup>13</sup>.

Forests cover 137,000 ha (13%) of land, down from a historic coverage of 74%, while other woodlands make up 160,000 ha. Rangeland makes up 52% (645,160 ha) of land cover in total. Of this, 400,000 ha are considered prime rangeland<sup>14</sup>.

Although there has been little change in forest cover over the past ten years (reforestation measures have balanced out illegal logging, reconstruction and forest fires), urbanization, infrastructure development, human intervention, and overgrazing have contributed to the degradation and fragmentation of forests. High density forests have decreased by 0.4% annually while annual reforestation is estimated at 0.83% leading to a small net gain annually<sup>15</sup>.

The majority of livestock production is located in the Bekaa where the lack of permanent pastures has resulted in shepherds letting their livestock graze in forests, wooded lands, and agriculture areas. This is a major factor contributing to the degradation of vegetation cover, particularly in mountainous ecosystems. The depletion of vegetation cover has jeopardized the possibility for self-regeneration<sup>16</sup>

Development all over Lebanon, but mainly in and around forested areas, also threatens green cover. Pine forests are shrinking rapidly to make way for buildings and resorts that are paradoxically marketed and advertised for being located in a green oasis or surrounded by forests. Despite the fact that building projects try to restore the lost greenery through landscaping, they usually use imported or introduced species that are not well suited for Lebanon<sup>17</sup>.

#### 1.2.4 The Qaraoun Catchment

The Qaraoun Catchment (described fully in Annex 1) lies within the Bekaa Valley and spans parts of four districts – Baalbek, Zahle, West Bekaa and Rachaya. It includes the eastern slopes of the Mount Lebanon Range, part of the Bekaa Valley and the western slopes of the Anti-Lebanon Range.<sup>18</sup> It comprises the headwaters and main catchment area of the Litani River, the country's largest and longest river, up to where it discharges into the man-made Qaraoun Lake. The Litani River and Qaraoun Lake are considered to be the most important sources of fresh water in Lebanon with 350,000 people in 161 communities being dependent on the surface and groundwater resources of the river basin for drinking water.<sup>19</sup> The Catchment straddles an altitudinal range between 800 m and 2,615 m and extends over an area of 1,468 km<sup>2</sup>. Average rainfall is about 800 mm a year with precipitation being the highest in the western mountains with an annual rainfall of about 1,500 mm<sup>20</sup>.

The Catchment has limited forest cover with 18,756 ha of natural forests, wetlands and associated ecosystems (12% of the catchment), 77,908 ha of agricultural land (50%), 55,585 ha of rangelands (35%), and 4,751 ha are built-up areas (3%). Calliprine Oak (*Quercus calliprinos*) forests and

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<sup>13</sup> *Ibid*

<sup>14</sup> Darwish, T. and Faour, G. (2008) Rangeland Degradation in Two Watersheds of Lebanon, Lebanese Science Journal V. 9, No. 1, 2008, 71-80

<sup>15</sup> UNDP / MOE / ECODIT (2011) State and Trends of the Lebanese Environment

<sup>16</sup> MOE / GEF / UNDP (2011) Lebanon's Second National Communication to the UNFCCC

<sup>17</sup> UNDP / MOE / ECODIT (2011) State and Trends of the Lebanese Environment

<sup>18</sup> *Ibid*

<sup>19</sup> Ramadan, Hamzeh (2012) Climate Effects on the Litani Basin Watershed in Lebanon. PhD Thesis Concordia University

<sup>20</sup> Forward Program (2003) Water Quality Assessment of the Upper Litani River Basin and Lake Qaraoun Lebanon

Gregian Juniper (*Juniperus excels*) forests are found on the eastern slopes of Mount Lebanon with Calliprine Oak forest predominating on the western slopes of the Anti-Lebanon range.

Sheep and goats constitute the main livestock in the area and 75% of their diet is provided through grazing on the rangelands. Lands dedicated to grazing or which could potentially be used as grazing lands make up a high percentage of the Bekaa Governorate. Goat and sheep shepherds graze their flocks in rangelands, forests, especially open woodlands, and on agricultural lands (fallow lands and consumption of agricultural remains). Key products related to rangelands management include dairy and meat.

The population of the Bekaa Valley is estimated to be 533,305 (13.5% of the total Lebanese population) with an average population density of 110 person/km<sup>2</sup>. According to the latest national survey in 2004, males comprised 50.7% of the population of Bekaa, some 28% of the population was under the age of 15 and the average household size was 4.6 persons.

Economic activity rate for Bekaa residents is 37.7% - 64.2% for males and 10.9% for females. The service sector attracts the highest percentage of the local labour force. The average literacy rate of the Bekaa is 85.4% - 90.5% for males and 80.2 % for females.

The Qaraoun Catchment rangelands are stressed and overgrazed, especially in the West Bekaa and Zahle districts. The continuous irrational use of these rangelands impacts the services they provide, some of which, such as milk, meat and honey production are the main income for hundreds of families within the Catchment. In addition, healthy rangelands preserve soils and affect the groundwater recharge capacities.

### 1.2.5 Ecosystem functions and services in the Qaraoun Catchment

According to TEEB<sup>21</sup> ecosystem services are the direct and indirect contributions of ecosystems to human well-being which support human survival and quality of life. The Qaraoun Catchment landscape and ecosystems provide a number of services and these are summarized in the following Figure.

**Figure 2. Ecosystem services in the Qaraoun Catchment**

SUPPORTING		
<p><b>Nutrient cycling:</b> Natural processes, especially water, serve as agents for nutrient cycling; plants capture and store nutrients temporarily</p> <p><b>Soil formation:</b> Ecosystem processes generate and preserve soils and renew their fertility</p> <p><b>Primary production:</b> Forests and rangeland grasslands serve as the basis of the food chain</p>		
PROVISIONING	REGULATING	CULTURAL
<p><b>Food:</b> Rangelands provide food for stock and in turn serve as food for humans; insects serve as pollination agents</p> <p><b>Fresh water:</b> Numerous freshwater springs, including those that give rise to the Litani River</p> <p><b>Wood and fibre:</b> Forests managed for sustainability, provide wood</p> <p><b>Fuel:</b> Forests managed for sustainability, provide fuelwood</p> <p><b>Medicine:</b> Forests and rangelands provide medicinal herbs and potions</p> <p><b>Habitat:</b> Wetlands provide habitat for migratory species</p> <p><b>Biodiversity:</b> natural ecosystems maintain the viability of gene-pools, and biological diversity; natural agents disperse seeds</p>	<p><b>Climate regulation:</b> Forests and grasslands sequester CO<sub>2</sub>, moderate weather extremes and impacts, and contribute to climate stability</p> <p><b>Flood regulation:</b> Vegetative land cover soaks up rainwater and mitigates flood events</p> <p><b>Water purification:</b> Riparian vegetation filters nutrients and other impurities from run-off water, providing waste management and detoxification</p> <p><b>Erosion control:</b> Forests and grasslands bind soil and prevent erosion</p> <p><b>Pest control:</b> Birds control insect pests; some plants inhibit plant pests; natural systems regulate disease-carrying organisms</p>	<p><b>Aesthetic:</b> Forests, rangelands, wetlands and other natural ecosystems provide a pleasing and appealing environment</p> <p><b>Spiritual:</b> Natural landscapes are mystical and inspirational</p> <p><b>Educational:</b> Natural ecosystems serve as outdoor teaching laboratories; they provide for intellectual development</p> <p><b>Recreational:</b> Forests and highlands provide opportunities for hiking, horse trekking and other outdoor pursuits</p>

<sup>21</sup> The Economics of Ecosystems and Biodiversity (TEEB). See <http://www.teebweb.org/resources/ecosystem-services/>

## 1.3 Threats and root causes

### 1.3.1 The risks and impacts of land degradation

According to the NAP<sup>22</sup> for Lebanon, there are serious signs of land degradation and loss of biodiversity in the Bekaa Valley and current land use practices are unsustainable. The natural and socio-economic resources and values identified above in section 1.2 are at severe risk. The percentage of territory that is at moderate or high risk of desertification in the Qaraoun Catchment is 97.4% in Rachaya, 90.4% in West Bekaa, 83.3% in Zahle and 73.2% in Baalbek.

The UNCCD<sup>23</sup> defines desertification as “*land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities*”. This includes erosion and the loss of topsoil, the loss of vegetation, decreased soil fertility and increasing pollution of soil and water resources.

Unsustainable use of water in Lebanon is mirrored by the unsustainable use of land. Across much of the country, landscapes face moderate to severe deforestation and overgrazing pressures, correspondingly high rates of erosion and loss of topsoil, pollution of both soil and water and increase in soil salinity, lowered soil fertility and loss of productive land, loss of biodiversity, reduction in ecosystem services and reduced incomes. The increasing use of agricultural chemicals is also having a severe impact on water quality and soil fertility. These trends are linked to unsustainable production practices.

Amongst the areas of Lebanon suffering from these pressures, the Qaraoun Catchment stands out because of the adverse implications that land degradation in the Catchment has for the national economy and development and people's livelihoods.

Degradation is undermining ecosystem functions and services and is affecting the welfare of rural people dependent upon these services for their subsistence and for their livelihoods. More specifically, if left unchecked, these consequences of land degradation and unsustainable land use could have four serious impacts, namely:

- Welfare and livelihoods depressed
- Economic downturn
- Loss of biodiversity
- Poverty

### 1.3.2 Proximate causes of land degradation

The causes of land degradation are many and complex, and the PIF identified four clusters of proximate causes of land degradation in the Qaraoun Catchment, namely:

- Overstocking with livestock in rangelands and pastures
- Deforestation from forest fires, excessive gathering of fuel wood and land conversion
- Unplanned land development
- Inappropriate application of pesticides and fertiliser

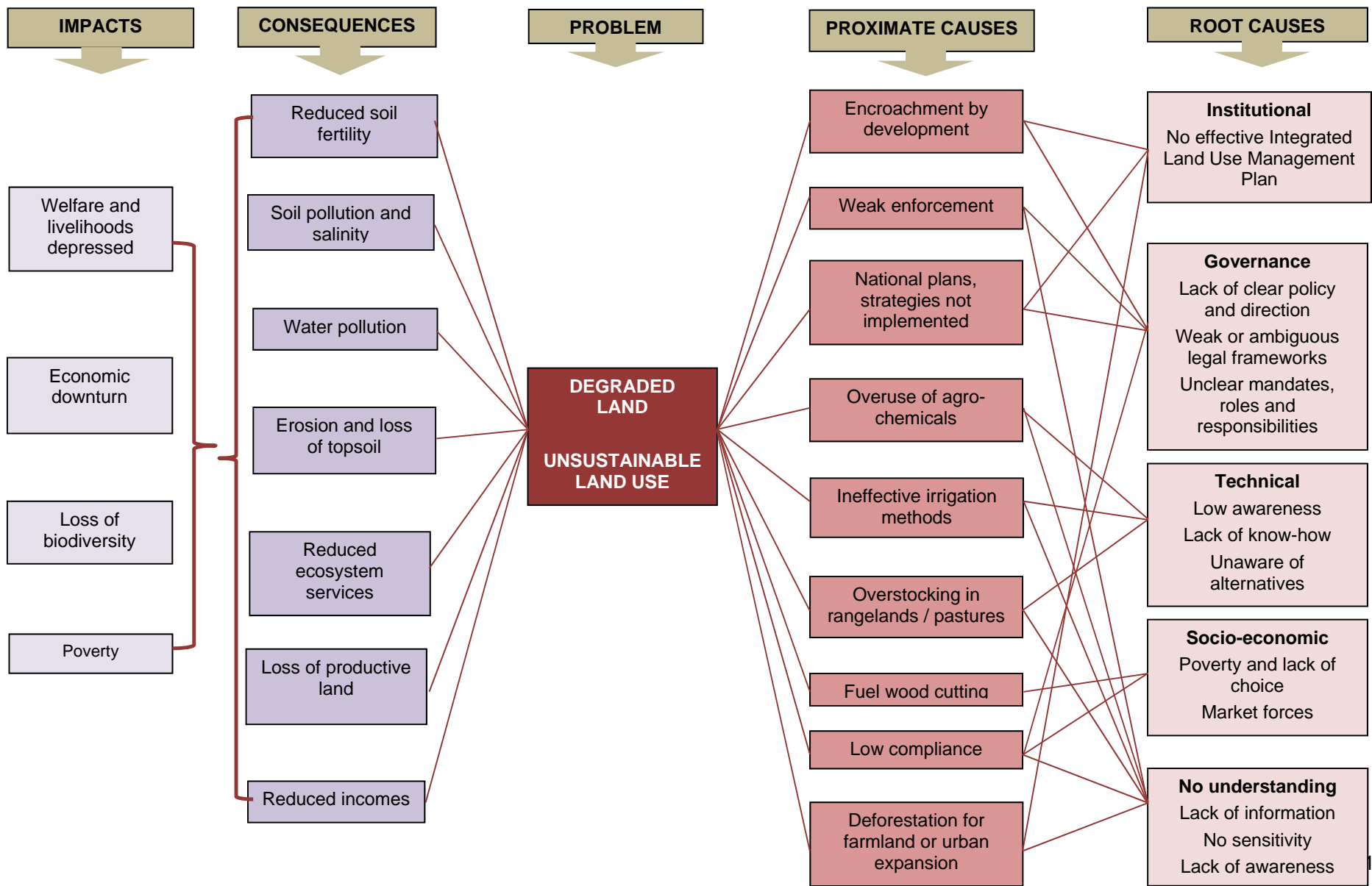
These are extended and more detail is provided in the causal chain analysis illustrated in the diagram on the next page. The analysis confirmed these causes and extended the list further to also include weak Governance as a further cause of land degradation in the Qaraoun Catchment.

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<sup>22</sup> Ministry of Agriculture, Lebanon (2003) *National Action Programme to Combat Desertification*. Arising from Lebanon's ratification of the UN Convention on Combating Desertification.

<sup>23</sup> see for example, <http://www.unccd.int/Lists/SiteDocumentLibrary/10YearStrategy/Strategy-leaflet-eng.pdf>

**Figure 3. Causal chain analysis for land degradation in the Qaraoun Catchment**



Each of the proximate causes clusters is considered in some more detail below.

**Overstocking with livestock.** This is a cause of degradation across the country, where sheep and goat numbers have increased from 500,000 in the 1970s to 700,000 in the 1990s, with even higher numbers currently. It is putting pressure on available pastures, leading to the compaction of soil, soil erosion, and a loss in soil permeability reducing water infiltration and storage capacities. This affects the ecosystem's hydrological provisioning and regulation functions. The situation is most pronounced in the Baalbek District, where the number of small ruminants has exceeded carrying capacity especially during the late winter and spring months. This overgrazing and misuse of rangelands has caused the disappearance of useful species (legumes) and the dominance of unpalatable species. Experiments conducted in the Baalbek District showed that partial protection from grazing, more than doubled the legume seeds in the seed bank<sup>24</sup>.

**Deforestation** has resulted from excessive gathering of fuel wood by local people, forest fires due to weak management, and logging and forest clearance for farm, industry and urban development. Forest cover has been reduced to a fraction of the former area and this degradation of forests has exposed the already fragile soils of the catchment to wind and water erosion. The issue is complex because local people are dependent on the forest resources for fuel in a region where poverty levels are high. Another challenge has been the complexity that exists in roles and responsibilities for forests which lie with MoA according to legislation but also with MoE according to a Government decision. Deficiencies in maintaining the forests are not only due to shortage of MoA guards but also to the inefficiency in managing them.

Direct planting has been carried out by municipalities. However, politicians tend to use plantings as a show of their achievements and this could lead to the use of inappropriate species such as the non-native and potentially invasive *Paulownia tomentosa* which, like the Eucalyptus, tends to grow fast but uses tremendous amounts of water while doing so.

The issue of land ownership regarding forests must also be addressed. Forests on public lands are under the responsibility of both the municipality and the MoA, creating an overlap. In addition, there are other types of land, such as Amiri lands where neither MoA nor municipalities have any jurisdiction.

The **unplanned development** of industry, quarries, urban settlements and infrastructure such as solid waste dumping sites are further undermining ecosystem integrity. Land conversion often takes place illegally (with no application being submitted to the authorities, or with proponents not abiding by all the necessary permit conditions). Without proper monitoring and enforcement, offenders are not penalised, regulatory processes are undermined, and land continues to be degraded and lost. Apart from leading to the loss of productive agricultural land and forest resources, unplanned conversion of land is having an impact on biodiversity and ecosystem services. In addition, natural phenomena such as heavy/intense rainfall are accentuating these processes and the region is becoming increasingly vulnerable to natural disasters including land-slides and floods.

**Overuse of agricultural chemicals.** Farmers are over-fertilising their crops and doses are being applied without proper soil and water analysis and interpretation. Nutrient demands are being exceeded and crop yields are comparatively low with respect to the input of fertilisers. The inappropriate application of pesticides and fertiliser leads to land degradation in the form of soil and water pollution, and reduced soil fertility. The analysis of surface water and sediments indicated high levels of agricultural pollution in the Qaraoun Catchment; while field surveys and data collection in the catchment showed high levels of pesticide use. Many pesticides, and to a lesser extent herbicides, are being applied at almost twice the recommended rates, and the number of successive applications in one season ranges from three to five hence increasing pesticide resistance. Many banned pesticides,

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<sup>24</sup> Osman, A. E., Nassar, A. & Hassar, S. H. (1999) *Grassland Improvement by reseeding native legume and protection from grazing in the Bekaa Valley, Lebanon*.

e.g. DDT and Azinphos-methyl, were detected in surveys of the water and sediment in 2011. Analysis of the data on fertiliser use in the Qaraoun Catchment revealed the following:

- The number of N and P-units added by farmers to lettuce, tomatoes, melon, and other vegetables averaged at least 1.4 times the recommended doses.
- Fertilisers applied to potato and grapes, considered as cash crops in the region, exceeded three times the N-unit recommended doses, while those of P-units averaged almost twice the recommended doses.
- Data for fruit trees were not found to be consistent due to the different practices among farmers, and variation between regions according to water availability. However, stone fruits were found to receive at least 1.5 times more than the recommended rates needed for the N-unit and almost three times more for the P-unit<sup>25</sup>.

The relatively high levels of land degradation within the Qaraoun Catchment are leading to a reduction in the biological and economic productivity of land and significant changes in ecosystem functions. This is causing an increasing drift to the cities, disrupting the social structure of communities.

**Weak Governance** is another cause of land degradation and unsustainable land use in the Qaraoun Catchment and it is displayed in a number of ways. As will be discussed in the following section, many national plans and strategies have been adopted by the government, however, they are not implemented, or at least not as fully as intended. Legislation exists but the level of enforcement at local level is low and inconsistent. There is a low level of compliance with regulatory provisions. As already noted above, this is due in large part to the fragmentation and complexity that exists among implementing agencies. Their mandates, roles and responsibilities are often unclear and overlapping and at times conflicting.

### 1.3.3 Root causes of land degradation

The above proximate causes of land degradation may well be the ones that are readily visible, however, as the causal chain analysis (Figure 3 above) illustrates, these causes arise from more fundamental ones. The analysis identified five root causes or clusters of causes which the project will attempt to address.

#### **Institutional**

A key root cause of land degradation and unsustainable land use in the Qaraoun Catchment is the lack of an effective Integrated Land Use Management Plan. This is the root cause for encroachment and loss of productive land. It is also the reason why national policies, plans and strategies are not applied at local level, and this in turn, makes enforcement exceedingly difficult.

#### **Governance**

Closely allied to the Institutional root cause, is the lack of clear national land use policy and direction. Legal frameworks are weak or ambiguous; institutional mandates, roles and responsibilities are unclear and at times conflicting.

#### **Technical**

There is a low level of awareness and understanding of the vulnerability of land, biodiversity and ecosystem services. There is also a low level of farming know-how and farmers have all but abandoned traditional methodologies in favour of more recent technical solutions (such as artificial

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<sup>25</sup> Earth Link and Advanced Resources Development (2011) *Business Plan for Combating Pollution of the Qaraoun Lake*. United Nations Development Programme



chemicals) which they over-use and mis-use. They are also unaware of other, more economically and environmentally attractive technologies and approaches.

### **Socio-economic**

There is poverty and lack of choice and people often damage the environment because they do not have an alternative. Examples of this include the cutting of wood for fuel and the low level of compliance. Furthermore, market forces are influencing decisions targeted at a higher, but unsustainable return.

### **No Understanding**

Lack of information is a root cause of a number of identified proximate causes of land degradation. These include weak enforcement, overuse of agricultural chemicals, ineffective irrigation methods, overstocking of rangeland pastures, low level of compliance and deforestation. Lack of information has created low levels of awareness and a lack of sensitivity to natural values and vulnerability. It has also denied landowners, farmers and residents of the Qaraoun Catchment the ability of making informed choices.

## **1.4 The Government's response – the Baseline Project**

### **1.4.1 The policy and regulatory response**

Despite the various obstacles and instability troubling Lebanon in the last few decades, the Government has achieved much progress in environmental protection by issuing laws and decrees aimed mainly at safeguarding natural resources in the country. Although these legal instruments do not yet have an overarching policy framework to connect them, they can be considered significant steps towards achieving sustainable land use and environmental management practices in the country. This section addresses the policy and regulatory response to environmental and natural resource issues in Lebanon, while the institutional response will be described in Section 1.4.2 and land use management will be described in more detail in Section 1.4.3.

#### **1.4.1.1 Environmental Management**

The overarching instrument for environmental protection and management in Lebanon is defined by Law 444/2002, the Environmental Protection Law, which is considered a major milestone in Lebanese environmental legislation. It sets the legal framework needed to protect the national environment against all forms of degradation and pollution, and the promotion of sustainable use of natural resources.

In 2012, the Government enacted the Strategic Environment Assessment (SEA) Decree No. 8213/2012 (the first of its kind in the Middle East and North Africa Region). The purpose of the SEA is to take into account environmental issues at an early stage in the decision-making process of policies, programmes and plans. During the same year, it also enacted the Environmental Impact Assessment (EIA) Decree No. 8633/2012 requiring any development to undergo an EIA process whereby the MoE's approval should be obtained.

In September 2013, the Parliament's joint committees passed a draft law to employ full-time environment public prosecutors who will work alongside investigative magistrates for environmental issues. According to this law, any direct or indirect assault on natural resources would be considered an environmental crime and its perpetrators prosecuted under its provisions. The law also covers crimes

targeting antiquities and cultural and natural heritage. However, it still awaits Parliament endorsement<sup>26</sup>.

#### **1.4.1.2 Biodiversity and Protected Areas**

In 1994, and through Law 360/94, Lebanon ratified on the Convention on Biological Diversity and in 1998 developed its first National Biodiversity Strategy and Action Plan. The MoE updated and adopted the plan in 2005.

Article 23 of Law 690/2005 designates the MoE as the responsible body to determine potential protected areas in Lebanon. According to MoE, Lebanon currently has eight Nature Reserves, eight protected Forests and Landscapes and eight protected River Streams. Many of these sites also have international designations including four Ramsar Sites, three Biosphere Reserves, two Special Protected Areas of Mediterranean Importance, 15 Important Bird Areas and five World Heritage Sites.

The responsibility for management of protected areas in Lebanon is shared between the MoE, Appointed Protected Area Committees (APAC), and the management teams in the field. APAC consists of representatives of NGOs, municipalities, conservationists and scientists.

In addition to MoE designated protected areas, MoA also declares areas as Hima, which can be described as a system for organizing, maintaining, regulating, and utilizing natural pasture and rangelands in a sustainable manner. There are five MoA designated Hima in Lebanon.

In 1949, the first piece of legislation addressing forestry issues was passed. It was called the Forest Code and it designated the MoA as the responsible entity for setting up a national programme of forest management and reforestation. In 1951, another law was passed on conservation of soil and protection of forests from grazing. Law 85/1991 and its amendment Law 558/1996 identified cedar, fir, cypress, oak, and juniper as protected forests in Lebanon. The MoA was empowered to designate reforestation areas through decree 5246/1994.

#### **1.4.1.3 Agriculture**

Although Lebanon does not have an officially adopted national subsidy policy, the Lebanese Government provides agricultural subsidies to farmers in the form of high producer prices. These subsidies benefit tobacco and wheat producers.

The Office of Cereals and Beetroot, which was later renamed the Directorate General of Cereals and Beetroot when its activities were expanded, was established by Legislative Decree 143 of 12 June 1959 to encourage the production of cereals and beetroot and to ensure that the quantities produced are sold at subsidized prices. In addition to the development of the agricultural sector, one of its key prerogatives is to preserve the stability of the wheat supply. It is therefore allowed to import wheat and sell it at subsidized prices, following the approval of the Council of Ministers<sup>27</sup>.

To support the agriculture sector in Lebanon, the government provides the following incentives:

- Farms (provided they do not display farm products in sales outlets or sell products after processing) are exempt from income tax

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<sup>26</sup> Draft law to create new environmental prosecutors, The Daily Star, September 26, 2013  
<http://dailystar.com.lb/News/Lebanon-News/2013/Sep-26/232606-draft-law-to-create-new-environmental-prosecutors.ashx#ixzz2r351vsV1>

<sup>27</sup> Ministry of Finance / UNDP (2012), Wheat and Bread Subsidies (2007-2011): Thematic Report

- Equipment and raw material imported for the agricultural sector are subject to only 2% customs duty
- Wages of agricultural labour are exempt from payroll taxes
- Agriculture products are exempt from VAT

### 1.4.2 The institutional response

In response to the situation in the Qaraoun Catchment, the Prime Minister of Lebanon assigned in 2006 an inter-ministerial committee, to propose measures that would alleviate pollution of the Litani River and Qaraoun Lake. The committee is headed by the Minister of Environment with representatives from the Ministry of Interior and Municipalities, Ministry of Energy and Water, Ministry of Agriculture, Ministry of Industry, Council for Development and Reconstruction, Bekaa Water Establishment, Litani River Authority and Ministry of Health.

The following sections describe the roles and responsibilities of these entities, and others, as they relate to the government's response to the problems in Qaraoun Catchment.

#### Ministry of Environment (MoE)

The Ministry of the Environment is the environmental regulatory arm of the country. The mandate of the MoE is defined in Law 690/2005 as follows:

- Formulate laws, regulations, standards and guidelines
- Prepare environment policies and strategies
- Monitor, control and ensure water, air, and soil quality
- Provide environmental conditions for issuing permits and licenses for development projects
- Specify protected areas and sites and develop criteria and guidelines for PA management
- Implement environmental projects related to biodiversity and natural resources, climate change, ozone-depleting substances and hazardous chemicals.

The MoE was tasked with leading the effort on preparation of a Business Plan for combating pollution of the Qaraoun Lake which it completed with UNDP support.

The following seven divisions are under the Directorate General of Environment in the MoE:

- Service of Regional Departments and Environmental Police
- Service of Planning and Programming
- Service of Environmental Technology
- Service of Natural Resources
- Service of Urban environment
- Service of Environmental Guidance
- Registrar

The divisions are staffed with 70 administrative/technical positions, with an additional 30 staff working in internationally funded/managed projects<sup>28</sup>. The MoE chairs the National Executive and Technical Committee and was delegated by the Council of Ministers through Decision 52 to prepare a national Strategy for Forest Fire Management.

In 2001, Lebanese Parliament approved a Programme Law 326/2001 allocating LBP25 billion (USD16.7 million) to the MoE over a 5-year period to implement large-scale reforestation activities. The

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<sup>28</sup> Government of Lebanon/GIZ (2013) Environmental and Social Assessment (ESA) of the Lebanon Pollution Abatement Project (LEPAP), prepared by EI Ard and GFA

MoE subsequently formulated a National Reforestation Plan (NRP) and implemented Phase 1 (2002-2004) and Phase 2 (2004-2006) of the plan by contracting private nurseries. During this period, MoE replanted 305 ha on 23 sites mostly located on municipal lands. The plan was suspended in 2006 as a result of the war and the long-term sustainability of the plan remains in question<sup>29</sup>.

## **Ministry of Agriculture (MoA)**

The Department of Forest and Natural Resources is under the Directorate of Rural Development and Natural Resources (DRDNR) at MoA. The DRDNR is responsible for forestry legislation and enforcement. It also designates protected forests and regulates grazing permits and agreements on municipal lands.

The DRDNR has the sole responsibility for recruiting forest personnel and operating “forest stations”. The Directorate currently operates about 20 forest stations and employs 186 forest personnel (152 forest guards, 13 inspectors and 21 observers). The forest guards are meant to enforce forest legislation and apprehend offenders. However, as the guards are underequipped and underpaid (they earn about USD430/month plus benefits), little enforcement is noted on the ground. The Directorate has received donations including water trucks and utility vehicles but such equipment ends up in graveyards and parking lots after a few years in service due to lack of spare parts, resources to ensure preventive maintenance or even fuel<sup>30</sup>.

Traditionally, the MoA has been the entity in charge of the management of forests in Lebanon. However, between 1997 and 2008, the MoA did not completely fulfil its obligations in designating forest areas. It was during this period that the MoE became a more prominent actor in this field by establishing and managing natural reserves (some of which included forests) and reforestation efforts as described in the section above<sup>31</sup>.

The Lebanese Agriculture Research Institute (LARI), which comes under the supervision of the MoA, is the governmental organization that conducts applied and basic scientific research for the development and advancement of the agricultural sector in Lebanon. In addition, the Institute keeps close ties with farmers and tries to develop research activities aiming at solving their problems.

The MoA also hosts the Lebanese National Observatory for Agricultural Development. The aim of the Observatory is to develop synergies for private and professional initiatives that enable better participation, dialogue, and coordination between all the stakeholders involved in the agricultural and rural sector. They are also involved in capacity strengthening for policy formulation, implementation and mentoring in support of agricultural development<sup>32</sup>.

## **Ministry of Public Works and Transport (MoPWT)**

The Directorate General of Urban Planning (DGUP) is under the authority of the MoPWT and it is designated with developing urban regulations. It is involved in issuing building permits, as well as preparing and reviewing urban master plans for most urban areas of Lebanon (excluding Beirut, Tripoli, Jbail, Kesrouan, and Metn). The DGUP is also responsible for the implementation of the National Physical Land Use Plan prepared by the Council for Development and Reconstruction, which is discussed in Section 1.4.3 below. The DGUP cooperates with various ministries in implementing the plan as some of its components fall under the jurisdiction of other ministries.

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<sup>29</sup> USAID (2009), Lebanon Forest and Biodiversity Conservation Assessment

<sup>30</sup> Ibid

<sup>31</sup> UNDP / MOE / ECODIT (2011), State and Trends of the Lebanese Environment

<sup>32</sup> Asmar, Fady (2012) Preparation of the 2012-2013 National Reporting Cycle and the Review of the UNCCD

Regional Departments of Urban Planning under the Ministry of Public Works were established in every governorate (caza) to assess construction permits and ensure that there are no violations to the urban planning regulations.

The Higher Council of Urban Planning (HCUP) under the MoPW was established in 1962 by Decree 69. Decree 69/1983 organized the Council into 12 members, namely, the Director General of Urban Planning, the Ministers of Justice, Interior and Municipalities, Public Works and Transport, Housing and Environment, the Director of Programmes at the Council for Development and Reconstruction, the President of the Order of Engineers and Architects in Beirut and Tripoli and three experts (sociologist, environmental urban planning, and architecture). The role of the HCUP is to:

1. Review and approve urban master plans and large sized projects greater than 3,000 m<sup>2</sup> in Beirut and 10,000 m<sup>2</sup> and outside Beirut
2. Draft decrees in relation to the creation of real estate companies, land expropriation, and land parcelling
3. Review decisions related to licenses for construction and parcelling
4. Review proposed changes to urban planning and construction legislation

Once issued by a municipality, a construction permit needs approval from the DGUP's regional office, the federation of municipalities and the HCUP.

### **Ministry of Energy and Water (MoEW)**

The MoEW is responsible for the water sector under Law 221 of 2000. One of their main responsibilities is to protect water resources from pollution. In relation to land resources, the ministry provides advice on the licensing of mines and quarries that could have an impact on water resources.

The MoEW has developed a national plan on water stocks. The objective of the plan is to increase water stocks across the whole country by constructing dams on most of the main rivers. The dams would reduce the impact of droughts and help local communities cope with desertification and drought.

### **Council of Development and Reconstruction (CDR)**

Article 3 of Decree No. 5 of 1977 established CDR and authorized it to institute a general framework for urban planning in Lebanon. CDR thus developed the National Physical Master Plan (NLUMP) of the Lebanese Territories in collaboration with the General Directorate of Urban Planning in 2005. Details on this plan are described in Section 1.4.3 below.

The CDR's major functions are to prepare investment plans for Lebanon, design, plan and implement programmes and projects for reconstruction and development and mobilize external financing from development partners. CDR is also responsible for selecting, in cooperation with line ministries, the institutions for the implementation of programmes and projects.

### **The Litani River Authority (LRA)**

The LRA was established in 1954 to develop the necessary domestic, irrigation and hydropower schemes for the Litani, develop a national interconnected power grid, and build electrical power stations and distribution networks in all Lebanese territory. The LRA was thus given the technical and the financial power for operating and exploiting all Litani River Basin related projects. In 1962 the LRA responsibilities were expanded to include a water development plan for all the Litani/Awali basins and the area between the international Beirut-Damascus road and the southern Lebanese border.

The LRA conducts monthly water quality monitoring with the aim of preventing pollution in the River. Until September 2013, it was assisted by the USAID-funded Litani River Basin Management Support Program aimed at a more efficient and sustainable river basin management. Despite the establishment of the regional water establishments as per Water Law 221, LRA has maintained responsibility to develop and manage the irrigation water scheme and associated works in the Southern Bekaa and South Lebanon.

## **Municipalities**

Under the tutelage of the Ministry of the Interior and Municipalities (MOIM), Municipalities in Lebanon (994 in total) are responsible for preparing general land use plans as well as programmes for water, sanitation and solid waste projects. They are also in charge of operations and maintenance of municipal solid waste collection, in addition to general matters concerning protection of the environment and pollution control. Construction permits in Lebanon are only issued by the President of the relevant municipality. Many municipalities in Lebanon form municipal unions with the aim of pooling their resources and fund regional development projects.

Municipalities in Lebanon are also involved in reforestation efforts. Every year, the DRDNR distributes seedlings to municipalities, with the aim of planting them alongside roads or on communal plots. Municipalities have also cooperated with the MoE and NGOs to implement reforestation activities. They have on occasion donated common land (Mashaa) for the purpose of establishing forests<sup>33</sup>.

It is the responsibility of the Municipal Police (smaller cases) and the Internal Security Forces (larger cases) to enforce decisions and court case rulings regarding environmental abuses. Although the MoA is responsible for the enforcement of forestry regulations, this is usually orchestrated through the Municipal Police.

## **Non-governmental Organizations**

In addition to government efforts, NGOs also played a prominent role in reforestation campaigns in the past 15 years in Lebanon. With support from local and international donors, and in partnership with government agencies, NGOs worked on various reforestation projects throughout Lebanon. The impacts of these campaigns are uncertain due to the lack of reliable information. AFDC's State of Lebanon Forests report claimed that the survival rate of transplanted trees varies between 10 and 40 percent. Many factors contributed to this low performance, for example, poor plant production conditions, poor plantation techniques, and a major deficiency in following up, monitoring, and maintenance. Most NGOs implement reforestation projects as a means to achieve their nature conservation and sustainable rural development objectives. Only a handful of NGOs aim at fighting land degradation issues through reforestation.

The reforestation sites are not chosen according to any set of criteria, and their determination is heavily influenced by the municipalities. Finding available land for reforestation projects has been problematic for MoE, MoA, and NGOs. This leads to reforestation projects in areas that do not really need it which limits the achievements and undermines the objectives of such projects (land degradation reduction, biodiversity conservation, etc.)<sup>34</sup>.

## **Investment Development Authority of Lebanon**

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<sup>33</sup> Association for Forests, Development and Conservation (2007), The State of Lebanon's Forests

<sup>34</sup> Asmar, Fady (2012) Preparation of the 2012-2013 National Reporting Cycle and the Review of the UNCCD

The Investment Development Authority of Lebanon (IDAL) is the national investment promotion agency that was established in 1994. IDAL enjoys financial and administrative autonomy and reports to the President of the Council of Ministers who exercises a tutorial authority over it.

Investment Law 360/2001 reinforced IDAL's mission and identified a set of priority sectors that showed the most promising opportunities in terms of their investment potential and impact on socio-economic growth. The identified sectors include Industry, Agriculture, Agro-Industry, Tourism, Information, Communication, Technology, and Media.

## **Agri Plus**

Established in 2012, the Agri Plus programme supports the competitiveness of Lebanese agricultural products, particularly through improving the production, packaging, promotion and distribution of such products. In 2013, Agri Plus provided agricultural export subsidies for 519,000 tonnes, constituting an increase of 14.1% from 455,000 tonnes in 2012 and compared to 400,000 tonnes in 2011.<sup>35</sup>

### **1.4.3 Land use planning and management**

Lebanon has four spheres of government: National, Governorate (Mohafazat), District (Cazas) and Municipal. Some powers and functions are located to one sphere of government, while others are shared. Land use and natural resource regulation are largely national and governorate competencies, while land use planning and enforcement are national, district and municipal competencies.

Decree 69/1983 is the main tool regulating Lebanon's urban planning activities. The law covers the following:

1. Organization and structure of the HCUP
2. Urban master plans and planning regulations for villages and cities
3. Implementation or regulations and urban master plans in villages and towns
4. Construction permits
5. Regulations for quarries and rusers
6. Land parcelling
7. Various provisions and applications

Land tenure in Lebanon is based on five principles that were issued in a Ministry of Finance decision in 1930:

1. Mulk: private ownership
2. Amiria: State owned and managed by the MoF
3. Matrouka/machaa: State owned and managed by the municipalities
4. Matrouka Mahmiya: Public properties managed by the MoF but can be owned by the state or municipalities
5. Khaliya moubaha: Similar to amiria lands but they have not been identified.

In 2005, a National Land Use Master Plan (NLUMP) was prepared by CDR in collaboration with the DGUP, and subsequently approved in 2009. A managerial committee consisting of members from different ministries and headed by the head of the DGUP is responsible for following up on implementation of the NLUMP. The Master Plan describes the land use pattern of the country as well as future land management challenges, lays out sustainable land use principles, sets out alternative

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<sup>35</sup> iloubnan Website <http://www.iloubnan.info/business/78560/Subsidized-agricultural-exports-up-14percent-in-2013>

scenarios for land use and development, and provides guidance for sectoral land management (transport, tourism, etc.). The plan delineates areas of ecological and cultural importance slated for protection and areas where higher environmental management standards are prescribed. The entire territory of Lebanon is zoned into Urban, Rural, Agricultural and Natural land use categories and the NLUMP specifies regulations governing land use for each category. It is important to note that land degradation was not taken into consideration for the NLUMP<sup>36</sup>. In addition, the plan is criticized for only designating general orientations for land use, but does not specify the procedural mechanisms that facilitate its use at the level of line ministries and public administrations<sup>37</sup>.

Districts are responsible for developing master plans for their territories in consultation with national Ministries and the Governorate, in conformity with the provisions of the NLUMP. The district master plan is legally enforceable and indicates both to the district, municipalities within the district and to the public (developers, land owners, etc.) where certain types of land use and associated developments are permissible, and where certain activities are unlikely to be permitted. As such, it forms the basis for land use management and serves as a guideline to inform Municipalities in its decisions on new developments and changes to existing land uses in its area of jurisdiction. The District Master Plan also functions as a framework for public and private sector investment in different types or levels of development in those areas of the municipalities that are identified as appropriate or suited to such development. It acts as a more detailed representation of the NLUMP and can be used for the updating/adjustment of the NLUMP if such actions are justified. Final District Master Plans need the DGUP's final approval. Lebanon is in the process of developing District Master (Land Use) Plans, but due to funding constraints, emphasis has been placed on developing urban plans for municipalities and larger towns. The Directorate of Urban Planning at MOPWT, prepares and reviews urban master plans in conformity with the provisions of the NLUMP and District Master Plans. As a result, Districts and Governorates are thus far excluded from the land use planning process. The political decision-making process is hence replaced by the technical expertise of the DGUP<sup>38</sup>.

The NLUMP's Natural and Agricultural zones, as well as District Master (Land Use) Plans (where they exist) are further regulated through the development of enforceable management plans for designated grazing and forested areas. These management plans are developed by the DRDNR, the respective Municipalities and local stakeholders.

While NLUMP, District Master Plans and Municipal Urban Plans set out the desired future patterns of land use and development within district and municipal boundaries and provide a framework for land use permitting which depends on the nature of proposed development activities, land use permitting processes within district and municipal boundaries can involve several regulatory authorities across all spheres of government. Upon receipt of an application for land conversion, regulatory authorities review the application and issue permits. They have several options: (a) refuse to grant the permit/license (b) grant it unconditionally or (c) issue a permit with conditions to mitigate and minimize impacts and offset unavoidable impacts on land. However, land conversion often takes place illegally (with no application being submitted to the authorities, or with proponents not abiding by all the necessary permitting conditions). Without proper monitoring and enforcement, the offenders are not penalised, regulatory processes are undermined, and land continues to be degraded and lost.

The main cause of these infractions can be explained in the nature of the detailed urban plans, which are in fact mainly "zoning maps with tables of construction conditions and regulations". Some of these were prepared over forty years ago, and despite all the changes that have occurred on the ground since, are still enforceable and legally binding. This reinforces the idea that the right to build is paramount and is used as justification for infraction on the grounds of economic and demographic needs.

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<sup>36</sup> Asmar, Fady (2012) Preparation of the 2012-2013 National Reporting Cycle and the Review of the UNCCD

<sup>37</sup> UN-Habitat (2014) Draft Findings of the Research/Assessment for Reforming Urban Planning System in Lebanon

<sup>38</sup> Ibid



It is also important to note that Urban Plans have never been legally binding on public administrations. In fact, infrastructure projects in Lebanon are approved and implemented by line ministries independently from these plans. Public investment programming is usually based on projects and activities already proposed by the various sector ministries as well as other relevant public entities. Their implementation in reality is only dependent on available financing, while plans and programmes are regularly postponed<sup>39</sup>.

The following table presents the entities with a mandate relating to land management in Lebanon and summarizes their roles and responsibilities.

**Table 2. Distribution of responsibilities related to land management<sup>40</sup>**

RESPONSIBILITY	MoPWT (DGUP)	MoE	MoA	MoC (DGA)	MoEW	MoIM	CDR	RELIGIOUS ORDERS
National land use master planning	X						X	
Protected area management		X	X					
Forest management		X	X					
Urban planning regulations	X							
Public maritime domain (coastal zone)	X							
Protection of cultural heritage				X				X
Protection of rivers and waterways	X	X			X			
Management of religious estates								X
Quarry sector		X			X	X		

#### 1.4.4 Value of measures committed

In response to the current situation, the Government of Lebanon has made a commitment to natural resources management in the Qaraoun Catchment by issuing a draft programme law (currently awaiting Parliament endorsement) regarding the cost of activities recommended by a Business Plan that was prepared with support from UNDP and which specifies potential funding through loans or grants as well as tapping into the national budget when necessary. However, due to current political instability in Lebanon and difficulty in holding new parliamentary elections, it is unclear when this law will be passed.

The identifiable value of the measures committed is estimated to be around USD150 million, however, in effect, the investment in environmental protection is expected to be closer to USD250 million over the project period. The actions can be loosely divided into four areas, namely, regulation, planning, enforcement and changing the production practices of sectors which are driving land degradation, and each is discussed further below.

<sup>39</sup> UN-Habitat (2014) Draft Findings of the Research/Assessment for Reforming Urban Planning System in Lebanon

<sup>40</sup> UNDP / MOE / ECODIT (2011) State and Trends of the Lebanese Environment

#### **1.4.4.1 Investments**

The Ministry of Agriculture will invest in excess of USD3 million over the project period for regulation and compliance monitoring of forestry resources in the catchment. DRDNR has in recent years been successful in advancing forest conservation with no loss in forest cover registered since 2003. The focus of this investment will be on managing tree felling for timber and fire-fighting. A further investment of USD1 million will be made by the Ministry of Environment towards the development of national environmental standards, specifications and guidelines and undertaking. The Ministry of Energy and Water will spend USD3 million during the project period on regulation and compliance monitoring to protect water from pollution.

At the Governorate level, the National Treasury allocates around USD1 million annually for land management regulation. The four districts of the Catchment will invest in excess of USD1.5 million over the project period in land management regulation.

A World Bank loan for USD50 million is expected to commence in 2015 to fund investments aimed at addressing the wastewater problem in the Qaraoun Catchment. This will include improvement or installation of Wastewater Treatment Plants in Zahle, Ferzol and possibly other locations in the Upper Litani Basin and reducing effluent discharges from private enterprises.

The Lebanon Pollution Abatement Project (LEPAP), funded by a USD3 million Italian Government grant and a USD15 million World Bank loan, is planned for 2014. The objective of LEPAP is “to reduce industrial pollution in targeted industrial enterprises and strengthen the monitoring and enforcement capabilities of the MoE through technical assistance and through establishing a financial mechanism for supporting pollution abatement investments”. Relevant positive impacts of the LEPAP project include:

- Improvement of surface water and groundwater quality therefore making it a reliable source of water supply to farmers and local communities
- Protection of biodiversity from wastewater disposal
- Low cost method for sanitary disposal of municipal wastewater.<sup>41</sup>

The Government of Italy has approved a technical assistance grant of 2.3 million Euros to support the LEPAP and provide the needed technical know-how to identify appropriate environmental solutions to industries located in the Qaraoun Watershed.

#### **1.4.4.2 Land Use Planning**

An estimated USD500,000 will be spent in the Catchment by the Ministry of Public Works and Transport on the preparation and review of urban master plans. Whereas the Ministries of Agriculture and Environment will invest in excess of USD2 million over the project period in assistance to district land use planning, forest management, planning and rangeland management planning.

At the district level, the national treasury will allocate approximately USD1 million to the various ministerial departments to support the district land use planning process.

At the municipal level, approximately USD2.5 million will be spent in the Catchment for assistance with the development of district land use plans, urban plans and rangeland management plans.

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<sup>41</sup> Government of Lebanon/GIZ (2013) Environmental and Social Assessment (ESA) of the Lebanon Pollution Abatement Project (LEPAP), prepared by Elard and GFA

#### **1.4.4.3 Enforcement**

Municipalities in the Catchment will invest approximately USD1.5 million in their police force which will, among other duties, perform environmental protection enforcement. The Internal Security Force will spend in excess of USD3 million in applying law and order in the region. The Ministry of Agriculture will allocate USD4 million a year over the project period for the enforcement of forestry legislation nationally.

The Support to Reform and Environmental Governance (St-REG) programme funded by the European Union for the amount of €8.0 million (USD10 million) in partnership with the MoE focuses on environmental governance reforms. The general objective is to improve the environmental performance of the Lebanese public sector. Specific objectives are to improve MoE's capability of planning and executing environmental policy by building effective capacity within the Ministry.

#### **1.4.4.4 Production Practices**

An USD7 million investment will be made in forest management that will be targeted towards reforestation. This includes the funds earmarked for the Qaraoun Catchment under the National Reforestation Plan (NRP) as well as the funds from the USD12 million Lebanon Reforestation Initiative (funded by the International Programme of the US Forest Service). The goals of the initiative are to strengthen Lebanon's forest seedling nurseries and oversee the implementation of large-scale reforestation activities in the country, in line with the NRP. Of this amount, an estimated USD2 million is earmarked for the Qaraoun Catchment over the project period.

In December 2012, the Lebanese Government launched the 40 million trees programme, a national initiative steered by the MoA to plant 40 million forest trees in public lands within the next 20 years (covering 70,000 ha). The inter-ministerial committee, which was set up to oversee the programme development and implementation, initiated the preparation of a roadmap for this long-term reforestation programme, which proposes ways of sharing responsibilities and coordination mechanism like partnerships between the different stakeholders. The overall indicative amount secured from the European Union is €1 million.

A further USD1 million can be considered as baseline from the Green Plan in the Qaraoun Catchment. This will contribute to addressing Land Degradation in that it provides grants to farmers to repair and/or build stone terraces and retaining walls, build hill lakes and install irrigation networks. An estimated USD2 million is earmarked for increasing the agricultural productivity and incomes of farmers (the Hilly Area Sustainable Agriculture Development Programme 2010 – 2016) through the improvements in soil and water harvesting structures and soil and water conservation measures leading to increased agricultural productivity. The Programme will also address better market access for small farmers through the provision of technical support services and strengthened capacity of project implementing agencies and farmers' organizations.

The World Bank loan for USD50 million planned to fund investments from the Qaraoun Business Plan has an agriculture component with a budget of around USD1.5 million. Proposed investments in the agriculture sector include an Integrated Pest Management (IPM) scheme for farmers in the West Bekaa area, and potentially expanded to the entire Upper Litani Basin.

The national programme law awaiting parliament endorsement includes about USD2.6 million for pollution abatement in the agricultural sector in Bekaa, Baalback and Hermel areas. It addresses pesticide use, irrigation, soil protection, salinization and capacity building.

The Agricultural and Rural Development Programme (ARDP) is currently being implemented by the MoA and funded by the European Union for the amount of €14 million. The project will run until 2015 with the objective of “improving the overall performance of the agriculture sector in order to achieve sustainable food security and to improve the livelihood of rural farming communities.” The programme’s objectives are to:

1. Strengthen the capacity of national institutions to work on a coherent agricultural/rural development vision and to better implement agriculture strategic orientations.
2. Support and empower local rural actors (farmers and cooperatives) by increasing access to credit and infrastructure.

One of the ARDP components focuses on forestry and rehabilitating forest nurseries implemented by the MoA. The project aims to improve land management capacities, working with municipalities and cooperatives towards reforestation. The project also works with local actors to maintain and irrigate seedlings<sup>42</sup>.

As can be seen from the summary table below, the baseline of activities is of significant proportions both in terms of the extent of interventions and the investment. However, the identified barriers and remaining challenges and gaps are hindering the full achievement of benefits and in particular they are not resulting in sustainable land use.

**Table 3. Summary of key baseline core functions and projects over the five-year project period and relevance to the project (co-financing elements highlighted)**

BASILINE ACTIVITY	COORDINATION / IMPLEMENTATION	FUNDING SOURCE	BUDGET (in USD)	NOTES ON RELEVANCE TO THE PROJECT
Regulation and compliance monitoring of forestry resources in the catchment	Ministry of Agriculture	National budget	3,000,000	The project will cooperate with the MoA in its work on forests (Output 1.1) and Land Use Planning (Output 2.2)
Development and implementation of national environmental standards, specifications and guidelines and the application of the EIA Process	Ministry of Environment	National budget	1,000,000	Significant core function of MoE and serves as Co-financing element of Outcome 3 in project
Regulation and compliance monitoring to protect water from pollution	Ministry of Energy and Water	National budget	3,000,000	Related to project but outside its scope since it does not deal directly with water
Land management regulation	District Councils in Qaraoun Catchment	National budget	1,500,000	The project will assist District Councils with land use plans formulation under Output 2.2 and this activity will ensure implementation
Addressing the wastewater problem in the Qaraoun Catchment, including Wastewater Treatment Plants in Zahle, Ferzol and possibly other locations in the Upper Litani Basin and reducing effluent discharges from private enterprises	Council for Development and Reconstruction	World Bank (loan)	50,000,000	This work is complementary to the project in that it addresses another source of land and water degradation that is outside the project’s scope
The Lebanon Pollution Abatement Project (LEPAP) to reduce industrial pollution, strengthen the monitoring and enforcement capabilities of the MoE, establishing a financial mechanism for supporting pollution abatement investments	Ministry of Environment and Ministry of Finance	World Bank (loan) Italian Government	15,000,000 3,000,000	LEPAP is primarily addressing sources of water pollution in the catchment and as such it will complement the work of the project in general
Preparation and review of urban master plans.	Ministry of Public Works & Transport	National budget	500,000	MoPWT will be invited to work with the project so as to extend its urban planning to include other land
Assistance to district land use planning, forest management, planning and rangeland management planning	Ministry of Agriculture and Ministry of Environment	National budget	2,000,000	Complementary to the project and considered as Co-financing element of Outcome 2 in project

<sup>42</sup> ARDP Information Sheet [http://eeas.europa.eu/delegations/lebanon/documents/news/20120113\\_1\\_en.pdf](http://eeas.europa.eu/delegations/lebanon/documents/news/20120113_1_en.pdf)

Support the district land use planning process	District Councils, through various ministries	National budget	1,000,000	May provide a means for project work to be replicated to District Councils, other than those targeted by the project directly under Outcome 2
Assistance with the development of district land use plans, urban plans and rangeland management plans	Municipalities	National budget	2,500,000	These funds will complement the work of the project under Outputs 2.1 and 2.2 by assisting target Municipalities to apply LUP at municipal level
The Support to Reform and Environmental Governance (St-REG) programme focuses on environmental governance reforms; improve MoE's capability of planning and executing environmental	Ministry of Environment	EU	10,000,000	Major project of MoE which will provide the Co-financing element of Outcome 2 in project
Police force which will, among other duties, perform environmental protection enforcement	Municipalities	Municipal budget	1,500,000	The project will work with Municipal Police to extend their operations to LUP under Outcomes 2 and 3
Applying law and order in the region	Internal Security Force	National budget	3,000,000	The project will benefit from law and order upheld by the ISF
Enforcement of forestry legislation (nationally)	Ministry of Agriculture	National budget	20,000,000	This is a core function of MoA which can be seen as providing sustainability for project benefits particularly under Output 1.1
Forest management targeted towards reforestation; strengthen Lebanon's forest seedling nurseries and oversee the implementation of large-scale reforestation activities in the country, in line with the National Reforestation Programme	Ministry of Environment	National budget and LRI by US Forest Service	2,000,000	Close collaboration is expected between the project and the NRP and this will serve as a Co-financing element of Outcome 1 in project
40 million forest trees project partnerships between the different stakeholders (nationally, over 20 years)	Ministry of Agriculture	European Union	1,250,000	This MoA project is seen as a partner by the project in its work under Output 1.1
Green Plan for Qaraoun Catchment, providing grants to farmers to repair and/or build stone terraces and retaining walls, build hill lakes and install irrigation networks	Ministry of Agriculture	FAO	1,000,000	The project will collaborate and complement MoA in this work under Output 1.3
Hilly Area Sustainable Agriculture Development Programme –improvements in soil and water harvesting structures and soil and water conservation measures	Ministry of Agriculture	FAO	2,000,000	The project will collaborate and complement MoA in this work most likely under Outputs 1.1 and 1.2
Pollution abatement in the agricultural sector in Bekaa, Baalback and Hermel areas - pesticide use, irrigation, soil protection, salinization and capacity building	Ministry of Environment	National budget	2,600,000	This work by MoE will serve as a Co-financing element of Outcome 1 in project
The Agricultural and Rural Development Programme (ARDP) - improving the overall performance of the agriculture sector in order to achieve sustainable food security and to improve the livelihood of rural farming communities (ending 2015)	Ministry of Agriculture	European Union	17,600,000	The lessons from this project will be invaluable for the project, particularly under Output 1.3

## 1.5 Remaining challenges and outstanding gaps

In spite of the impressive baseline of mechanisms, activities and resources described above, land degradation remains a visible problem in the Qaraoun Catchment, and ecosystem services and livelihoods are being jeopardized, hence the Government's approach to UNDP/GEF for support.

The initiatives described above are not sufficiently coordinated and do not specifically take global environmental concerns into account. The substantial financial and human resources earmarked for the baseline programme related to agriculture, forestry and improvement of water quality in the Qaraoun Catchment are deployed and managed by sectoral departments working in silos. Authority for the regulation of land and natural resource use is scattered among different entities. Coordination among these regulatory authorities is weak and this often results in land use approval decisions either

taking too long, or land use changes and developments being approved without effective consultation. There is a need to harmonise and coordinate efforts across sectors, and spearhead innovative ways and means of enhancing ecosystem functioning and resilience in an integrated and coordinated way that balances socio-economic and environmental objectives.

Many sectoral initiatives have a narrow focus. For instance, forestry activities focus solely on increasing tree cover, without addressing rangeland management and by failing to address livestock husbandry, they can actually undercut their own success, given that cattle and goats can damage seedlings. Moreover they do not necessarily use indigenous trees, nor take into account the effect of tree monocultures on biodiversity. Likewise, agriculture sector investments are focused on enhancing food security by increasing agricultural production through intensive use of fertilizer and pesticides and weak land husbandry. These can have adverse effects, including reduced water quality (surface and groundwater) and soil erosion where these parameters have not been taken into account in land use planning.

The lack of coordination is also evident at the institutional level where there are uncertain and overlapping mandates and responsibilities among the different government agencies. A glaring example is the case of reforestation activities and the roles of MoE and MoA discussed above. Government institutions also suffer from a lack of sustainable financing to provide human and other resources that ensure regular monitoring and enforcement.

Another evident gap is the lack of a much-needed, accurate and up-to-date database for information on land degradation in the Qaraoun Catchment. Decision-makers lack solid information on which to base decisions regarding land use allocation and management. Without a proper assessment, planning and monitoring regime for the maintenance of ecosystem services, managers and users have a difficult time evaluating and integrating land degradation risks effectively within decision-making. Information about socioeconomic conditions, especially for vulnerable groups, and physical characteristics of the environment in the districts is scarce and limited to ad hoc studies. This makes it difficult to plan properly for any intervention. In addition, and despite the efforts undertaken by CDR to develop a physical plan for Lebanon and the sporadic municipal-level zoning plans available, there are currently no comprehensive land use planning schemes at national, district and municipal levels that address land degradation-related issues.

Municipalities lack the capacity to generate, implement and enforce integrated land use management plans. Financial constraints present a further barrier to upscaling SLM across the landscape at the level required to successfully arrest land degradation and combat desertification. Ministries, governorates, districts and municipalities have a role in deciding where to channel baseline programme resources for supporting forestry, agriculture and livestock but this often focuses on production and technical efficiencies without weighing their negative impacts on land degradation processes. In part this is because there is a dearth of information on long-term costs of land degradation both in terms of loss in income and reduced ecosystem goods and services. Furthermore, there is a disconnect between public expenditure and environmental priorities and the result of this is land degradation.

Lebanon does not have operational, “on-the-ground” examples of integrated sustainable land management at the landscape scale (as opposed to more piece-meal management of specific problems such as forest fires). Without access to know-how, proven through demonstration, government decision-makers and resource users do not have the tools and knowledge necessary to decrease land degradation. There is a critical unmet need to infuse new management approaches into the management system focusing on the sectors that are driving land degradation.

Although the principles of forest management are well understood, the know-how needed to maintain the functional integrity of forests is lacking. The long-term resilience of the forests and their ability to provide important ecosystem services will require that certain areas (large forest blocks) are conserved rather than utilised for firewood and grazing and that connectivity is maintained between these

conserved areas by better managing these drivers of degradation, thus removing anthropogenic stressors that are impeding natural forest rehabilitation.

At the rangeland level, there is a need to reduce stocking levels in ecologically sensitive areas and promote new husbandry measures, such as rotational grazing.

In arable land, much still needs to be done although water pollution and land degradation from solid waste and wastewater is addressed through baseline activities. There is a clear lack in the baseline project to address pollution arising from unsustainable agriculture practices as in excessive use of fertilisers and pesticides. The mainstreaming of sustainable land use management into large-scale arable farming has not yet taken place in the Qaraoun Catchment. Practices are mainly influenced by short-term profitability and in many cases based on incomplete and incorrect knowledge bases. There are few examples of cultivation practices which are financially profitable but also environmentally sustainable.

## 2 STRATEGY

### 2.1 Project Rationale and Policy Conformity

#### 2.1.1 Rationale and summary of the GEF Alternative

In the **business-as-usual scenario**, in spite of various policies and strategies, land-use plans will fail to be developed at the district level because of lack of financial resources, lack of capacity and lack of information; agricultural activity based on agro-chemicals will continue to intensify with little or no consideration for the impacts that it is having on soil, water and biodiversity; forest areas will remain inadequately managed and protected, and vulnerable to the livelihood needs of communities; rangelands will continue to be stressed and degraded by overstocking. Responsibility for compliance with and enforcement of plans and other protective measures will remain fragmented and citizens will remain unclear as to their responsibility and accountability. Locals will continue to be forced by necessity to encroach on to degraded rangelands for grazing; they will continue to cut trees for firewood for cooking and home heating; farmers will continue to use increasing amounts of agricultural chemicals in their search for higher yields, thus reducing soil fertility, increasing water pollution and threatening vulnerable biodiversity and fragile ecosystems. Globally significant biodiversity in and around the Bekaa Valley and its Qaraoun Catchment will continue to suffer impacts and ecosystem services will continue to decline.

The Government will continue to express concern about these impacts but it will also continue to aim for higher productivity from the Qaraoun Catchment as an increasingly valuable component of the economy. The MoE will continue to promote wise land use, and protection of forests and rangelands without providing alternative sources of income and livelihoods; any land-use plans produced by Municipalities will continue to be disowned by local communities and there will be little or no implementation. The long-term viability of food production and livelihoods in the Qaraoun Catchment will increasingly be jeopardized.

The **GEF alternative** will comprise relevant activities from the baseline and build upon them through the use of GEF resources to set a goal of wise land use on a sustainable long-term basis for the Qaraoun Catchment. It will do this by developing institutional tools upstream at national level which will provide the MoE and the MoA as well as related agencies such as the CDR, the Ministry of Interior and Municipalities, the Bekaa Governorate, and District Administrations and Municipalities in West Bekaa, Zahle and Rachaya Districts with the know-how, means and mechanisms for promoting sustainable land use as in the best interest of the land owners, farmers and communities as well as the nation.

Land-use plans at the landscape level will benefit from the project through the identification of land productivity values and ecosystem services and how they can be protected, and an effective monitoring system will be established to maintain all data up to date and discover any worrying trends before they become irreversible. At site-specific level, forests, rangelands and arable land that are currently weakly managed and poorly funded will benefit from comprehensive land use plans that will provide information and education as well as livelihoods and financial security.

The implementation of the proposed project will have an immediate global environmental benefit through the increased management efficiency of arable land and rangelands and the expansion of the area under forests through land use plans, buffer zones, and riparian strips. This will lead to the restoration of natural productivity and conservation of the habitats of a number of plant and animal species and valuable ecosystems and will secure migratory bird pathways. As a result, valuable ecosystem services will be safeguarded, production will become sustainable and globally significant biodiversity will be conserved.

In summary, as discussed in section 1.4 above, the baseline of activities in the Qaraoun Catchment is a significant USD150 million or more over the five years of the project. Of this, some USD23 million has been identified as of direct relevance to the project. Of this, USD17.6 million is under the responsibility of the MoE and, since the MoE is the EA for the project, it has been decided to focus on these relevant baseline activities that are being managed/coordinated/implemented by the MoE. These baseline activities, which are considered as Government co-financing for this project, provide considerable scope for upscaling and replication of project results. The Project will take a broad landscape approach and specifically address land degradation. It will balance objectives and build the necessary conducive environment for sustainable land management consisting of a comprehensive decision-making and monitoring and enforcement system at the district level, and mobilising the baseline programme to achieve a paradigm shift from unsustainable to sustainable land use while improving the livelihoods of the farming communities.

Table 5 on the next page provides the incremental logic of the project design. It starts with the activities making up the USD17.6 million baseline, namely - Changes in production practices USD4.6 million; Land use planning and enforcement USD12 million; and Regulatory basis improvements and institutional strengthening USD 1.0 million. It then identifies the gaps remaining and this leads to a description of what the GEF project will be doing in response together with the additional costs and the incremental benefits which will accrue from the project interventions.

In summary, funding dimensions of the project are as in the following table.<sup>43</sup>

**Table 4. Baseline and GEF Trust Fund components of project Outcome budgets**

OUTCOME	COFINANCE BASELINE	GEF TRUST FUND	TOTAL PROJECT COST
1. <i>Landscape level uptake of SLM measures avoids and reduces land degradation, delivering ecosystem and development benefits in the Qaraoun Catchment</i>	4,600,000	1,869,700	6,469,700
2. <i>Pressures on natural resources from competing land uses in the Qaraoun Catchment are reduced</i>	12,000,000	920,200	12,920,200
3. <i>Institutional strengthening and capacity enhancement for promoting sustainable forest and land management in the Qaraoun Catchment through an INRM approach across the landscape</i>	1,000,000	248,080	1,248,080
<b>TOTALS</b>	<b>17,600,000</b>	<b>3,037,980</b>	<b>20,637,980</b>

<sup>43</sup> Project management costs are in addition to these figures.



**Table 5. Project activities addressing remaining challenges incremental to the baseline**

AREAS OF WORK	BASELINE ACTIVITIES BY MoE (and value)	GAPS REMAINING	INCREMENTAL ACTIVITIES (per Outcome and Outputs)	INCREMENTAL BENEFITS and TOTAL COSTS
Changes in production practices	<p>Qaraoun Catchment component of the MoE National Reforestation Plan - Strengthen Lebanon's forest seedling nurseries and oversee the implementation of large-scale reforestation activities in the country, in line with the NRP.</p> <p>(USD2.0 million for Qaraoun component)</p> <p>MoE pollution abatement activities targeting specifically the agriculture production sector – pesticide use, soil protection, salinization, capacity building</p> <p>(USD2.6 million estimated over five years)</p>	<p>Forest areas remain inadequately managed and protected, and vulnerable to the livelihood needs of communities who continue to cut trees for firewood for cooking and home heating</p> <p>Rangelands continue to be stressed and degraded by overstocking and farmers continue to be forced by necessity to encroach onto degraded rangelands for grazing</p> <p>No consideration of LD and protection of ecosystem services when planting forests</p> <p>Agricultural activity based on agro-chemicals continues to intensify with little or no consideration for the impacts that it is having on soil, water and biodiversity; farmers continue to use increasing amounts of agricultural chemicals in their search for higher yields, thus reducing soil fertility, increasing water pollution and threatening vulnerable biodiversity and fragile ecosystems.</p> <p>Lack of comprehensive approach Focus on pollution and not on SLM</p> <p>The long-term viability of food production and livelihoods in the Qaraoun Catchment is increasingly being jeopardized</p>	<p><b>Outcome 1</b> comprises site level interventions – at different altitudinal levels in the catchment and in different land use types across broad landscapes (<i>i.e.</i> and in forests at high altitudes, along the transition to rangelands at a lower level and in the agricultural production areas of the valley floor).</p> <p>Under Output 1.1 surviving forests will have been identified under the Land Use Plans (Output 2.2) and will be protected and degraded forests will be rehabilitated both by planting as well as through natural regeneration following protective measures (e.g. fencing). The measures will be tested and validated for replication.</p> <p>Output 1.2 will seek a reduction in stocking rates, pasture area rotation and seasonal management in the degraded rangelands of West Bekaa and Rachaya Districts, with replication to the rest of the Bekaa Valley enforced by MoA, Districts and Municipalities.</p> <p>Output 1.3 will have a focus on arable land in the Bekaa Valley. It will test and promote conservation agriculture, organic farming, integrated crop management, drip-irrigation, recycling compost and other natural fertilizer, cover crops, soil enrichment, natural pest and predator controls, bio-intensive integrated pest management and other techniques which will arise from participatory brainstorming with community members, in Zahle, West Bekaa and southern Baalbek Districts. The approach will be evaluated and made available for replication nationwide.</p>	<p>Incremental Benefits include - Forest resources recover and managed on a sustainable basis to enhance ecosystem services.</p> <p>Rangelands / grasslands vegetative cover recovery, reduction in water run-off, water and wind erosion, and loss of topsoil.</p> <p>Recovery of soil structure, moisture retention, and natural fertility; improvement in run-off water quality; enhanced value of produce to discerning markets</p> <p><b>The GEF alternative for Changes in Production Practice under Outcome 1 will cost USD6,469,700 of which USD1,869,700 is from GEF and USD4,600,000 is from co-financing.</b></p>
Planning and enforcement	<p>MoE and MoA assistance to district land use planning, forest management planning, rangeland management planning as part of core activities</p> <p>(estimated USD2.0 million over five years)</p>	<p>In spite of various policies and strategies, land-use plans are not developed at the district level because of lack of financial resources, lack of capacity and lack of information. Any land-use plans produced by Municipalities continue to be disowned by local communities and there is little or no implementation</p> <p>LUP as a process remains weak</p>	<p><b>Outcome 2</b> seeks a reduction of pressures on natural resources from competing land uses. This will be achieved through an enabling planning framework modelled on an Integrated Natural Resource Management (INRM) approach comprising Integrated Land Use Management Plans built on a foundation provided by diagnostic studies comprising an extensive resources survey, and the data and information captured in an efficient database on a GIS platform.</p> <p>Formulation, adoption and implementation/enforcement of Land Use Plans in West Bekaa and Rachaya Districts will be carried</p>	<p>Incremental Benefits include - Increase in forest cover and health as well as rangeland integrity leading to the safeguarding of ecosystem services such as wood and fibre, medicinal herbs, carbon sequestration, climate stability, flood regulation, water</p>

	<p>Support to Reforms - Environmental Governance in Lebanon Project MoE (with EU support) improve environmental performance of the public sector in Environmental inspection and enforcement; administrative capacity; Environmental fiscal instruments; Environmental policy enhanced through updating of the National Environmental Action Plan; initiating the mainstreaming of environmental policies.</p> <p>(USD10 million project budget)</p>	<p>There is little or no consideration of SLM</p> <p>There is still a weak capacity for planning in general, especially at District and Municipality levels.</p> <p>Enforcement of any plans is weak</p>	<p>out under Output 2.2 and will have the capacity for upscaling to the rest of the Bekaa Valley. This will follow on an extensive programme of diagnostic studies including surveys leading to a Land Use Information Management System (under Output 2.1).</p> <p>Compliance and observation of the provisions of the Land Use Plans will be monitored through an effective monitoring system designed under Output 2.3.</p> <p>In parallel, compliance and enforcement capacities will be strengthened under Output 2.4, at both central government organizations and at District and Municipalities level.</p> <p>The diagnostic studies and land use plans will also inform the work under Output 1.1 for existing forests and rehabilitation of degraded forests; rehabilitation of stressed rangelands under Output 1.2; and land use for agricultural production under Output 1.3.</p>	<p>purification, erosion control, outdoor recreational pursuits.</p> <p>Reduction of urban and industrial encroachment on arable land. Integrated, holistic approach to land and water management with sustainability as a prime target</p> <p><b>The GEF alternative for Planning and Enforcement under Outcome 2 will cost USD920,200 of which USD12,000,000 is from GEF and USD12,000,000 is from co-financing.</b></p>
<p>Regulatory basis improvements; institutional strengthening</p>	<p>MoE general operational activities for the development and implementation of national environmental standards, specifications and guidelines, and the application of the EIA Process</p> <p>(estimated USD1.0 million over five years)</p>	<p>Responsibility for compliance with and enforcement of plans and other protective measures remains fragmented and citizens remain unclear as to their responsibility and accountability</p> <p>There is little or no consideration of Land Degradation in legislation</p> <p>There is weak capacity for Land Use Planning and SLM</p> <p>No mainstreaming of SLM considerations</p>	<p><b>Outcome 3</b> seeks a stronger institutional foundation and enhanced capacities among central and local level government functionaries. Institutional strengthening will be achieved through policy and regulatory reforms and capacities will be enhanced through the provision of expertise and know-how for land use planning and management for sustainability.</p> <p>Under Output 3.1 the project seeks the reform of policies, legislation and procedures to remove remaining barriers and facilitate SLM.</p> <p>Output 3.3 targets capacity building, institutional strengthening, and the clarification of mandates for MoE, MoA, Districts and Municipalities and other relevant institutions nationally and throughout the Qaraoun Catchment.</p> <p>Wise and sustainable land use practice mainstreamed into the operations of critical institutions such as Districts and Municipalities</p>	<p>Incremental Benefits include - Coordination among operational agencies, higher appreciation and sensitivity of the problem of LD and the benefits of SLM; clearer guidance; fairer and clearer legislation leading to a higher level of compliance</p> <p><b>The GEF alternative for Regulatory Improvements and Institutional Strengthening under Outcome 3 will cost USD1,248,080 of which USD248,080 is from GEF and USD1,000,000 is from co-financing.</b></p>

## 2.1.2 Project localities

The project will operate at localities selected on the basis of set criteria<sup>44</sup> which reflect the aims of the project. These aims are to test and apply various approaches for sustainable land management in forests, rangelands and arable land environments, particularly examples of land in a degraded state, in the Qaraoun Catchment.

The PIF indicated that the project work will involve 10,000 ha of protection forest, 500 ha of degraded forest, 20,000 ha of rangeland pastures and 40,000 ha of agricultural land.

On the basis of the selection criteria, following expert advice, and bearing in mind the desired targets set in the PIF, the localities where the project will test its approaches to sustainable land management are to be found in three of the four Districts that make up the Catchment. It must be stressed that this reduction in scope does not affect the project Objective in any way. It should also be noted that project results will be applicable and upscalable to the rest of the Catchment and beyond, supported by co-funding but based on what has been demonstrated by the project. Furthermore, the project will take proactive steps to provide good foundations for upscaling.

The **West Bekaa District** is described fully in Annex 5, Section 2 which discusses its administrative set-up, its physical and ecological environment, its demographics, and current land use identifying forests, rangelands and agricultural productivity. The District will serve as a locality for land use planning, rangelands and pastures, forests and some arable lands activities. As such, it will be the main centre of activity for the project.

The West Bekaa district has a total surface area of about 470 km<sup>2</sup> stretching from the highlands of Mount Barouk at 1900 m of altitude in the west all the way down to the Bekaa plain and then up again to the highlands of the Anti-Lebanon mountain range<sup>45</sup>. Joub Jannine is the capital and urban centre of West Bekaa with an estimated population of 12,000 distributed in 4,200 households. It is considered as the economic and commercial hub for West Bekaa<sup>46</sup>.

There are three areas of high biodiversity values within West Bekaa District, all of which are designated as IBAs. These are Al Shouf Cedar Nature Reserve (the majority of which lies within the Shouf District, but has an eastern flank within West Bekaa), Aammq Wetland and Lake Qaraoun.

Agriculture is still a main activity in West Bekaa and has an important socio-economic impact on the mostly rural population of the district. There are 4,803 known farmers (users of agricultural land) in West Bekaa and these translate into 24,859 family members being involved in agriculture – an average of 5.175 family members for each agricultural user.

The lands of the West Bekaa are well known for producing top quality wines and wine-making is as ancient as history in Lebanon.

The **Zahle District** (418 km<sup>2</sup>) is described fully in Annex 5, Section 3 in terms of its administrative set-up, its physical and ecological environment, its demographics, and current land use. The District will serve as the locality for arable lands activities and possibly for some forests activities by the project.

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<sup>44</sup> See Annex 5 for a discussion of the selection criteria and a full description of the localities selected.

<sup>45</sup> Localiban website (<http://www.localiban.org/spip.php?rubrique248>)

<sup>46</sup> Jeb Jannine Website (<http://www.jebjannineonline.com/jebjannine.php>)

The district is strategically located between the Lebanese coastal region and the Lebanese interior but most importantly it is the primary gateway of Lebanon to the Arab World. As such, its economy is influential at the national level and is the most developed part of the Bekaa concentrating a great deal of its service industries such as schools, universities, hospitals and hotels<sup>47</sup>. Additionally, the district is home to many of the Litani River's tributaries, most prominently the Anjar, Berdawni, Chamsine, Chtoura, Qabb Elias and Jdita rivers and springs. Therefore, the district plays a major role in the water flow within the Upper Litani River Basin<sup>48</sup>.

The poverty rate in Zahle is 22%, 6% less than the national poverty rate of 28%<sup>49</sup>. During the past three years of Syrian civil war, Zahle became host to the largest number of refugees in the Bekaa, with 140,151 registered refugees in 29,081 households, many of whom live in informal tented settlements on rented agricultural land<sup>50</sup>.

The area most recognized for its biodiversity in Zahle is Hima Anjar-Kfar Zabad, a designated IBA as well as a Hima (protected area) by the municipalities of Anjar and Kfar Zabad. It occupies an area of 326 ha.

Of all the districts within the Qaraoun Catchment, Zahle is the least forested. Small ruminants such as sheep and goats comprise almost all of the grazing animals within the district. However, its number of cattle is the highest among all the districts of the Bekaa Governorate.

Agriculture is a main land use in Zahle District with a total area of 18,925 ha and 4,575 farmers, and this reflects the favourable conditions. The district has a favourable climate with a long growing season and deep rich soils within the central Bekaa plain. The soils of the plain are cropped with a wide assortment of field crops whereas its eastern and western highlands are cultivated with fruit crops, olives and vineyards. Additionally, many agricultural industries are concentrated within the district leveraging the area's position with respect to other districts of the Bekaa.

Zahlé District has the highest number of industries in the Bekaa Valley. There are an estimated 723 businesses and factories all over Zahle and most towns in the District have between two and 50, with the highest number, 322 businesses, located in Zahle-Maallaqa<sup>51</sup>. Unlike the other districts in the Bekaa that resort to open dumping, Zahle has a landfill that serves 15 towns within the district. In addition, Zahlé also has a health waste management treatment unit operated by Arc-en-Ciel which treats about 332 kg of waste per day<sup>52</sup>.

The **Rachaya District** (545 km<sup>2</sup>) is described fully in Annex 5, Section 4. In addition to discussing its administrative set-up, its physical and ecological environment, and its demographics, the Annex has a special focus on rangelands. In fact, the District will serve as the locality for land use planning, rangelands and pasture as well as forest activities for the project. Its capital, Rachaya el Wadi, is at an elevation of 1,250 m above sea level.

Pastures, rangelands or barren lands make up the majority of the Rachaya District which is home to Lebanon's second highest peak, Mount Hermon/Jabal Ec Cheikh at 2,800 m above sea level. The lands of the district are mostly mountainous with few flat plains cultivated with wheat and other agricultural crops irrigated by the many springs found within it. The annual rainfall in the district

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<sup>47</sup> Localiban website (<http://www.localiban.org/spip.php?rubrique247>)

<sup>48</sup> UNDP / MOE (2011) Business Plan for Combating Pollution of the Qaraoun Lake, prepared by ELARD

<sup>49</sup> Laithy, H., Abu Ismail, K. and Hamdan, K. (2008) *Poverty, Growth and Income Distribution in Lebanon*. Published by International Poverty Center: Country Study No. 13

<sup>50</sup> UNHCR Website (<http://data.unhcr.org/syrianrefugees/region.php?id=90&country=122>)

<sup>51</sup> Localiban Website (<http://www.localiban.org/spip.php?rubrique532>)

<sup>52</sup> UNDP / MOE (2011) Business Plan for Combating Pollution of the Qaraoun Lake, prepared by ELARD

averages from 500 mm in northeastern parts to above 1,000 mm in the highlands of Mount Hermon which is snow covered for over 6 months of the year<sup>53</sup>.

The registered population of Rachaya District is 73,000, however only 7,500 reside in Rachaya el Wadi in winter, increasing to about 10,000 in summer. A survey conducted in 2002 designated Rachaya as one of nine poverty prone areas within Lebanon<sup>54</sup>.

The natural green cover of Rachaya is composed of forests and other wooded lands which exist in isolated pockets with low density and often degraded forests. The district is one of the most threatened by desertification at the national level with over 77 % of its lands being exposed to a high level of desertification<sup>55</sup>.

Rachaya is the district with the highest level of rangeland pastures within the Qaraoun Catchment. In fact, around 75% of its lands are considered as rangelands. Sheep and goats account for virtually all the grazing animals within the district. The number of cattle is the lowest in the Catchment.

The Rachaya district produces quality olives and olive oil, exquisite grape molasses and excellent honey. Several villages in the district specialize in producing honey, especially Rachaya el Wadi which is the leading area in the Bekaa Governorate in terms of beekeeping with over 3,680 beehives<sup>56</sup>. In addition to honey, beekeeping leads to a wide range of other products such as wax, propolis, royal jelly, honey soaps and honey based medicines.

Field implementation in localities in the three selected Districts, together with national level outputs will inform replication in the entire catchment and elsewhere – these being then funded by co-financing. Up-scaling will be facilitated by the project's foundational work, supported by co-funding and based on what is demonstrated by the project.

### 2.1.3 Stakeholder analysis

Some stakeholders have been associated with the project from very early on and they form the core of implementation partners and their interest has been confirmed through various consultation meetings during project formulation. The original list from the PIF has been revised to reflect the better focus in project localities and changing circumstances. The list has also been augmented with the addition of other partners and now stands as in the following table which identifies the role that each partner will play in project implementation.

As can be seen from the table, a wide range of stakeholders will be involved in the implementation of the Project, including relevant ministries and other organizations upstream, District and Municipal administrations at the district level, local communities (farmers, livestock herders, forest communities and nomad pastoralists) and the private sector. In addition, relevant research organizations, academia, NGOs, and CBOs have acquired considerable experience and skills of working in the rural environment and are particularly specialized in land use, environmental protection, capacity building and raising awareness and sensitivity to the issues being addressed by the project. Because of this consideration, some of these organizations will be involved in the field implementation of project interventions in the selected districts.

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<sup>53</sup> APIPNM website ([http://www.apipnm.org/swlwpnr/reports/y\\_nr/z\\_lb/lbmp131.htm](http://www.apipnm.org/swlwpnr/reports/y_nr/z_lb/lbmp131.htm))

<sup>54</sup> YMCA Lebanon (2005) *Environmental Impact Assessment Report: Wastewater treatment plant in Rashaya*. Prepared by CEE

<sup>55</sup> MoE (2003) National Action Programme to Combat Desertification.

<sup>56</sup> MoA (2010) Agricultural Census 2010, website ([http://www.agriculture.gov.lb/html/RESULTATS\\_RECENCEMENT\\_AGRICULTURE\\_2010/caza.html](http://www.agriculture.gov.lb/html/RESULTATS_RECENCEMENT_AGRICULTURE_2010/caza.html)).

Detailed consultations with the primary stakeholders have been undertaken during the preparation of this Project Document through national and local level consultative meetings. The purpose of these consultations was to evolve consensus on the nature of the SLM interventions and the target districts for project activities.

The project follows a cross-sectoral and participatory approach, requiring the involvement of different stakeholders in implementation at national, district and local levels. At the Inception Phase of the project, a comprehensive “Stakeholders’ Participation Plan” defining roles and responsibilities of the project partners will be formulated which will include: a mechanism for effective coordination among different stakeholders especially within particular districts; a strategy for mobilization and involvement of local administrators, landowners, workers and other residents in the preparation and implementation of site-specific land use plans; a mechanism for involvement of local groups of both men and women for participatory resource assessments and identification of local priorities to inform the land use planning process; a mechanism for providing technical assistance to land owners, individual farmers and shepherds and local communities through line agencies, district administrations, and contracted NGOs for replication of SLM interventions that have been tested successfully by the project; a system for participatory monitoring and evaluation of land use practice and the impact of project activities.

The following table comprises stakeholders identified in the PIF stages and augmented during the project formulation phase.

**Table 6. Stakeholders and their roles and responsibilities in project implementation**

STAKEHOLDER	ROLE AND/OR RELATIONSHIP WITH THE PROJECT	RELEVANT PROJECT COMPONENT
Ministry of Environment (MoE)	MoE will be the Executing Agency/Implementation Partner for the project as the national environment agency in Lebanon, responsible for all environmental protection issues. Its responsibilities are: (i) to strengthen environmental inspection and enforcement; (ii) to promote sustainable management of land and soil; (iii) to preserve and promote Lebanon’s ecosystem capital (iv) to promote hazardous and non-hazardous waste management; (v) to control pollution and regulate activities that impact the environment. The Ministry will facilitate functioning of the Project Coordination Unit (PCU), especially in regard to liaison with government authorities from different sectors. MoE will take a lead in the upstream activities of the project as well as the SEA on which the LUPs will be founded. It will oversee the integration of conservation measures and monitoring system into the integrated land-use (management) plans and/or annual work plans and contribute to capacity building of stakeholders (public/private/community) in the Qaraoun Catchment project sites. MoE will ensure coordination with other relevant projects and initiatives and will be active in monitoring PCU performance.	As EA/IP for the project will be involved in work across all three Outcomes and most Outputs
Ministry of Agriculture (MoA)	The Ministry of Agriculture oversees the majority of land use in Lebanon. It is also the National Focal Point for the UNCCD. More specifically, it has responsibility for the management of forests, rangelands and agricultural activities. The MoA is therefore a key stakeholder and partner for the project. It will provide advice and expertise for project activities at the local level, facilitate forests activities, as well as lead in the development and implementation of rangeland management protocols.	Main input will be made to Outcome 1; but also Outcomes 2 and 3. More specifically, MoA will contribute to Outputs 1.1, 1.2, 1.3, 2.2, 3.1, 3.2 and 3.3
Lebanese Agricultural Research Institute (LARI)	The LARI is a public institution dedicated to research for the development and advancement of the agricultural sector in Lebanon. It falls under the aegis of the Ministry of Agriculture but continues to enjoy administrative and financial autonomy. LARI will be involved in the project agricultural activities and will provide advice and expertise for the innovative approaches and tools that the project will develop in its search for sustainable land management practices.	Main input will be related to Outcome 1, especially Output 1.3. Advice will also be sought



		under Outcome 2, specifically for Outputs 2.2, and 2.4.
Council for Development and Reconstruction (CDR)	The Council for Development and Reconstruction has three main tasks: compiling a plan and a time schedule for the resumption of reconstruction and development, guaranteeing the funding of projects, supervising their execution and utilization by contributing to the process of rehabilitation of public institutions, thus enabling it to assume responsibility for the execution of a number of projects under the supervision of the Council of Ministers. More recently, CDR has focused on land use and land use planning and as such will be a key stakeholder and partner for the project. It will provide advice and expertise for the LUP activities of the project and share ownership of the resulting plans.	Primarily work under Outcome 2, especially Output 2.2; but also involved in work under Outcome 3, Output 3.1
Qaraoun Catchment Districts, Municipal Unions and other Municipalities	The three Districts of interest to the project comprise a number of Municipalities many of which have combined to form Unions. These local administrations are charged with the day-to-day management of all public works within their area of jurisdiction including water and waste networks, waste disposal, internal roads, and urban planning. They are key stakeholders and partners for the project Land Use Planning activities for which they will provide local knowledge and collaboration. They will also adopt and implement the LUPs and as such are among the main beneficiaries of the project. Furthermore, they will cooperate with the project in its reforestation and related activities, as well as the coordination of rangeland management.	Primarily work under Outcome 2, all four Outputs ; but also involved in work under Outcome 3
UN-HABITAT	The United Nations Human Settlements Programme, UN-HABITAT, is the United Nations agency for human settlements. It is mandated by the UN General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all. The main objective of the UN-HABITAT Country Program for Lebanon is to focus on long term development strategies. Collaborating with the Government in coordination with other UN agencies operating in the country, UN-HABITAT expects to consolidate a comprehensive program to address governance and reform issues. Among its activities, UN-HABITAT is involved in training and capacity building for land use planning for which it has developed and delivered a successful course.	May contribute to training and capacity building under Outcome 3, Output 3.3.
Ministry of Public Works and Transport	The Directorate General for Urban Planning (DGUP) of the Ministry of Public Works and Transport has responsibility for land use planning in Lebanon although to date this has focussed on the urban environment. As the entity with legal responsibility for land use planning the DGUP will be a major stakeholder for the project and will advise and assist the project with its LUP activities and provide the legal framework for their development, adoption and ultimate implementation.	Will contribute to Outcome 2 (especially Output 2.2) and serve as the avenue through which the results will be provided for government endorsement
Wider Public, Communities and the Private Sector	The involvement of the wider public and communities in ecosystem conservation is an important part of this project. Land owners and employers, other private sector exponents, farmers, shepherds, farmers associations and cooperatives, and other communities in the localities where the project is active, are the prime beneficiaries of the project. They will be involved fully in the design, testing, evaluating and eventually upscaling of project approaches and tools for Sustainable Land Management. They will be identified more specifically during the Inception Phase and brought in as appropriate during project implementation.	Opportunities will be provided for meaningful participation under Outcomes 2 and 1 – in particular Output 2.2, but also 1.2 and 1.3
Environmental NGOs and community groups	The environmental NGOs and community groups experienced in various aspects of the project will be involved as much as possible e.g. Forests activities (Jouzour Loubnan, Friends of the Cedars of Bcharre Committee, Association for Forests, Development and Conservation); Arable land activities such as organic farming and slow food (Greenline Association); Protected Areas designation and management (Al Shouf Cedars Society); Nature based tourism development (e.g. trail development – Lebanon Mountain Trail Association, Baldati, etc.). Others will be identified during the Inception Phase.	Mainly Outcomes 1 and 2, but possibly also Output 3.4
Academia	University staff and students from relevant institutions will be invited to participate in activities for which they are seen to have the necessary expertise, advice, knowledge and/or capabilities. These could include the survey work which will form part of the	Primarily Outcomes 1 and 2

	Strategic Environmental Assessment and which will underpin the Land Use Plans, as well as the subsequent environmental and land use monitoring which will follow.	
Professional organisations	Organizations such as Chamber of Commerce, Industry and Agriculture, Syndicate of Industrialists, Order of Engineers and Architects will be invited to participate in project activities as relevant to their areas of interest and expertise.	Outcome 2 and Outcome 3
The Litani River Authority (LRA)	The Litani River Authority (LRA) was formed in 1954 to facilitate the integrated development of the Litani River Basin. Its major achievement is the hydroelectric development project that has brought about major hydrological changes to the Litani River Basin. The project sees the LRA as a most important institution in the Qaraoun Catchment and is seen as a source of advice on hydrologic matters. The LRA is also a prospective beneficiary of the project as a result of its expected positive impact on lake water quality.	While not directly involved in project implementation, the LRA and MoEW will assist with evaluating the impacts of the project and may contribute specifically to Output 2.3.
Ministry of Energy and Water (MoEW)	The MoEW will collaborate with the project by monitoring water quality and quantity in the Litani River and the evaluation of the project success, as well as in the process of policy and legislation review.	
Central Administration of Statistics (CAS)	The CAS has published Environment statistics with data on water, the seabed, air pollution, soil, biodiversity, forests, wildlife and flora and waste. Some of this data is of interest to the project and CAS will be invited to collaborate in project activities such as surveys which will lead to the SEA and the LUPs. Statistics will also be helpful in evaluating the project's results and impacts.	CAS may be able to assist with the setting up and subsequent implementation of the Land Use Monitoring Programme (Output 2.3)

The above table which is the result of extensive discussions and presentations, serves as the draft Stakeholders' Participation Plan. The final Plan will be produced during the Inception Phase by the project team in consultation with stakeholders for approval by the Project Executive Board.

#### 2.1.4 Fit with GEF Focal Area Strategy and Objectives

The project is in harmony with the GEF-5 Land Degradation Focal Area Strategy<sup>57</sup> which seeks the following global environmental benefits:

- Improved provision of agro-ecosystem and forest ecosystem goods and services
- Reduced GHG emissions from agriculture, deforestation and forest degradation and increased carbon sequestration
- Reduced vulnerability of agro-ecosystem and forest ecosystems to climate change and other human-induced impacts

It is also expected to produce the following national socio-economic benefits:

- Sustained livelihoods for people dependent on the use and management of natural resources (land, water, and biodiversity)
- Reduced vulnerability to impacts of CC of people dependent on the use and management of natural resources in agricultural and forest ecosystems

More specifically, the project will address each of the four GEF LD objectives, namely:

- 1 Maintain or improve flows of agro-ecosystem services to sustain the livelihoods of local communities;

<sup>57</sup> GEF (2013) GEF Focal Area Strategies - *Land Degradation (Desertification and Deforestation) Strategy*. Pages 55-69



- 2 Generate sustainable flows of forest ecosystem services in arid, semi-arid and sub-humid zones, including sustaining livelihoods of forest-dependent people;
- 3 Reduce pressures on natural resources from competing land uses in the wider landscape;
- 4 Increase capacity to apply adaptive management tools in SLM.

The project will promote an integrated approach towards fostering sustainable land management – seeking to balance environmental management with development needs. Amongst other things, it will set-up a multi-sector planning platform to balance competing environmental, social and economic objectives in district development plans and associated investments. In doing so, it will reduce conflicting land-uses and improve the sustainability of land management so as to maintain the flow of vital ecosystem services and sustain the livelihoods of local and downstream communities. The platform will be underpinned by a robust decision support system – including a Strategic Environmental Assessment and monitoring framework so as to inform the planning process, development investments and enforcement. This will provide a system for determining where development should be avoided (in the most ecologically sensitive areas), where and how impacts should be reduced, and where and how land should be rehabilitated. Further, the project will adapt land use practices in different economic sectors – testing new management measures, as needed to reduce environmental stress.

The project also advances the strategic objectives of the UNCCD 10-Year Strategic Plan<sup>58</sup> namely:

- 1) To improve the living conditions of affected populations
- 2) To improve the condition of affected ecosystems
- 3) To generate global benefits through effective implementation of the UNCCD

It also addresses the following operational objectives of the Plan:

- 1) Advocacy
- 2) Science, technology and knowledge
- 3) Capacity-building

### **2.1.5 Conformity with UNDP and UNDAF strategies**

The project activities directly contribute to three outputs outlined in Lebanon's UNDAF for 2010 – 2014. They are:

- Output 1.2.5: Strengthened management and technical capacity of central and local authorities for policy and programme development, including decentralization policy and planning
- Output 5.1.3: National forest strategy is developed and integrated forest management is initiated
- Output 5.3.4: Enhanced ecosystem functioning of Litani River watershed

As for alignment with the UNDP Country Programme Document for Lebanon (2010-2014), the project also adds value to UNDP's plan to help "*mainstream environmental considerations into other line ministries*" through incorporating natural resources issues into the regional integrated land use plans. The project will aid in "*strengthening the institutional capacity of stakeholders to support sound environmental decision-making*" by working with central, regional and local government to improve their performance in protecting land and natural resources. The project also aims to "*improve the enforcement of environmental legislation*", another priority objective set out by UNDP.

UNDP also plans to "*strengthen its strategic relationship with the Ministry of Agriculture and the affiliated Lebanese Agriculture Research Institute (LARI) to promote sustainable land management to improve livelihoods, focusing on desertification-prone areas, which are usually the more impoverished regions of the country*". This will be partially achieved through this project.

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<sup>58</sup> UNCCD, CoP-8 (2007) *The 10-year Strategic Plan and framework to enhance the implementation of the Convention*. Decision 3/COP.8

The project also conforms with UNDP's Biodiversity and Ecosystems Global Framework 2012-2020<sup>59</sup> which seeks to harness the positive opportunities provided by biodiversity and natural ecosystems, as a catalyst for sustainable development. The project recognizes the real value of biodiversity and ecosystems to society—in relation to secure livelihoods, food, water and health, enhanced resilience, conservation of threatened species and their habitats, and increased carbon storage and sequestration – and seeks innovative ways of addressing the problems of the Bekaa Valley so as to achieve a sustainable future and achieve multiple development dividends while striving towards the Aichi Targets.

### **2.1.6 Project strategic approach**

The project is designed to achieve sustainable land management in the Qaraoun Catchment. More specifically, it is aiming to obtain alleviation of land degradation, maintenance of ecosystem services and an improvement in livelihoods as targeted by the Objective. It will obtain these impacts by working at three levels. Firstly, it will carry out local level interventions under Outcome 1 where specific SLM practices will be implemented in three Districts in specific farms, forests and rangeland areas within selected landscapes. Secondly, it will upscale its tested approaches to the district level through the formulation of land use plans under Outcome 2. Thirdly, the project will prepare for higher level replication across all four districts and beyond through the improvement of institutional capacities, an effective knowledge system and an attractive economic incentives scheme under Outcome 3. The project will achieve its ultimate impacts by feeding its results into the on-going co-financed interventions and influencing them into mainstreaming sustainable land management into their operations.

## **2.2 Project Objective, Outcomes and Outputs/Activities**

### **2.2.1 Project Objective**

The project Objective is: *Sustainable land and natural resource management alleviates land degradation, maintains ecosystem services, and improves livelihoods in the Qaraoun Catchment*

As such, the Objective seeks three results, namely:

- Alleviation of land degradation
- Maintenance of ecosystem services
- Improvement in livelihoods

and these are expected to arise through the management of land and natural resources in a sustainable manner. Confirmation that these results have been achieved may not be possible within the four year timescale of the project. However, progress towards the Objective will be assessed with the help of Indicators.

### **2.2.2 Project Outcomes**

In order to achieve the project Objective, address the identified barriers, and strive for the targeted results, the project intervention comprises three Outcomes and these are pitched at different levels and in different land use types as described below.

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<sup>59</sup> United Nations Development Programme (2012) *The Future We Want: Biodiversity and Ecosystems— Driving Sustainable Development. United Nations Development Programme Biodiversity and Ecosystems Global Framework 2012-2020*. New York.

**Outcome 1: *Landscape level uptake of SLM measures avoids and reduces land degradation, delivering ecosystem and development benefits in the Qaraoun Catchment***

This Outcome seeks the development, testing, evaluating and promotion of tools, practices and measures which avoid and reduce land degradation – for example, comprehensive database as a platform for decision-making, land use plans, stock carrying capacity for rangelands, forest conservation, and conservation agriculture on the plain. In so doing, the Outcome addresses site level problems in three different land use types in the Catchment – high altitude forest lands, middle level rangelands/grasslands, and arable land on the valley floor – all on a landscape scale. The result will comprise ecosystem and development benefits over a quantifiable area arising from a spectrum of ecosystem services such as reduced water deficiency, increased clean water supply for human, animal and plant consumption, reduced soil erosion and increased productivity (increased net primary production in rangelands). These benefits will also be reflected in improved family incomes and livelihoods from SLM practices. The estimated costs of this Outcome are USD1,869,700 plus co-financing of USD4,600,000 making a total for this Outcome of USD6,469,700.

**Outcome 2: *Pressures on natural resources from competing land uses in the Qaraoun Catchment are reduced***

This Outcome seeks a reduction of pressures on natural resources from competing land uses. This will be achieved through an enabling planning framework modelled on an Integrated Natural Resource Management (INRM) approach comprising Integrated Land Use Management Plans built on a foundation provided by an extensive resources survey with the data and information captured in an efficient database on a GIS platform. Success will be measured by the application of the LDPMAT (Land Degradation Focal Area - Portfolio Monitoring and Assessment Tool), at project start to establish the baseline, at project mid-term and at project closure. The scope of the work will focus on West Bekaa and Rachaya Districts. The project will also enhance the replication and upscaling of the tried and tested Land Use Management planning process to the rest of Bekaa Governorate bearing in mind the target of 157,000 hectares. The estimated costs of this Outcome are USD920,200 plus co-financing of USD12,000,000 making a total for this Outcome of USD12,920,200.

**Outcome 3: *Institutional strengthening and capacity enhancement for promoting sustainable forest and land management in the Qaraoun Catchment through an INRM approach across the landscape***

This Outcome seeks a stronger institutional foundation and enhanced capacities among central and local level government functionaries. Institutional strengthening will be achieved through policy and regulatory reforms and capacities will be enhanced through the provision of expertise and know-how for land use planning and management for sustainability. The resulting forest and land management according to effective land use plans, on a sustainable basis, will be measured by the application of the UNDP-GEF Capacity Development Scorecard (focused on institutional collaboration), at project start to establish the baseline, at project mid-term and at project closure. The estimated costs of this Outcome are USD248,080 plus co-financing of USD1,000,000 making a total for this Outcome of USD1,248,080.

The project will work at the “upstream” level with central and local government to develop institutional tools and measures under Outcome 3. It will also work with local authorities and communities to enhance their capacities for land use planning and management so as to achieve wise land use and protection of ecosystem services – this will be under Outcome 2. More specific innovative approaches to sustainable land use practice will be trialled at the local level, including farmland, rangelands and forests, under Outcome 1.

Tools and measures will be tested, evaluated and made available for replication and upscaling. It is through this replication and upscaling that the project’s significant results will be obtained.

Between them, the three Outcomes address the first two results sought by the Objective, namely, alleviation of land degradation, and maintenance of ecosystem services. The third result, improved livelihoods, will accrue as a result of the other two results.

### 2.2.3 Indicators

The project indicators are contained in Section 3 - Strategic Results Framework, and include a number of 'SMART'<sup>60</sup> process and impact indicators and targets. The choice of indicators was based on three key criteria: (i) their pertinence to the assumption inherent in the Logframe<sup>61</sup>; (ii) the feasibility of obtaining / producing and updating the data necessary to monitor and evaluate the project through those indicators; and, (iii) their direct relevance to the Objective and Outcomes, more than for Outputs.

As will be noted from the LogFrame in Section 3, it has not always been possible to determine the baseline for each of the key indicators. This is because in Lebanon there is a dearth of data and information below the Governorate level and survey work is required at the project Inception Phase so as to establish baselines at the District level and departure points for some project activities. Even where baselines are provided these are often estimates or generic values and they need to be further verified during the Inception Phase.

The proposed Indicators together with baselines and targets are summarised in the Table below which also includes rationale and comments on each.

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<sup>60</sup> SMART = Specific, Measurable, Achievable, Relevant and Time-bound

<sup>61</sup> The LogFrame is based on the general assumption that if (1) there is a strong enabling environment at national and district levels that supports SLM practice; and (2) there is an effective context for the implementation of SLM Land Use Plans; and (3) there is on-the-ground implementation of SLM pilot activities which can be replicated and up-scaled across landscapes; then these landscapes will be much less vulnerable to land degradation impacts, with significant benefits to local communities and broader ecosystem services.

**Table 7. Indicators selected for the Objective and Outcomes**

INDICATOR	BASELINE	TARGET	RATIONALE AND COMMENTS
<b><i>The Objective seeks three results, namely: Alleviation of land degradation; Maintenance of ecosystem services; and, Improvement in livelihoods</i></b>			
0.1 Alleviation of land degradation - Area of farmland in target districts managed according to SLM principles <sup>62</sup>	No explicit SLM practices in the 78,000 ha of agricultural land in the Qaraoun Catchment	SLM principles applied in 5% of agricultural land (4,000 ha) by end of project, with potential for replication to 100%	This Indicator is specific to the Objective and can be measured regularly through the monitoring programme to be set up by the project. It is a Process Indicator.
0.2 Maintenance of ecosystem services – such as food and medicinal herbs from forests and rangelands, water quality (e.g. BOD, NH <sub>3</sub> ) and erosion control (e.g. Suspended Solids) at the entry point of Lake Qaraoun	Ecosystem services taken for granted and not recognized as dependent on wise land use. Data for pollutant entering Lake Qaraoun out of date and unreliable and project survey will establish baseline	Awareness and appreciation among 50% of surveyed residents of the dependence of ecosystem services on wise land use. Reduction in surveyed parameters by 10-20% at project localities	This Indicator is specific to the Objective. It is qualitatively measurable using a social survey approach which is repeated at pre-determined intervals; and quantitatively through the monitoring programme to be set up by the project. It is both a Process Indicator as well as an Impact Indicator.
0.3 Improvement in livelihoods - communities participating in SLM interventions have improved their quality of life (measured by income levels)	Baseline will be established by surveying representative selected communities, as an early activity of project inception	Quality of life indicators show 10% improvement by end of project	This Indicator is specific to the Objective. While participation is directly measurable, improvement in quality of life needs to be measured qualitatively or by proxy. This is both a Process and an Impact Indicator although the latter may not be entirely measurable in the comparatively short timescale for the project.
<b><i>Outcome 1 seeks the development and promotion of measures which avoid and reduce land degradation</i></b>			
1.1 Recovery trend in degraded forests and rangelands, particularly in Rachaya District - Area of degraded forests and rangelands benefiting from introduced SLM techniques	In target districts, up to 20,000 ha of rangelands and 500 ha of forests are badly degraded	Turnaround in 10,000 ha of rangelands and 300 ha of forests by end of project, and with potential for replication to 20,000 ha of rangelands and 500 ha of forests	This Indicator is specific to the Outcome; it is measurable in hectares recovered, possibly through remote sensing. It is an Impact Indicator, however, the impact may not be explicitly apparent until sometime after the project has ended. Specific indicative parameters will be determined during the Inception Phase and baselines set from which to measure progress.
1.2 Uptake of SLM measures in arable land especially in Zahle and West Bekaa Districts	Few if any farmers and other land users apply SLM measures knowingly. Exact level to be established by survey in target areas	>50% of all farmers and land users in project target areas apply SLM measures demonstrated by the project in Zahle and West Bekaa	This Indicator is specific and relevant to the Outcome. It is a Process indicator which requires a baseline to be established by survey during the Inception Phase, for subsequent surveys to measure the uptake of SLM Measures

<sup>62</sup> See for example -

[http://www.google.co.nz/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0CCKQFjAB&url=http%3A%2F%2Fwww.seqcatchments.com.au%2F\\_literat\\_ure\\_129372%2FPrinciples\\_for\\_Sustainable\\_Land\\_Management&ei=LZ8KVOe2K4aluATepoDYBA&usq=AFQjCNHoyl\\_Y0FTTr1QXwmryvBBDHQXxJUw&bvm=bv.7464912\\_9.d.c2E](http://www.google.co.nz/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0CCKQFjAB&url=http%3A%2F%2Fwww.seqcatchments.com.au%2F_literat_ure_129372%2FPrinciples_for_Sustainable_Land_Management&ei=LZ8KVOe2K4aluATepoDYBA&usq=AFQjCNHoyl_Y0FTTr1QXwmryvBBDHQXxJUw&bvm=bv.7464912_9.d.c2E)

1.3 Percentage of land users in project localities in each of the three Districts that are applying SLM approaches in upland forests, rangelands and valley arable land	Current level in project target areas in the three Districts is very low (see Output 2.2)	>25% implementation within project target areas	While this is a Process Indicator in principle, it will also signal positive impacts.
<b>Outcome 2 seeks a reduction of pressures on natural resources from competing land uses</b>			
2.1 Integrated and participatory district level land use plans in West Bekaa and Rachaya reflecting SLM principles developed and adopted	No land use plans reflecting SLM principles exist in project target districts – West Bekaa and Rachaya	Land Use Plans for West Bekaa and Rachaya Districts (91,000 ha) developed and available for replication to the rest of the Catchment (total of 157,000 ha)	This will be measured qualitatively and quantitatively by noting the coming into being of the District Land Use Plans and the start of Municipal Land Use Plans formulation. It is a Process Indicator but LUPs could also be seen as a result (impact).
2.2 Reduction in pressure on rangeland resources in the high country of West Bekaa and Rachaya Districts – as shown by species composition and productivity	51,400 ha of rangelands considered degraded. To be refined through first survey (see Output 2.2)	An improvement of 20% (>10,000 ha) when compared to control in Rachaya District	Can be measured quantitatively through the use of transects and/or quadrats. This is an Impact Indicator, albeit on a modest scale.
2.3 Reduction in pressure on forest resources in West Bekaa and Rachaya Districts – as shown by the level of regeneration and recruitment of seedlings	6,032 ha of forests estimated to be degraded. To be refined through survey (see Output 2.2)	An improvement of 8% ( $\pm$ 500 ha) when compared with control in West Bekaa and Rachaya Districts	Can be measured quantitatively through the use of transects and/or quadrats. This is an Impact Indicator, albeit on a modest scale. Specific indicative parameters will be determined during the Inception Phase and baselines set following the initial surveys from which to measure progress.
<b>Outcome 3 seeks policy and regulatory reforms and enhanced institutional capacities</b>			
3.1 Capacity development indicator score for Land Use Planning and Management in West Bekaa and Rachaya Districts	Current score for West Bekaa and Rachaya Districts in 33.3%	By end of project an overall score of > 50%	This Indicator is specific to the Outcome. It can be measured through repeat applications of the UNDP Capacity Assessment Scorecard. This is a Process Indicator which should lead to impact in the long-term.
3.2 Number of Municipalities in each of the three Districts with knowledge of the benefits of SLM in project target areas	Currently low or no appreciation of the benefits of SLM among Municipalities	50% of Municipalities in project target areas, by project end	This is a specific Indicator to the Outcome. This is a Process Indicator and impacts will accrue in the medium to long term.
3.3 Acceptance level by communities in Zahle, West Bekaa and Rachaya Districts, and individual farmers, shepherds, etc, of the value of SLM as a rational approach for land use	Current level in project target areas is very low (see Output 2.2)	Increased acceptance and implementation (20%) by land users illustrated by their level of compliance (requiring less enforcement effort)	This will be measurable qualitatively (although it could be quantitatively measured through a well-designed survey). It is a Process Indicator which can lead to long-term impact. Specific indicative parameters will be determined during the Inception Phase and baselines set through the initial survey.
3.4 Extent of mainstreaming of SLM principles into policy, regulatory framework, strategy, planning, management, accountability, reporting and institutional capacity of key central government agencies, districts and municipalities	Currently there is no evidence of SLM principles in the policies, planning and operations of key government agencies, districts and municipalities	SLM principles evident in the policies, regulations, strategies, planning, management and reporting of MoA, MoE, CDR, and other key agencies, as well as West Bekaa, Zahle and Rachaya District administrations and municipalities	This Indicator requires a baseline to be set during the Inception Phase. It is measurable mainly qualitatively but also quantitatively by recording the occurrence of SLM principles. It is an Impact Indicator and could be achieved by the end of project.

## 2.2.4 Project Outputs and Activities

**Output 1.1:** *Measures to restore and rehabilitate degraded forests identified, demonstrated and integrated into existing FMPs*

Remnant forests and forest blocks in the Qaraoun Catchment have become insular and patchy, reducing their ecosystem services such as soil protection, erosion control, provision of habitat for species at risk, non-timber forest products, etc. Building on the information available through the LUIMS (Output 2.1), this Output will consolidate and improve the remaining forest resources in the Catchment. It will focus on the forests in the higher altitudes of the West Bekaa District, as a model for the approach to be upscaled throughout the Catchment eventually. Activities will also target remnant patches of degraded forest in the higher altitudes of Rachaya District where the work will be coordinated with the rangelands activities outlined under Output 1.2 below. It is also possible that after further investigation, the work will be extended to Zahle District especially the land above Kfar Zabad Wetland. The project will seek the improved management of forests, the recognition of ecological corridors, and the rehabilitation and restored integrity of degraded forests, as a means of reversing land degradation trends, protect and enhance ecosystem services and improve productivity. The aim is to cover up to 10,500 ha of forests (including rehabilitation of 500 ha of degraded land) directly or through replication. More specifically, activities will include a review and updating of existing Forest Management Plans to integrate measures for rehabilitating degraded forest ecosystems (including measures to enhance forest ecosystem services such as through improved forest connectivity; enrichment planting and protecting reforested areas; protection for natural regeneration of degraded areas and also consideration of the principles espoused in the new Land Use Plans and the benefits from the new LUIMS and Monitoring System). Activities will be coordinated by a Forest Ecologist Consultant working with respective forest managers and District personnel, with the full participation of communities including shepherds and land owners. The work will be assisted by MoE, MoA and other sources of forest resources expertise such as stakeholder NGOs. Apart from providing the necessary expertise, project inputs will cover necessary consultation and the cost of printing draft working copies and the final versions of protection and management plans.

**Output 1.2:** *Techniques and management mechanisms for sustainable rangeland management developed and tested, and appropriate infrastructure established to operationalize SLM.*

Under this Output, the project will focus on the rangelands at the higher altitudes of Rachaya District. It will build on the data and information obtained through the surveys carried out under Output 2.1 and will be in line with ILUMPs established under Output 2.3. The target is to address up to 20,000 ha of land (directly or through replication) where management and protection regimes will be developed, tested and evaluated together with the appropriate infrastructure, such that the approach can be replicated to other rangeland environments within the catchment. As noted under Output 1.1 above, activities under this Output will also seek remnant patches of degraded forest in and among the grazing rangelands, and provide rehabilitation and protection. The project will engage a Rangeland Management Expert who will work in collaboration with MoA and MoE and in a participatory approach with land owners, shepherds, local government administration and communities to reach a consensus on the best approach so as to achieve sustainable use of the rangelands in perpetuity. The work may include a reduction in stock numbers, finding alternative grazing, applying a seasonal approach, and adopting exclusion zones for valuable areas providing ecosystem services (such as remnant forests). In addition to providing the necessary expertise and covering the costs of consultation workshops, travel and information distribution, the project will also promote income-generating strategies that meet the communities' economic needs while enhancing ecological success by reducing pressure on forests, rangelands and their biological resources. These strategies include the training of farmers and women's groups, farmer-to-farmer training and technology transfer and assistance to farmers in marketing the

products. Alternative Income Generation opportunities will be provided if the proposed measures are expected to have an impact on livelihoods. They also increase the chances of sustainability.

**Output 1.3:** *Implementation of sustainable agriculture management regime that integrates SLM considerations*

This Output will be coordinated by an Agriculture and Arable Land Expert. However, there will be a special focus on localities in West Bekaa and Zahle Districts and possibly at a lesser scale also in Rachaya District. Up to 40,000 ha are targeted to be addressed directly or through replication. The project, with the assistance of LARI and MoA, will explore and discover ways and means to reduce the impacts that current land uses are having on soil fertility, water quality and other ecosystem services. Consultations with different local stakeholders will be critical for the development and implementation of the sustainable agriculture regime. These consultations will be led by an Agriculture and Arable Land Expert who will coordinate a cross-sectoral stakeholder consultation committee and will include representatives from the LARI, MoA, community representatives and also representatives of local district agriculture and development sectors.

The project will work with individual landowners and farmers to experiment with innovative approaches to fruit and vegetable production (including irrigated lands, rain-fed production, glasshouses, etc) which enhance productivity and lower the impact on land and water. Among the approaches to be trialed will be conservation agriculture, organic farming, integrated crop management, drip-irrigation, recycling compost and other natural fertilizer, cover crops, soil enrichment, natural pest and predator controls, bio-intensive integrated pest management and other techniques which will arise from participatory brainstorming with community members. In addition to providing the necessary expertise and covering the costs of participatory workshops, travel and information distribution, the project will also explore and provide Alternative Income Generation activities such as homestays and guided hiking and other ecotourism activities, expansion of apiculture, possibly sericulture (silk), cultivation and processing of medicinal plants, tree nursery development, etc, for those required to change land use practices (with a resulting loss in income) so as to avoid land degradation.

**Output 2.1:** *A Land Use Information Management System (LUIMS) established*

A Land Use Information Management System (LUIMS) will be designed to serve as a repository for data and information obtained through the diagnostic studies and surveys in Output 2.2, which will inform Land Use Plans, provide a platform for decision-making, and serve as a source of up-to-date knowledge on land use as described in Output 2.5. The database will be developed by a Working Group led by an Information Technology (IT) Specialist. In addition to IT expertise, the Working Group will also comprise representatives of the expected key users of the LUIMS. The LUIMS will be developed on a GIS platform, possibly allied to and integrated with existing complementary databases. The Project will lead the discussion on the most appropriate and effective repository for the LUIMS. It will also develop the procedures and protocols for inputting and accessing information. In addition to setting up the databases, the project will provide the necessary survey equipment and IT hardware and software. The results of this Output will also support the updating or development of Forests Management Plans envisaged under Output 3.1. It will also provide the foundation for the monitoring system to be developed under Output 2.3. Since the LUIMS will be available for access (albeit in a managed manner and within certain limits) by the public, the project will assist with a nationwide as well as local level publicity campaign to inform about its value, availability and accessibility.

**Output 2.2** *Integrated Land Use Management Plans (ILUMPs) developed, piloted, evaluated and refined as necessary for West Bekaa, and Rachaya, ensuring optimal allocation of land to generate development benefits and critical environmental benefits in tandem.*



The foundation work for the Land Use Planning exercise will commence with diagnostic Land Use, Ecological and Socio-Economic studies and surveys of West Bekaa and Rachaya Districts based primarily on available information supplemented as necessary to fill significant gaps. The surveys will also adopt the work on current legal provisions and procedures for land use planning and management and for regulating land use and the farming industry<sup>63</sup>. In many cases, these surveys will provide the first comprehensive recording of land use, ecological resources and socio-economic situation in Lebanon. Since this will serve to set a number of baselines for the project (see Section 3 – Strategic Results Framework), it will need to be carried out as one of the first Activities. The survey will complete its setting of the baseline by identifying the ongoing environmental mechanisms in the project localities, and how they link with the environmental and socio-economic trends. It will gain an understanding of current land uses and the ecological resources and ecosystem services that require protection and management.

The results of diagnostic studies and surveys will identify those priority aspects of the environment that could present significant constraints or opportunities to the development of the region. It will then explore comparative scenarios for land use and identify impacts that must be avoided and determine necessary compensatory and mitigatory measures for impacts which are unavoidable. The report on the diagnostic studies and surveys will be put out for public discussion and comment in a search for the scenario with the greatest benefit and the minimum impact, on a sustainable basis. Public input will be taken into account fully and consensus will be sought on the desirable way forward.

Work for the diagnostic studies will be coordinated by the MoE with the participation of the MoA, CDR, DGUP, District Administrations, the private sector, landowners and community representatives. The project will provide a Contractor Team with expertise in agricultural land use, natural resources, ecosystem services, and social mores and livelihoods. The project will work firstly on West Bekaa and Rachaya Districts with the aim of up-scaling it to the entire Qaraoun Catchment.

The data and information generated by the diagnostic studies and surveys, will form the core basis for the LUIMS (see Output 2.1 above) and will have similar coverage, and will lead in turn to the Land Use Planning. The plans will build on and update any existing plans prepared by national, territorial and development authorities for the selected Districts. The plans will set development limits so as to protect land from degradation, reduce/avoid impacts on ecosystem services, safeguard biodiversity and enhance livelihoods. They will define spatial areas where development should be avoided; where it may be permitted subject to management controls; and what mitigation and offset requirements are needed. Provisions will apply to Protected Forests and other Protected Areas and their buffer zones, remnant and degraded forests, rangelands, agricultural productive lands (arable lands), water bodies, urban areas, infrastructure such as waste management facilities, and the commons, including recreation spots. Activities under this output will be led by the CDR and DGUP with a Working Group of Planning and Land Use Experts and with the full cooperation and participation of the two districts, Unions and other municipality administrations, MoA, MoE, landowners, the private sector and communities. The methodology and approach will take cognizance of the work carried out by CDR<sup>64</sup>, UN-HABITAT<sup>65</sup> and others and following consultation, the Working Group will produce an agreed protocol on how to approach the task and discuss this with the relevant planning authorities. The Working Group will then address each of the two Districts, building on the information in the LUIMS and while reflecting the results of the diagnostic studies and surveys, produce a draft proposed Land Use Management Plan for each. The Draft Plans will be put out for comments and discussion including

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<sup>63</sup> As it is a legal requirement in Lebanon, a SEA has to be carried out as an integral part of Land Use Planning, the project will support make use of the results of the diagnostic studies and survey to integrate LD/SLM issues into the SEA process.

<sup>64</sup> Awada, Fouad (2011) *Final Report (N°3) of the short term mission : Definition of the Form and Content of a Strategic Sustainable Regional Development Plan adapted to the Lebanese needs and Context*. Presented to the Council for Development and Reconstruction (CDR) and the EU Delegation in Lebanon.

<sup>65</sup> UN-Habitat (undated) *UN-Habitat Medium-Term Strategic and Institutional Plan – A Focus on Lebanon*.

extensive public consultation meetings at various levels. Each of the drafts will be amended in the light of comments received and espoused by the respective authorities to guide land use so as to achieve sustainability and protect valuable ecosystem services. The project will submit the final outputs to DGUP and/or CDR and provide support in seeking formal approval of the plans by government. Following the adoption of the LUPs at the District level, the project will assist Municipalities (individually or in Unions) to develop Land Use Action Plans which will reflect the LUP at District level and provide for the implementation of the relevant LUP within their area of jurisdiction.

In addition to the diagnostic studies and surveys, project input will comprise an enhancement of planning capacity at governorate, district and municipalities level carried out in collaboration with partners; and a significant level of broad consultation and discussion aiming for consensus, through repeat workshops and similar events. There will also be a need for draft proposals to be distributed in printed and digital form. The final Land Use Management Plans will be released within a broad public information campaign (for landowners and communities) which stresses the value and vulnerability of land, ecosystem services, and biodiversity resources, hence the justification for the measures proposed in the Plans. In recognition of changing circumstances and priorities and to capitalize on experience gained, such plans are usually reviewed every 5-10 years and this will be written into the proposed methodology.

**Output 2.3:** *Land Use Monitoring System developed and implemented to update and maintain the LUIMS, identify trends and ensure that any changes in land use remain within acceptable limits; to include remedial measures that will be triggered by the monitoring.*

The Land Use Monitoring System will maintain the LUIMS (as set up under Output 2.1 above) as a relevant and up to date planning and decision-making tool. It will also help identify trends and ensure that any changes remain within pre-determined, acceptable limits. Scientifically-selected indicator species will be among the tools that will be used. A very important corollary to the monitoring system will be the identification of remedial measures such as tighter legislation, revised strategies, stronger enforcement, better outreach, etc, that will be triggered, if necessary, by the monitoring. The monitoring systems will be designed by a team of experts set up with the advice of MoE and MoA and led by a Monitoring Consultant. The approach and methodology to be used, the principles and objectives, and the capacity and know-how requirements will be developed initially at the central level. Working with the relevant authorities, the Working Group will then test the Monitoring System at each of the participating Districts following training and capacity enhancements of local personnel. After implementing any necessary refinements and adjustments, the Monitoring System for each of the Districts will be handed over to local responsibility, after any further necessary training and capacity building to enhance sustainability. In developing the system, the Working Group will explore the use of remote sensing together with on-ground measurements and observations, including indicator species.

The Working Group will also assist MoE and District and Municipalities Administrations to develop contingency plans for dealing with any worrying trends and other results of concern which might arise from the monitoring activity. Among the inputs for this Output, the project will assist with the procurement of any necessary monitoring equipment and training for its use, the implementation and evaluation of the trials at local level, and the contingency planning noted above. The project will also develop a handbook for land use/ecological monitoring, print it and distribute it in hard copy as well as digital version. This will be the key product for furthering replication and up-scaling of a Land Use Monitoring System.

**Output 2.4:** *Compliance and enforcement capacity heightened where necessary*

The focus of this Output is the enhanced operational, surveillance, interception and prosecution capabilities of agencies implementing (and enforcing) the Land Use Plans so as to stop unplanned

conversion of natural habitat, unsustainable application of agricultural chemicals, and non-compliance with land use permits and conditions. The work will be coupled with an effective system of penalties for breaches of planning provisions reflecting the new Sustainable Land Management approach. The project will clarify the respective roles of operative enforcement agencies, propose the rationalization of the enforcement framework and enhance its effectiveness. The project input will be led by a National Expert working with the main actors *i.e.* MoE, MoA, District and Municipal Administrations, the newly-appointed Environmental Public Prosecutors, the Internal Security Force (ISF), and other enforcement agencies and in close collaboration with those implementing Outputs 1.1 and 2.6, and with the advice of the Ministry of Justice. Further national experts will be engaged to develop and implement a training package (including Training of Trainers) for compliance and enforcement, and while the project's focus will be the project localities, the Output will be able to be upscaled nationally. Inputs will include various workshops with the main law enforcement stakeholders, the production of a handbook or similar guidance in printed form and digital version.

**Output 3.1** *Recommendations to remove barriers to SLM in Lebanon integrated into relevant policies, legislation, procedures*

A Working Group will be set up, which will work closely with, and possibly be chaired by the Ministry of Justice. The Working Group will be supported by a Legal Consultant and will include MoE, MoA, CDR, DGUP and local government representatives. The project will seek clarifications in the mandates of the different agencies responsible for enforcement and prosecution as well as the capacity to implement the products of this Output. This output will begin with a review of the current legal provisions and procedures covering land use planning and management and regulating land use and the farming industry with a focus on amending key policies, procedures and legal instruments so as to identify and resolve gaps or inconsistencies in legislation and remove barriers to SLM. The Working Group will then propose amendments and updating of relevant legislation and other remedies reflecting a sustainable approach to land use in a Discussion Paper which will be distributed widely with an invitation for comments. Following this, the project will organize workshops to consider the Discussion Paper and the proposed improved system will be tested locally and refined before being proposed to the Ministry of Justice for adoption by government. This will be followed by a public awareness campaign nationwide which will target relevant administrations in particular as well as industrial developers, land owners, farmers and other land users and provide the reasons for the proposed “system”, the proposed procedures to be followed, aids for improved SLM, etc. A handbook will be produced in both hard copy and digital version.

**Output 3.2** *Economic incentives and disincentives designed and set in place to promote adherence by the agriculture industry (including forests and rangelands) to the reformed policies and regulation.*

This Output will develop and propose for adoption, a range of attractive and positive economic “rewards” which the agriculture industry can get for implementing sustainable land use measures. Conversely, it will also develop a range of economic “deterrents” which will apply to actions and developments that have an impact on land and its natural resources – in effect, this will promote adherence by the industry to the reformed policies and regulations leading to wise and sustainable land use. There is already some experience with such measures in the country, applied either in the context of agricultural development or related natural resource management practices. The work under this output is firmly embedded in on-going government led initiatives such as those related to the establishment and implementation of an action plan for introducing Environmental Fiscal Instruments (EFIs) and financing mechanisms, by the STREG<sup>66</sup> project. Such piggy-backing on larger efforts in the country will ensure that these mechanisms are effective and feasible in the country.

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<sup>66</sup> Support to Reforms – Environmental Governance Project which is being implemented by the MoE.

Among the incentives and disincentives<sup>67</sup> that will be explored by the Working Group are the following:

- Eco-labelling and certification of products and services so as to gain a market advantage
- Pollution taxes, levies, penalties for the use of particular agri-chemicals
- Subsidies, incentives and concessions for conservation agriculture
- Payment for protecting ecosystem services, e.g. conservation easements near waterways
- Etc.

Activities for this Output will be coordinated by the PMU who will recruit an Economics Consultant to lead a Working Group comprising the Ministry of Finance, MoA, and full participation by the agriculture industry. The incentives/disincentives scheme will be developed upstream for national application. However, before it is proposed for adoption by the Ministry of Finance, the system will be tested at the local level for a trial period, and will be refined if necessary before being adopted nationally by government for implementation by relevant institutions. The project will print (including digital version) the adopted guidelines and ensure publicity to reach the farming industry.

**Output 3.3** *Institutional and human capacity enhanced for professionals, administrators, NGOs and community leaders leading to an increased level of SLM consideration in land use planning and management.*

The project will support the development of a strategic, long-term approach to individual capacity building in SLM for professional staff of national, district and municipal administrations as well as NGOs and community leaders. Following an assessment of the key gaps and requirements in knowledge, this will involve the design of a formal certifiable SLM training programme (with competence standards / accreditations) or integrate SLM training courses in agreement with one or more academic institutions to provide an opportunity for graduates and professionals to gain higher level skills and qualifications in this subject. The project will support studies to design and develop the course as part of the in-service career progression of professionals. The number of potential beneficiaries is not known, but it is expected to be substantial as a result of the higher profile given to SLM by the project.

In the short to medium term, the project will establish formal cooperation agreements for delivery of training and capacity building either with specialised agencies such as UN-HABITAT, LARI, universities, institutes and/or NGOs, or with private sector specialists in the field. A series of training modules will be developed and delivered at various levels during the period of the project and expected to reach between 120 and 180 beneficiaries. These will be supported by manuals, presentations, advance study materials and written hand-outs for field learning, as well as tests to determine competency standards. The capacity building programme will generate training materials that reflect the Lebanese context while reflecting best international principles and practices. Trainees will be capable of supporting village level resource users for sustainable land management, including: sustainable agricultural practices (e.g., tillage, crop mix/rotations, nutrient management, soil and water conservation techniques, integrated pest management); sustainable harvesting methods for non-timber forest products; sustainable rangeland management.

At the grassroots level, the project will facilitate district, municipal and village level SLM short-training courses on various aspects of land use planning, agriculture, forestry and rangeland management, efficient use of water resources and/or animal health care improvement. The target groups will be village activists, NGOs, community organizations, etc, that can then replicate the learning among farmer groups. The training sessions will be conducted by the specialized agencies or in-house by the project as above, in the project localities. The modules for the training programmes will be finalized

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<sup>67</sup> See also: Catie and the Global Mechanism (2012) *Incentive and market-based mechanisms to promote sustainable land management - Framework and tool to assess applicability.*

jointly by the project in consultation with the identified delivery agencies. Delivery will be through field/demonstration days and similar events.

**Output 3.4:** *A knowledge management and outreach programme for SLM developed and implemented to inform and help compliance, enhance sustainability, and prepare for replication and up-scaling.*

An important contribution towards ensuring mainstreaming of SLM is empowerment through knowledge. This is dependent on a strong knowledge base and knowledge sharing mechanisms among government decision-makers (national and local), professionals, practitioners, receptive communities and individual farmers. The project will therefore engage a Knowledge Management/Awareness Contractor to develop a knowledge management and outreach plan during the Inception Phase, and then coordinate its implementation during the project life. The Plan will be based on the following elements:

**Land Use Information Management System (LUIMS):** This web-based portal which will be the result of Output 2.1 above, will be established at national level, with pages for each District to ensure maximum coordination and sharing of information about the overall SLM programme. This will make available policies, plans, guidelines, technical documentation, as well as information on capacity building and events, etc.

**SLM network:** This network for professionals and practitioners (including individual farmers) will be set up by the PCU and managed by it until handed over to an appropriate national agency as part of the project's exit strategy. It will make maximum use of available technology and modern social media to share information. The network will arrange and be supported by a range of activities including: regular e-newsletters; the documentation of indigenous knowledge; Field/Demonstration Days organised in the different districts to demonstrate and share learning experiences in the application of different SLM techniques.

**Regular Workshops/Seminars:** An important mechanism for disseminating information related to SLM is through workshops and seminars which will be a feature of the project with its commitment to a participatory and inclusive approach. The project will design and organize workshops/seminars on important tools and topics related to sustainable land use, land degradation, the desertification process. The events will be organized at district level to share the best practices, encourage private investors in SLM, share research findings of local research institutes, and support participation by key champions.

**Awareness raising:** In order to raise awareness on desertification issues and SLM, user-friendly SLM materials in the form of leaflets, brochures, and fact sheets will be published and disseminated to a wider audience in hard copy as well as digitally. The prime target of these materials will be local farming communities, with a focus on issues related to land management and degradation. These materials will therefore be prepared in Arabic. The project will also work with local media (TV, radio and newspapers) to disseminate information about the project and the benefits of SLM approaches.

## 2.3 Assumptions and Risks

The following risks, identified in the PIF, have been confirmed as potential threats to the project.

**Table 8. Risks and measures to reduce their likelihood and counter their severity**

RISK	SEVERITY	LIKELIHOOD	ALLEVIATION AND MITIGATION MEASURES
Rehabilitation of forests and defining no-development zones in the Qaraoun Catchment may encounter resistance from production sectors such as infrastructure, mining and agriculture, and local Communities	Moderate	Medium	The project will work to reduce the likelihood of this risk occurring by ensuring that initiatives will be designed and implemented with the full participation of stakeholders from government, non-government and the private sector, fostering an understanding of the need for striking the right balance between development and safe-guarding of ecosystems for the services they provide. If the risk arises, the project will stress the economic case of sustainable land management versus the development of certain sectors in sensitive areas delivering critical ecosystem services. It will also put into effect an effective communication strategy and stakeholder involvement plan which is expected to lead to an appreciation, and defence, of what the project is proposing. In particular, the formulation of Land Use Plans, which will be an inclusive and participatory process based as much as possible on consensus, will reduce the likelihood of this risk.
Land owners/users circumvent planning regulations resulting in the proliferation of quarries, encroachment on valuable agricultural areas, employ high use of agricultural chemicals, and other impacts on ecosystems affecting ecosystem services	Moderate	Medium	The project targets specifically capacity for compliance monitoring and enforcement to address these undesirable behaviours on the part of individual land owners and managers. Establishment of landscape level management fora and landscape level management planning through participatory processes, as well as robust implementation of monitoring mechanisms will work towards minimising the risk. A dialogue with industry and farmers will be established as part of the process of district land use planning to obtain industry buy-in and address concerns, so as to improve compliance.
Future Government Administrations may be reluctant to increase areas designated for conservation for fear of losing state revenues	Moderate	Low	The project will invest in the development of a decision support system for land-use, with valuation tools for different types of ecosystem services and other land use values. The project will support integration of LD/SLM issues and principles into the SEA process and incorporate these into the SEA of the catchment and value the monetary loss from land degradation. This will help convince Government and the private sector of the importance of preserving these services for their economic as well as their ecological value.
Insecurity and political unrest resulting in considerable delays and postponement of project implementation.	High	Low	The current political situation in Lebanon is stable, but the potential for a spontaneous upsurge in violence is real. The project team with support of the Country Office will implement a continuous monitoring of the security situation in the country and update the project board on a regular basis so there is sufficient lead time for adequate response actions and adjustment in project strategy. The UN also constantly assesses country and localised risk in all areas where it operates through the unified UN Security System. During the project preparation and implementation, the system of security clearances will be enforced for any project related field deployment
Land Use Plans encounter challenges to their implementation in the form of: absence of formal approval by the Council of Ministers and therefore a lack of the appropriate decision-making power; absence of a programming phase following the drafting of the Plan; lack of budgetary resources required for implementation	Low to medium	High	Although CDR are development LUPs such as in Akkar, the institutional set-up for land use planning in Lebanon is weak in general and the project will be operating in an unappreciative environment. However, it will overcome this through its focus at local level, building capacity, awareness and appreciation. The risk is not so much to the project's LUP activities but to their sustainability and the project will overcome this through its participatory approach and its efforts towards local ownership of the LUPs, creating a groundswell of understanding and recognition of the value to the administrations and residents alike of planning for sustainable land management.

Further consideration of risks will be carried out by the project during the Inception Phase. Furthermore, the UNDP ATLAS base for this project will set up a Risk analysis and assessment system which will be reflected in the relevant section of the annual PIRs for the project.

## 2.4 Cost effectiveness

The business-as-usual scenario in which minimal considerations are given to sustainable land management, is leading to land degradation and loss of natural fertility requiring the increasing use of chemical fertilizers which, together with chemical pesticides, cost farmers over USD3,500 per hectare annually. Ecosystem services will also continue to diminish and management will continue to focus on the elimination of consequences after a threat materializes. The cost-effectiveness of this approach is extremely low. For example, rehabilitation/replanting of a forest after a fire costs approximately USD5 million/1,000 ha. By 2018, the amount needed to be invested in severely degraded ecosystems and the opportunity cost through lost production will substantially outweigh the investment proposed by the project. It is also likely that the cost of recovery will increase with the level of degradation. The financial and social value these lands generate is too high for them to be withdrawn from the economic cycle.

The cost effectiveness of this project will be further ensured by the following elements that have been included in project design.

- Combination of upstream, landscape (district) and site specific actions: The project design includes the development of the policy and regulatory framework at the central upstream level complemented by on-the-ground activities that will help develop and test innovative approaches in areas where the impact of current land use is being felt in the rural landscape. These experiences will inform the changes at the systemic level in terms of improved policies, procedures, manuals and guidelines, in turn facilitating the replication of site-level experiences.
- The project approach which involves the development or refinement of policies, legal mechanisms, approaches, processes and other tools at the upstream level in a participatory approach and their testing at the local level before they are adopted nationwide. In this way, wholesale adoption of these tools will only take place after they have been tried and tested and are therefore both more reliable and more acceptable.
- Selection of project localities that exhibit a range of biogeographical and socio-economic characteristics: This will make the site-level experiences relevant to a greater number of districts for further replication.
- The project will focus its interventions on localities selected because land is degraded or under serious threat of degradation. This will maximize the visible impacts and allow the beneficiary locations to act as models for wise land use throughout the Qaraoun Catchment and the entire Bekaa Valley. The project will implement on-the-ground interventions in cohesive and contained localities, rather than in geographically dispersed areas, and this will reduce operational costs significantly.
- The project will place equal emphasis on assisting compliance as well as enforcement which will require less intense and less costly levels of monitoring and prosecution. This will allow the project to work effectively with local communities and stakeholders to share management responsibilities and costs, as well as to develop sustainable economic activities that can benefit these partners and generate revenue streams from wise land use. This is more cost effective

than an exclusionary strategy which is likely to be costly to enforce and unlikely to be sustainable.

- Close coordination with on-going projects such as those funded by UNDP, the EU, FAO and the World Bank. Some of these projects have been under implementation for some time and have accumulated practical experiences with aspects of land use which are going to be invaluable for this project. While the focus on sustainable land use is unique to this project, many of the experiences and models developed by these other projects are still relevant.

## 2.5 Expected Global, National and Local Benefits

The project is designed to strengthen and complement on-going efforts in Lebanon to manage land use in the Bekaa Valley, in particular the catchment of the Qaraoun Lake. More specifically, the project targets forests, rangelands and arable land at the District/Municipal Unions level on a demonstration scale and prepares for upscaling and replication to the entire Bekaa Valley. A win-win conservation/economic outcome is sought, whereby the adverse impacts on land of current farming practice are avoided where possible, or reduced and mitigated, while land, ecosystem services and other natural assets come to be recognized as the foundation for an improved and sustainable livelihood for those who depend on the Bekaa Valley. Although current land use practice is a threat to sustainable production, ecosystem services and livelihoods, if carefully managed, land use in the Bekaa Valley can also offer opportunities for improved livelihoods, sustainable productivity and conservation of ecological resources. There is therefore a need in Lebanon to both mitigate the adverse impacts of current land use in the Bekaa Valley, and also to optimize the contribution that the land can make to livelihoods, but on a sustainable basis. The resultant benefits will be spread across the farming industry and communities that rely on it for their livelihood, right across to the ecological benefits which are of global significance.

The project seeks to establish a national level regulatory framework, backed by an effective enforcement system and founded on sound management standards, to manage the mis-use of land. It will also enhance the institutional capacity required to mainstream and implement the SLM approach. It does this under Outcome 3. However, any central land management strategy needs to be applied at the regional level where there is limited capacity to internalize land use planning and management. The project will therefore address this weakness through further capacity building at the District level where it will test a well-founded land use planning package to serve as the basis for decisions on optimal land use on a sustainable basis. This will be done under Outcome 2. Finally, the project will address directly the impact of current land use practice in higher altitude rangelands, in forests and in the arable lands of the Valley under Outcome 1. All these benefits will serve Lebanon well in its search for a better return from its farming industry, but on a sustainable long-term basis.

The global environmental benefits of this project derive from the fact that the project is addressing the direct and indirect threats to globally significant landscape caused by the current land use practices. The project will seek to address forest fragmentation, influence the placement of infrastructure, maintain and restore ecological corridors, and improve the conservation status of species that depend on this environment, such as those of the Aammiq Wetland which lies on one of the most important bird migration routes in the world, and where over 250 species of bird have been recorded, including the globally vulnerable Great Spotted Eagle (*Aquila clanga*), Imperial Eagle (*Aquila heliaca*), and Lesser Kestrel (*Falco naumanni*). Records of globally near-threatened bird species in the area include the Great Snipe (*Gallinago media*), Ferruginous Duck (*Aythya nyroca*) and Pallid Harrier (*Circus macrourus*). The project will also address habitat destruction linked to high stock numbers in sensitive rangelands so as to enhance the conservation status of the high altitude pastures and rangelands. By promoting environmentally-friendly practices in the farming sector, the project will also contribute to



enhancing soil fertility, reducing water pollution and excessive abstraction, and other disturbance of the ecologically-sensitive sites. The project will engage the local population in sustainable land use activities and avoid encroachment on the natural resources in sensitive areas and intensive resource use to support their livelihood needs.

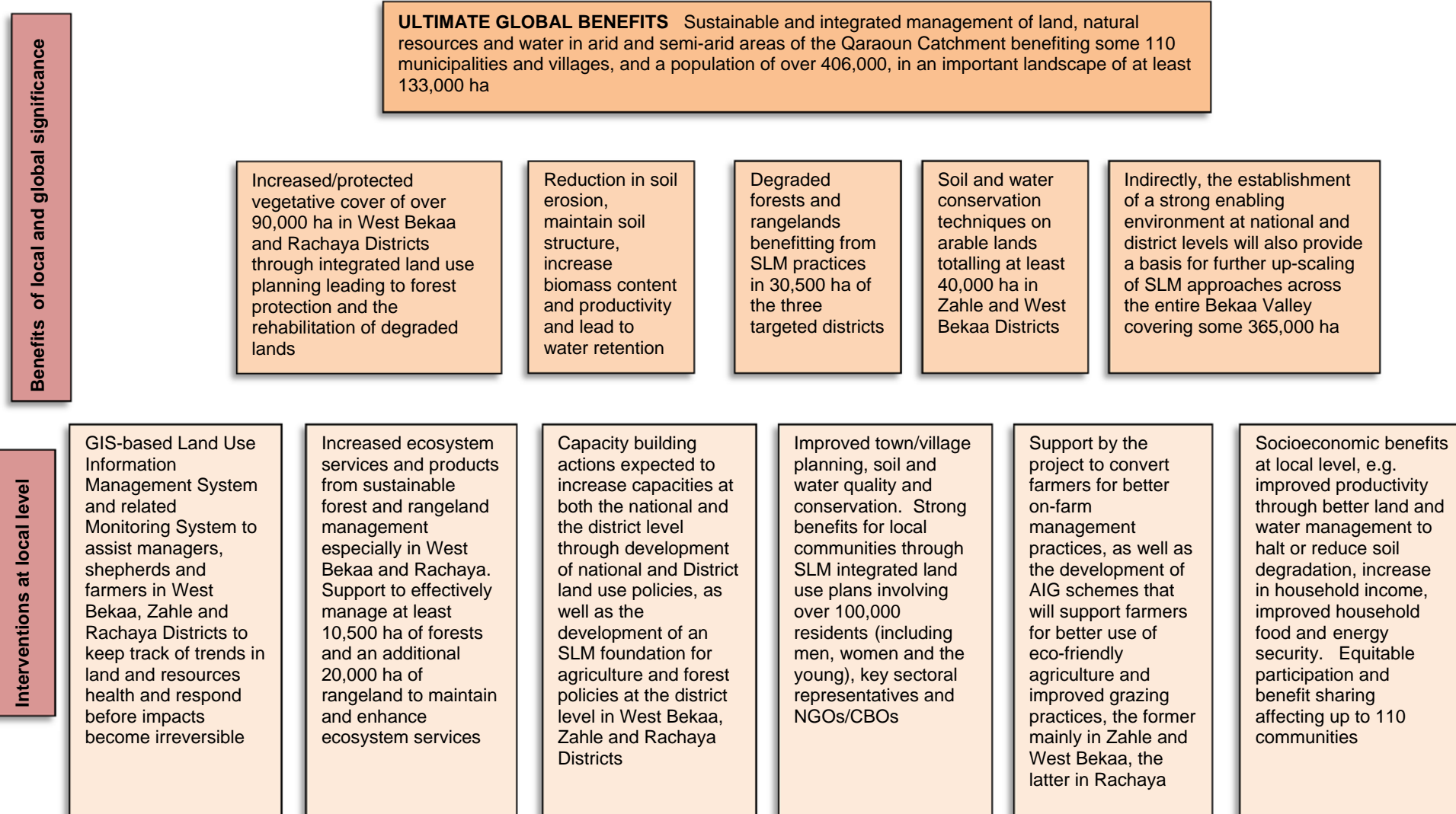
Figure 4 below summarizes the expected local, national and global benefits which will accrue from the project. The Figure indicates the geographical coverage at each level as well as some specific estimates of actual change in state to the extent possible.

Key socioeconomic benefits of the project include the move away from expensive agro-chemicals to more ecologically-friendly approaches which are expected to retain productivity if not increase it and achieve sustainability, thus enhancing livelihoods. Another socio-economic benefit arises through the protection of the environment which provides the ecosystem services that are often taken for granted but which have been threatened and impacted by current land use practices. Furthermore, the ecologically-friendly approaches proposed by the project are expected to lead to agricultural products that command a premium in niche markets in Europe and elsewhere thus increasing the returns that Bekaa Valley farmers will be able to achieve. The project will increase employment rates and will allow the diversification of employment to more innovative and sustainable activities. This project will focus particularly on the active participation of individual farmers, shepherds and other land users, including women<sup>68</sup>.

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<sup>68</sup> As observed elsewhere in this ProDoc, accurate/up-to-date demographic and socio-economic statistics in Lebanon, particularly at District level, are not available. Baselines will be established at the Inception Phase of the project through targeted surveys, and project progress and benefits will be assessed against these.

**Figure 4. Summary figure of alternative land use practices that will be promoted and associated global and national benefits**



## 2.6 Gender strategy

The project will adopt UNDP’s commitment to gender equality and women’s empowerment not only as human rights, but also because they are a pathway to achieving the project’s goals of sustainable land management.

Gender equality and women’s empowerment will be mainstreamed into project activities, ensuring that women have a real voice in project governance as well as implementation. Women will participate equally with men in any dialogue or decision-making initiated by the project and will influence decisions that will determine the success of the project and ultimately the future of their families.

The project will apply lessons arising in particular from the successful UNDP Project - “Mainstreaming Biodiversity Management into Medicinal and Aromatic Plants (MAPs) Production Processes in Lebanon” which was implemented by LARI high in the mountains of Mejdal Akkar in north Lebanon and through which women harvested and processed wild sage – the project could emulate this and similar activities in its search for eco-friendly Alternative Income Generating activities.

Further to the overall mainstreaming of gender equality measures into the general conduct of the project, the following table summarizes specific areas for women’s participation.

**Table 9. The involvement of women in project implementation**

PROJECT ACTIVITY	INVOLVEMENT
<b>Output 1.1:</b> Measures to restore and rehabilitate degraded forests identified, demonstrated and integrated into existing FMPs	The views of women will be sought, in particular their use of forest resources and the potential impacts that project activities may bring about
<b>Output 1.2:</b> Techniques and management mechanisms for sustainable rangeland management developed and tested, and appropriate infrastructure established to operationalize SLM	This work will be primarily with shepherds but women will be consulted so as to obtain their input into the design of management mechanisms and identify any gender-based potential impacts
<b>Output 1.3:</b> Implementation of sustainable agriculture management regime that integrates SLM considerations	Women will form part of working groups and their views will be sought and reflected in project activities in pursuit of improved agricultural management
<b>Output 2.1:</b> A Land Use Information Management System (LUIMS) established	Surveys leading to the information database will be conducted with awareness of the different needs and different perspectives of the two genders
<b>Output 2.2:</b> Integrated Land Use Management Plans (ILUMPs) developed, piloted, evaluated and refined as necessary for West Bekaa, and Rachaya, ensuring optimal allocation of land to generate development benefits and critical environmental benefits in tandem	The plans will be developed with the full participation of all residents of the respective districts and the project will make a special effort to ensure that women are able to contribute their perspective. The diagnostic studies and surveys are a comprehensive exercise which should accommodate all residents and all activities, however, the project will make an effort to ensure that women’s input is captured
<b>Output 2.3:</b> Land Use Monitoring System developed and implemented to update and maintain the LUIMS, identify trends and ensure that any changes in land use remain within acceptable limits; to include remedial measures that will be triggered by the monitoring	The project will engage both women and men in carrying out its monitoring activities so as to ensure that both genders’ perspectives are contributing to the analysis and diagnosis of the results of monitoring
<b>Output 2.4:</b> Compliance and enforcement capacity heightened where necessary	Capacity enhancement will be provided as appropriate without a gender bias
<b>Output 3.1</b> Recommendations to remove barriers to SLM in Lebanon integrated into relevant policies, legislation, procedures.	Consideration will be given to women’s different needs when drafting regulatory reforms and impacts of the proposed reforms will be assessed from a gender disaggregated perspective

<b>Output 3.2</b> Economic incentives and disincentives designed and set in place to promote adherence by the agriculture industry (including forests and rangelands) to the reformed policies and regulation	In designing incentives and disincentives, the project will ensure that the views of both women and men are taken into consideration. Women will form part of working groups set up to work on this Output
<b>Output 3.3</b> Institutional and human capacity enhanced for professionals, administrators, NGOs and community leaders leading to an increased level of SLM consideration in land use planning and management	Women will be targeted specifically in the project's capacity building activities and their views will be sought when the enhancement activities are being designed
<b>Output 3.4:</b> A knowledge management and outreach programme for SLM developed and implemented to inform and help compliance, enhance sustainability, and prepare for replication and up-scaling	The outreach programme will be designed to cater for the specific needs and interests of both women and men, in their different roles

## 2.7 Project Consistency with National Priorities/Strategies

The project is in line with the national environmental policy measures set by the MoE in their Work Plan for 2011-2013. These include:

- Activation of the national strategy for the management of forest fires
- Follow up the implementation of the national plan for reforestation and combating desertification
- Promotion of natural sites and reserves and biodiversity
- Activation of the environmental management of water basins
- Planning for urbanization and reducing its environmental implications

The project will also indirectly contribute to alleviating pollution of the Litani River and Qaraoun Lake which was determined a national priority by the Lebanese Government in 2006.

The National Capacity Self-Assessment conducted in 2007 with support from GEF promotes the mainstreaming of environmental priorities into strategic national documents. Strengthening key institutions such as the MoE and MoA, which are implementing partners in this project, was also recommended. The implementation of the National Biodiversity Strategy and Action Plan and the National Action Plan to Combat Desertification were seen as essential.

The National Land Use Master Plan of 2005 presents sectoral action plans which include management of environmental resources, including forests and other important natural areas. Many of these areas are included within the Qaraoun Catchment.

The National Report to the United Nations Conference on Sustainable Development of 2012 proposed streamlining the high value attributed to agricultural land and fertile soil by the NLUMP for Lebanon into all regional urban master plans. The purpose of the district-level integrated land use plan proposed by the project is to do exactly that on a regional scale. The report also stresses the importance of water efficient agricultural practices including "low-till cultivation, drip irrigation, rainwater harvesting and drought tolerant crop varieties", which are a basic component of this project.

Improving agricultural infrastructure is one of the focal areas of Lebanon's Agriculture Strategy 2010-2014. It is planned on being achieved through increasing efficiency of utilization of natural resources, including water conservation and preventing water pollution.

Another focal area is conservation of natural resources through:

- 1- Sustainable management of marginal land and rangelands
- 2- Extension on agricultural land use and preventing pollution and desertification
- 3- Conservation of biodiversity and ecosystems (forests, rangelands, water, fisheries, etc.)
- 4- National forest management plan

The project activities will contribute to both these focal areas.

The National Action Plan to Combat Desertification (2003) stressed the importance of land use planning by proposing to “encourage land use planning at the local level within the framework of regional and national plans”. The project aims to address this issue at the regional level.

The plan also proposed interventions in North Bekaa (and parts of West Bekaa and Rachaya) that focus on, among other activities, “the promotion of sustainable agriculture practices including proper water, fertilizer and pesticide use” and “rangeland management in order to promote soil and water conservation and to provide adequate feed resources for animal production”. These activities form the core of the field work to be undertaken by the project.

Three of the eight goals set by the National Biodiversity Strategy and Action Plan in 2005 are in line with the project objective, outcomes and activities. They are as follows:

- Goal 1: To protect Lebanon’s terrestrial biodiversity from degradation and ascertain their availability for environmental and economic benefits.
- Goal 4: To protect Lebanon’s agricultural diversity from degradation, and to maintain agricultural resources availability, while maximizing both environmental and economic benefits.
- Goal 5: To conserve biodiversity under natural conditions and establish a balanced ecosystem where plants and animals evolve naturally.

The project adds value to a number of related GEF-supported initiatives as described below.

The UNDP/GEF project “*Safeguarding and Restoring Lebanon’s Woodland Resources*” is creating an enabling environment for reforestation and building capacity for Sustainable Land Management in Lebanon. Based on the lessons learnt from reforestation, the project, through the MoE, initiated a new modality by directly contracting municipalities and providing them with technical and financial assistance in reforestation activities. This resulted in the reforestation of a total area of 102 ha distributed across the country, with the involvement of 48 municipalities. The new approach raises awareness among the local communities on the benefits of establishing new forests in their regions, in addition to training them on proper reforestation techniques, relying on them in actual planting and consequent maintenance of the established forests. It provides additional income sources to these communities, as well as creates forest-related short and long-term job opportunities in their villages. The project has also initiated innovative trials on novel reforestation techniques – which are based on the selection of the critical aspects of reforestation, such as minimization of water for irrigation, efficiency of use of younger seedlings, etc. In the near future, this achievement might lead to the establishment of new visions and concepts, which should lead into an easier, faster, cheaper and more efficient reforestation in coming years. The modalities and results of trials will be important in the implementation of the larger reforestation programme in the Qaraoun Catchment.

The UNDP/GEF Project “*Mainstreaming Biodiversity Management into Medicinal and Aromatic Plant (MAP) Production Processes*” is integrating conservation objectives into the gathering, processing and marketing of globally significant medicinal and aromatic plants. The main outcomes of the project are: 1) Appropriate collection methods ensure a viable long-term supply of raw materials of globally significant MAPs species, 2) Value-added processing and product improvement result in increased value of globally significant MAPs harvested in biodiversity-friendly manner; and (3) Supply chain framework strengthened for sustainable harvest of globally significant MAP species and awareness promoted for conservation-friendly MAP products. The proposed project will benefit from this project’s experience in drafting legislation in ensuring sustainable harvesting practices are implemented and the branding of organic products.

The UNDP/GEF Project “*Mainstreaming Conservation of Migratory Soaring Birds into Key Productive Sectors along the Rift Valley/Red Sea flyway*” – the overall goal of the project is to ensure that globally threatened and significant populations of soaring birds that migrate along this unique flyway are affectively maintained. To achieve this, the project is mainstreaming conservation management objectives into the hunting and land-use planning in Lebanon. A Technical Working Group will be established that ensembles technical experts on forest, sustainable agriculture and water management in Lebanon and all the related projects in Qaraoun Catchment will be represented on this group. Regular meetings will be held between the different projects to leverage synergies.

Projects being implemented or planned by the MoE, will be coordinated in the Ministry which is also where the project office will be physically located. Appropriate mechanisms for this coordination will include participation in relevant and reciprocal technical advisory groups thus ensuring coordination in terms of activities; joint annual work planning; invitations as ‘special invitee’ to respective project board meetings to present key progress, lessons and challenges; and, invitations to all relevant initiatives to lessons dissemination and related activities. For those projects nearing completion, the project will focus on lessons generated of relevance to the three outcome levels (policy, capacity enhancement, landscape level SLM demonstration).

As one of the latest to be implemented, this project will benefit from advice, experiences and lessons arising from the other projects, recently finished or underway. Conversely this project will be able to influence positively those projects which are at the initial stages, such as the loans and investment ones, and ensure that their specific activities on the ground are in harmony with and complement this project. It may also be possible to achieve economies of scale in areas such as transport, the purchase of goods and services, and in survey and monitoring.

Special attention will be paid to the baseline / co-finance initiatives (as in Tables 3 and 5) to ensure close collaboration so that incremental activities do happen leading to the incremental benefits targeted under the GEF alternative – sustainable land and natural resource management that reduces degradation, ensures sustained supply of ecosystem services while also improving lives and livelihoods.

Table 10 below provides a summary listing of the key projects that this project will coordinate with, and what sort of coordination can be foreseen or pursued.

**Table 10. On-going and planned projects that this project will collaborate with**

MAIN ON-GOING OR PLANNED PROJECTS	AREAS OF COLLABORATION
A World Bank loan for USD50 million is expected to commence in 2015 to fund investments aimed at addressing the wastewater problem in the Qaraoun Catchment. This will include improvement or installation of Wastewater Treatment Plants in Zahle, Ferzol and possibly other locations in the Upper Litani Basin and reducing effluent discharges from private enterprises	Although the GEF Project is not working in the area of wastewater management it will collaborate with this project for example in Land Use Planning. It also looks to this project for monitoring water quality which, for the GEF Project is an indicator of its positive impact through SLM under Outcome 1
The Lebanon Pollution Abatement Project (LEPAP), funded by a USD3 million Italian Government grant and a USD15 million World Bank loan, commenced in 2014. The objective of LEPAP is “to reduce industrial pollution in targeted industrial enterprises and strengthen the monitoring and enforcement capabilities of the MoE through technical assistance and through establishing a financial mechanism for supporting pollution abatement investments”. Relevant positive impacts of the LEPAP project include:	The GEF Project will collaborate with this project in a similar way to that for the World Bank loan above. Namely, in the area of water quality monitoring as a measure of impact.

<ul style="list-style-type: none"> <li>• Improvement of surface water and groundwater quality therefore making it a reliable source of water supply to farmers and local communities</li> <li>• Protection of biodiversity from wastewater disposal</li> <li>• Low cost method for sanitary disposal of municipal wastewater.<sup>69</sup></li> </ul> <p>In addition, the Government of Italy has approved a technical assistance grant of 2.3 million Euros to support the LEPAP and provide the needed technical know-how to identify appropriate environmental solutions to industries located in the Qaraoun Watershed.</p>	
<p>The Support to Reform and Environmental Governance (St-REG) programme funded by the European Union for the amount of €8.0 million in partnership with the MoE focuses on environmental governance reforms. The general objective is to improve the environmental performance of the Lebanese public sector. Specific objectives are to improve MoE's capability of planning and executing environmental policy by building effective capacity within the Ministry</p>	<p>This project has already been listed in Table 5 as a relevant baseline activity and it is repeated here because of its importance. The GEF Project will work with the STREG Project, complementing its efforts to improve planning and enforcement of environmental policies for SLM.</p>
<p>National Reforestation Plan (NRP) as well as the funds from the USD12 million Lebanon Reforestation Initiative (funded by the International Programme of the US Forest Service). The goals of the initiative are to strengthen Lebanon's forest seedling nurseries and oversee the implementation of large-scale reforestation activities in the country, in line with the NRP. Of this amount, an estimated USD2 million is earmarked for the Qaraoun Catchment over the project period.</p>	<p>The GEF Project will look to re NRP and the lessons that arise from the GEF Woodlands Project which is ending soon, for techniques and methodologies for reforestation at high altitudes in the Catchment to resuscitate degraded forests and achieve critical connectivity between isolated remnant blocks. The GEF Project will also instill a SLM perspective into the NRP.</p>
<p>USD1 million can be considered as baseline from the Green Plan in the Qaraoun Catchment. This will contribute to addressing Land Degradation in that it provides grants to farmers to repair and/or build stone terraces and retaining walls, build hill lakes and install irrigation networks. An estimated USD2 million is earmarked for increasing the agricultural productivity and incomes of farmers (the Hilly Area Sustainable Agriculture Development Programme 2010 – 2016) through the improvements in soil and water harvesting structures and soil and water conservation measures leading to increased agricultural productivity. The Programme will also address better market access for small farmers through the provision of technical support services and strengthened capacity of project implementing agencies and farmers' organizations.<sup>b</sup></p>	<p>This initiative complements the work which will be carried out by the GEF Project. Collaboration will be sought on combatting land degradation at farm level through improved irrigation techniques, soil improvements and market access.</p>
<p>The Agricultural and Rural Development Programme (ARDP) is currently being implemented by the MoA and funded by the European Union for the amount of €14 million. The project will run until 2015 with the objective of "improving the overall performance of the agriculture sector in order to achieve sustainable food security and to improve the livelihood of rural farming communities." The programme's objectives are to:</p> <ol style="list-style-type: none"> <li>1. Strengthen the capacity of national institutions to work on a coherent agricultural/rural development vision and to better implement agriculture strategic orientations.</li> <li>2. Support and empower local rural actors (farmers and cooperatives) by increasing access to credit and infrastructure.</li> </ol> <p>One of the ARDP components focuses on forestry and rehabilitating forest nurseries implemented by the MoA. The project aims to improve land management capacities, working with municipalities and cooperatives towards reforestation. The project also works with local actors to maintain and irrigate seedlings</p>	<p>Lessons arising from this project will be taken on board by the GEF Project which will also build on the experience of this project in livelihood improvements (through better return for lower inputs of expensive agricultural chemicals), access to credit (if required for alternative income generation), and the reforestation efforts.</p>

## 2.8 Assessment of environmental and social impacts

<sup>69</sup> Government of Lebanon/GIZ (2013) Environmental and Social Assessment (ESA) of the Lebanon Pollution Abatement Project (LEPAP), prepared by Elard and GFA

The Environmental and Social Screening (ESSP) of the project, concluded that the project has environmental and social benefits, and possible impacts and risks, but these are predominantly indirect and very long-term and so extremely difficult or impossible to directly identify and assess. The full result of the screening process is in Annex 3.

Integrated Land Use Management Plans will be developed in two Districts by the project. These plans are aimed to have long term positive impacts at the social and environmental levels but it will be difficult to determine these impacts within the timeframe of project implementation. Site interventions under the project include (i) improved management of protected forests and the establishment of ecological corridors over 10,000 ha of protection forests; (ii) natural rehabilitation of 500 ha of degraded forest land; (iii) technologies developed, tested and appropriate infrastructure established to operationalize sustainable land management in 20,000 ha of production rangelands; and (iv) improved water quality and soil condition due to the reduction in pesticide and fertilizer pollution through improved agricultural management of up to 40,000 ha of arable land directly or through replication. The implementation of these activities/interventions will have measurable environmental and social impacts during the project period and subsequently. These will be primarily positive impacts, but there could also be temporary “negative” impacts on some farmers and shepherds who might agree to change land use practices so as to obtain sustainability.

In order to avoid even temporary negative impacts on beneficiaries of the project, project design incorporates a scheme for support through alternative income generation activities that the project will be able to implement to mitigate any impacts arising. Other long-term social and environmental impacts arising from the ILUMPs are expected to be positive and beneficial. However, project design has incorporated full consideration of social and environmental issues through the carrying out of social surveys to precede the development of the Land Use Plans ensuring limited negative impacts and fostering an environment for positive impacts. The potential social and environmental impacts will be determined as accurately as possible through an extensive socio-economic and land use survey which will provide baseline information that does not exist in Lebanon currently.

## 2.9 Sustainability and Replicability

This is a foundation project – it is testing various tools and mechanisms which, if successful, will lead to sustainable land management. As such, while its immediate benefits are very important, they are primarily on a local scale and the full benefits of the project will only accrue from replication and upscaling across the Qaraoun Catchment.

The project has therefore been carefully designed to optimize the prospects for sustainability of its products and results and pave the way for replication.

**1. Environmental sustainability:** This project is about environmental protection (with a focus on wise land use), and the planned interventions will ensure that land degradation is turned around and that impacts are reduced, mitigated and offset as necessary, thus reducing pressures on ecosystem services and valuable natural resources. The project will raise awareness of innovative ways of getting the most benefit from land with the minimum of impact on a sustainable long-term basis. This will change the way land is used – ensuring the compatibility of production practices with sustainable land management into the future. The sustainability of forests, rangelands, and arable lands will be assured through the mutual gains and benefits that are to be made.

**2. Institutional sustainability:** The project will influence the policies and operations of a number of government agencies responsible for primary production and land use management. The project model will see tools and mechanisms developed upstream and tested at the district and municipal level



before being refined and adopted nationally for upscaling and wider application. At the same time, capacity will be enhanced to secure the implementation and application of the new tools. Since the new developments will be carried out with the full participation of local government, the private sector, communities, and the people who work the land, a deep sense of ownership will be generated.

The project strategy will anchor the policy and regulatory reform process in MoA, CDR, MoE, DGUP – which are responsible for various aspects of land use planning and management including the licensing of major developments. While specifically enhancing the capabilities of these key agencies to take sustainability into account in land use planning, management, licensing, etc, the project will also strengthen the capacity of district and municipal authorities which have been empowered with administrative responsibilities for land use planning and management, and which must also regulate land use. Such a two-pronged approach is critical to ensure effective implementation of the new paradigm of sustainable land management at the broad catchment level for the long term and enhance sustainability.

**3. Financial sustainability:** The project will be making the case for all stakeholders to start seeing sustainable land management as making economic as well as ecological sense. Recognition of the economic gains that will arise from the application of SLM tools and mechanisms together with the ownership that will be achieved in the project products will lead to a protective stance from land owners and land users, and this will augur well for the sustainability of the project products, services and benefits. The participating partners have confirmed their commitment to sustain the new management measures that will be put in place under the project and which render sustainable land management as the choice land use over the longer term. The project will also benefit from the significant level of co-funded baseline initiatives. It will demonstrate good practice which will then be emulated by these other initiatives.

In addition, the project will establish financial incentives and disincentives towards sustainable land management, set up an alternative income generation scheme, assist with marketing organic produce to a discerning market and create a context which is expected to be attractive to investors, sponsors and development assistance agencies alike, thus enhancing the chances of sustainability.

**4. Replicability:** Replication and upscaling are expected to spread the benefits of the project from the pilot localities to the entire Qaraoun Catchment and beyond. This will be achieved through the direct replication of successful project elements and practices and methods, as well as the scaling up of experiences. Each project output will include the documentation of lessons learnt from implementation of activities under the output, and a collation of the tools and templates (and any other materials) developed during implementation. The Project Manager will ensure the collation of all the project experiences and information. Through the knowledge management component of the project, information, know-how, and experience will be made accessible to different stakeholder groups to be emulated beyond the project “boundaries”, replicated, and leading to better support for decision-making processes in the Qaraoun Catchment.

### 3 PROJECT RESULTS FRAMEWORK

<p><b>This project will contribute to achieving the following Country Programme Outcome as defined in CPD:</b> Environmental considerations are mainstreamed in sector/local-level strategies/plans</p>					
<p><b>Country Programme Outcome Indicators:</b> Indicator 1.1 Ministerial plans/strategies include environmental considerations such as the Land Use Master Plan; Indicator 2.1 Technical units with the Ministry operational and having a higher level of technical expertise related to each concerned environmental convention.</p>					
<p><b>Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):</b> 1. Mainstreaming environment and energy.</p>					
<p><b>Applicable GEF Strategic Objectives:</b> LD 1: Maintain or improve flow of agroecosystem services to sustaining the livelihoods of local communities; LD-2: Generate sustainable flows of forest ecosystem services in drylands, including sustaining livelihoods of forest dependent people; LD-3: Reduce pressures on natural resources from competing land uses in the wider landscape</p>					
<p><b>Applicable GEF Expected Outcomes:</b> Outcome 1.2: Improved agricultural management; Outcome 1.3: Sustained flow of services in agro-ecosystems; Outcome 2.3: Sustained flow of services in forest ecosystems in drylands; Outcome 3.1: Cross- sectoral enabling environment for integrated landscape management (in support of SLM); Outcome 3.2: Integrated landscape management practice adopted by local communities; Outcome 3.3: Increased investments in integrated landscape management</p>					
<p><b>Applicable GEF Outcome Indicators:</b> Indicator 1.3 Maintained/increased flow of services in agro-ecosystems; Indicator 2.2 Increased land area under sustainable forest management practices; Indicator 2.3 Increased quantity and quality of forests in dryland ecosystems; Indicator 3.1 Policies support integration of agriculture, rangeland, forest, and other land uses; Indicator 3.2 Application of integrated natural resource management (INRM) practices in wider landscapes</p>					
	Indicator	Baseline	Targets End of Project	Source of verification <sup>70</sup>	Assumptions and Risks
<p><b>Project Objective<sup>71</sup></b> <i>Sustainable land and natural resource management alleviates land degradation, maintains ecosystem services, and improves livelihoods in the Qaraoun Catchment</i></p>	0.1 Alleviation of land degradation - Area of farmland in target districts managed according to SLM principles <sup>72</sup>	No explicit SLM practices in the 78,000 ha of agricultural land in the Qaraoun Catchment	SLM principles applied in 5% of agricultural land (4,000 ha) by end of project, and with potential for replication to 100%	Measurements/observations first taken at project initiation will be repeated at the project mid-term and at project closure	<p><b>Assumptions:</b> Awareness and sensitivity to the value and vulnerability of land and ecological resources will reach an effective critical level among government officials, land owners and others in the private sector, communities and individuals, leading to an alleviation of land degradation, protection of ecosystem services and improvement in livelihoods.</p>
	0.2 Maintenance of ecosystem services – such as food and medicinal herbs from forests and rangelands, water quality (e.g. BOD, NH <sub>3</sub> ) and erosion control (e.g. Suspended Solids) at	Ecosystem services taken for granted and not recognized as dependent on wise land use. Data for pollutant entering Lake Qaraoun out of date and	Awareness and appreciation among 50% of surveyed residents of the dependence of ecosystem services on wise land use. Reduction in surveyed parameters by 10-20% at project localities	Survey to establish baseline, and subsequent monitoring system to be established by the project (see Output 2.4)	

<sup>70</sup> Comprehensive surveys, ranging from ecosystem to household level, will be carried out under Outputs 2.1 and 2.2 at the Project Inception Phase and will serve to provide the baseline for a number of Indicators against which to gauge the progress of the project towards its targets. In addition specific localities at farm level will be identified during the Inception Phase and only when this is done can the project determine specific baseline data.

<sup>71</sup> Objective (= Atlas output) monitored quarterly ERBM and annually in APR/PIR

<sup>72</sup> See for example -

[http://www.google.co.nz/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0CCkQFjAB&url=http%3A%2F%2Fwww.seqcatchments.com.au%2F\\_literat\\_ure\\_129372%2FPrinciples\\_for\\_Sustainable\\_Land\\_Management&ei=LZ8KVOe2K4aUATepoDYBA&usq=AFQjCNHoyl\\_Y0FT1r1QXwmryvBBDHQXxJUw&bvm=bv.74649129,d.c2E](http://www.google.co.nz/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0CCkQFjAB&url=http%3A%2F%2Fwww.seqcatchments.com.au%2F_literat_ure_129372%2FPrinciples_for_Sustainable_Land_Management&ei=LZ8KVOe2K4aUATepoDYBA&usq=AFQjCNHoyl_Y0FT1r1QXwmryvBBDHQXxJUw&bvm=bv.74649129,d.c2E)

	the entry point of Lake Qaraoun	unreliable and project survey will establish baseline			<p><b>Risks:</b> The risk is that the project timescale is somewhat short for some of the project benefits to manifest themselves, resulting in a lack of appreciation. The project will mitigate against this by putting in place a robust information and participatory strategy whereby stakeholders will share the project challenges as well as its benefits.</p> <p>The selected Indicators will serve to discover any beneficial results from project activities or confirm whether a good enough foundation has been laid for such results.</p>
	0.3 Improvement in livelihoods - Project communities are participating in SLM interventions and have improved their quality of life (measured by income level)	Baseline will be established by surveying representative selected communities, as an early activity of project inception (see Output 2.2)	Quality of life indicators <sup>73</sup> show 10% improvement by end of project	Socio-economic survey of selected communities for quality of life, incomes and livelihoods carried out early in project implementation and repeated at project mid-term and project closure	
<p><b>Outcome 1</b> <i>Landscape level uptake of SLM measures avoids and reduces land degradation, delivering ecosystem and development benefits in the Qaraoun Catchment</i></p>	1.1 Recovery trend in degraded forests and rangelands, particularly in Rachaya District - Area of degraded forests and rangelands recovered through SLM techniques and connectivity achieved between remnant isolated forest pockets	In target districts, up to 20,000 ha of rangelands and 500 ha of forests are badly degraded	Turnaround in 10,000 ha of rangelands and 300 ha of forests by end of project, and with potential for replication to 20,000 ha of rangelands and 500 ha of forests	Measurable in hectares recovered, through survey aided by remote sensing.	<p><b>Assumptions :</b> The Outcome assumes that the uptake of SLM measures will lead to very specific beneficial results in the catchment; and that these results will be evident soon enough to ensure the sustainability of project benefits.</p> <p><b>Risks:</b> If the planned outputs are indeed obtained through the project and if awareness is raised to an effective level, there is very little or no risk that the outcome will not be achieved.</p>
	1.2 Uptake of SLM measures in arable land especially in Zahle and West Bekaa Districts	Few if any farmers and other land users apply SLM measures knowingly. Exact level to be established by survey in target areas	>50% of all farmers and land users in project target areas apply SLM measures demonstrated by the project in Zahle and West Bekaa	Baseline to be established by survey during the Inception Phase; subsequent surveys to measure the uptake of SLM Measures	
	1.3 Percentage of land users in project localities in each of the three Districts that are applying SLM approaches in upland forests, rangelands and valley arable lands	Current level in project target areas is very low (see Output 2.2)	>25% implementation within project target areas	Land use practice survey	
	<p><b>OUTPUTS:</b>  <b>Output 1.1:</b> Measures to restore and rehabilitate degraded forests identified, demonstrated and integrated into existing FMPs  <b>Output 1.2:</b> Techniques and management mechanisms for sustainable rangeland management developed and tested, and appropriate infrastructure established to operationalize SLM.  <b>Output 1.3:</b> Implementation of sustainable agriculture management regime that integrates SLM considerations</p>				

<sup>73</sup> See for example <http://www.qualityoflifeproject.govt.nz/indicators.htm>

<b>Outcome 2</b> <i>Pressures on natural resources from competing land uses in the Qaraoun Catchment are reduced</i>	2.1 Integrated and participatory district level land use plans in West Bekaa and Rachaya Districts reflecting SLM principles developed and adopted	No Land Use Plans reflecting SLM principles, exist in the project target areas	Land Use Plans for West Bekaa and Rachaya Districts (91,000 ha) developed and available for replication to the rest of the Catchment (total of 157,000 ha)	Availability of the appropriate planning documents	<b>Assumptions:</b> The Outcome assumes that pressures on natural resources can be reduced and that this can be obtained through the elimination of competing land uses through effective land use planning and management.  <b>Risks:</b> The risk is that the capacity at local levels will not be adequate to carry on with the benefits of the project. However, if capacity development by the project is well-targeted and effective there is no risk that this will not be the case.
	2.2 Reduction in pressure on rangeland resources in the high country of West Bekaa and Rachaya Districts – as shown by species composition and productivity <sup>74</sup>	51,400 ha of rangelands estimated to be degraded. Estimate to be refined through the first survey under Output 2.2	An improvement of 20% (>10,000 ha) when compared to control in Rachaya District	Repeat surveys of simple transects or quadrats in 4 representative areas of rangelands in Rachaya District	
	2.3 Reduction in pressure on forest resources in West Bekaa and Rachaya Districts – as shown by the level of regeneration and recruitment of seedlings	6,032 h of forests estimated to be degraded. Estimate to be refined through the first survey under Output 2.2	An improvement of 8% (± 500 ha) when compared with a control in West Bekaa and Rachaya Districts	Repeat surveys of simple transects or quadrats in 4 representative areas of the target Districts	
	<b>OUTPUTS:</b> <b>Output 2.1:</b> <i>A Land Use Information Management System (LUIMS) established</i> <b>Output 2.2:</b> <i>Integrated Land Use Management Plans (ILUMPs) developed, piloted, evaluated and refined as necessary for West Bekaa, and Rachaya, ensuring optimal allocation of land to generate development benefits and critical environmental benefits in tandem.</i> <b>Output 2.3:</b> <i>Land Use Monitoring System developed and implemented to update and maintain the LUIMS, identify trends and ensure that any changes in land use remain within acceptable limits; to include remedial measures that will be triggered by the monitoring.</i> <b>Output 2.4:</b> <i>Compliance and enforcement capacity heightened where necessary</i>				
<b>Outcome 3<sup>75</sup></b> <i>Institutional strengthening and capacity enhancement for promoting sustainable forest and land management in the Qaraoun Catchment through an INRM approach across the landscape</i>	3.1 Capacity development indicator score for Land Use Planning and Management in West Bekaa and Rachaya Districts <sup>76</sup> at Districts and Municipalities level	Current score for West Bekaa and Rachaya Districts: 33.3%	By end of project an overall score of > 50%	UNDP-GEF Capacity Development Scorecard record repeated at mid-term and at project closure	<b>Assumptions:</b> The Outcome seeks ultimate results – sustainable forests and land management, and it is assumed that stronger institutions and enhanced capacity will achieve this.  <b>Risks:</b> The risk that stronger institutions and enhanced capacity may not lead to the desired results is low and the likelihood is reduced further through the economic incentives and disincentives that will
	3.2 Number of Municipalities in each of the three Districts with knowledge of the benefits of SLM in project target areas	Currently low or no appreciation of the benefits of SLM among Municipalities in the project target areas	> 50% of Municipalities in project target areas, by project end	Targeted questionnaire administered to municipalities in the project target areas.	

<sup>74</sup> Osman, Ahmed and Cocks, Phil (1992) Prospects for improving Mediterranean grasslands in Lebanon through seeding, fertilization and protection from grazing. Pasture Forage and Livestock Program, International Center for Agricultural Research in the Dry Areas (ICARDA). *Expl Agric.* (1992), volume 28, pp. 461-471.

<sup>75</sup> All outcomes monitored annually in the APR/PIR.

<sup>76</sup> See Annex 6 for the UNDP-GEF Capacity Development Scorecard as recorded during the Project Formulation Phase (PPG)

				Quality of LUPs and the mainstreaming of SLM in the plans.	be developed by the project and the fact that the framework will be developed with the full participation of the private sector.
3.3 Acceptance level by communities in Zahle, West Bekaa and Rachaya Districts, and individual farmers, shepherds, etc, of the value of SLM as a rational approach for land use.	Current level in project target areas is very low (see Output 2.2)	Increased acceptance and implementation (20%) by land users illustrated by their level of compliance (requiring less enforcement effort)	Socio-economic survey to set baseline, repeated at mid-term and terminal phases		
3.4 Extent of mainstreaming of SLM principles into policy, regulatory framework, strategy, planning, management, accountability, reporting and institutional capacity of key central government agencies, districts and municipalities	Currently there is no evidence of SLM principles in the policies, planning and operations of key government agencies, districts and municipalities	SLM principles evident in the policies, regulations, strategies, planning, management and reporting of MoA, MoE, CDR, and other key agencies, as well as West Bekaa, Zahle and Rachaya District administrations and municipalities	Baseline to be set during the Inception Phase. Measured quantitatively by recording the occurrence of SLM principles		
3.5 Success of economic incentives and disincentives in promoting adherence to land use criteria, regulations and guidance	None exist at present	Increase in the level of compliance and a decrease in the need for enforcement (reduction by 20%)	Number of prosecutions and enforcement orders (as a proxy)		
<p><b>OUTPUTS:</b></p> <p><b>Output 3.1:</b> Recommendations to remove barriers to SLM in Lebanon integrated into relevant policies, legislation, procedures</p> <p><b>Output 3.2:</b> Economic incentives and disincentives designed and set in place to promote adherence by the agriculture industry (including forests and rangelands) to the reformed policies and regulation.</p> <p><b>Output 3.3:</b> Institutional and human capacity enhanced for professionals, administrators, NGOs and community leaders leading to an increased level of SLM consideration in land use planning and management.</p> <p><b>Output 3.4:</b> A knowledge management and outreach programme for SLM developed and implemented to inform and help compliance, enhance sustainability, and prepare for replication and up-scaling.</p>					

## 4 TOTAL BUDGET AND WORKPLAN

<b>Award ID:</b>	00081592	Project ID(s):	00090788
<b>Award Title:</b>	Sustainable Land Management in the Qaraoun Catchment, Lebanon		
<b>Business Unit:</b>	LBN		
<b>Project Title:</b>	Sustainable Land Management in the Qaraoun Catchment, Lebanon		
<b>PIMS no.</b>	4642		
<b>Implementing Partner (Executing Agency)</b>	Ministry of Environment		

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budget	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	See Budget Note
	Account Code										
<b>OUTCOME 1:</b>	UNDP/MoE	62000	GEF	71200	International Consultants	-	-	25,000.00	-	25,000.00	1
<i>Landscape level uptake of SLM measures avoids and reduces land degradation, delivering ecosystem and development benefits in the Qaraoun Catchment</i>				71400	Contractual Services-Individuals	62,800.00	62,800.00	62,800.00	62,800.00	251,200.00	2
				72100	Contractual Services-Companies	-	219,000.00	300,000.00	500,000.00	1,019,000.00	3
				72200	Equipment and Furniture	10,000.00	-	-	-	10,000.00	4
				72600	Grants	-	45,000.00	190,000.00	190,000.00	425,000.00	5
				72800	Information Technology Equipment	10,000.00	22,000.00	45,000.00	-	77,000.00	6
				73400	Rental and Maintenance of Other Equipment	3,000.00	6,000.00	6,000.00	6,000.00	21,000.00	7
				74500	Miscellaneous	1,000.00	2,000.00	2,000.00	2,000.00	7,000.00	8
				75700	Training, Workshops and Conferences	4,500.00	10,000.00	10,000.00	10,000.00	34,500.00	9
					<b>Sub-total GEF</b>	<b>91,300.00</b>	<b>366,800.00</b>	<b>640,800.00</b>	<b>770,800.00</b>	<b>1,869,700.00</b>	
					<b>Total Outcome 1</b>	<b>91,300.00</b>	<b>366,800.00</b>	<b>640,800.00</b>	<b>770,800.00</b>	<b>1,869,700.00</b>	
<b>OUTCOME 2:</b>	UNDP/MoE	62000	GEF	71400	Contractual Services-Individuals	62,800.00	62,800.00	62,800.00	62,800.00	251,200.00	10
<i>Pressures on natural resources from competing land uses in the Qaraoun Catchment are reduced</i>				71600	Travel	4,000.00	10,000.00	10,000.00	10,000.00	34,000.00	11
				72100	Contractual Services-Companies	50,000.00	130,000.00	230,000.00	225,000.00	635,000.00	12
					<b>Sub-total GEF</b>	<b>116,800.00</b>	<b>202,800.00</b>	<b>302,800.00</b>	<b>297,800.00</b>	<b>920,200.00</b>	
					<b>Total Outcome 2</b>	<b>116,800.00</b>	<b>202,800.00</b>	<b>302,800.00</b>	<b>297,800.00</b>	<b>920,200.00</b>	

<b>OUTCOME 3:</b>	UNDP/MoE	62000	GEF	71300	Local Consultants	-	25,000.00	25,000.00	25,000.00	75,000.00	13
<i>Institutional strengthening and capacity enhancement for promoting sustainable forest and land management in the Qaraoun Catchment through an INRM approach across the landscape</i>				71400	Contractual Services-Individuals	18,270.00	18,270.00	18,270.00	18,270.00	73,080.00	14
				72100	Contractual Services – Companies	-	20,000.00	20,000.00	25,000.00	65,000.00	15
				74200	Audio-visual and printing production costs	-	5,000.00	15,000.00	15,000.00	35,000.00	16
					<b>Sub-total GEF</b>	<b>18,270.00</b>	<b>68,270.00</b>	<b>78,270.00</b>	<b>83,270.00</b>	<b>248,080.00</b>	
					<b>Total Outcome 3</b>	<b>18,270.00</b>	<b>68,270.00</b>	<b>78,270.00</b>	<b>83,270.00</b>	<b>248,080.00</b>	
<b>Project Management</b>	UNDP/MoE	62000	GEF	71200	International Consultants	-	30,000.00	-	35,000.00	65,000.00	17
				71600	Travel	2,000.00	4,000.00	4,000.00	4,000.00	14,000.00	18
				72200	Equipment and Furniture	5,000.00	2,000.00	-	-	7,000.00	19
				72500	Office Supplies	4,000.00	2,000.00	2,000.00	2,000.00	10,000.00	20
				72800	Information Technology Equipment	7,000.00	1,231.00	-	-	8,231.00	21
				74500	Miscellaneous	-	5,850.00	4,630.00	-	10,480.00	22
				74599	UNDP cost recovery charges-Bills	3,960.00	7,150.00	6,870.00	3,000.00	20,980	23
				75700	Workshops and Conferences	2,000.00	4,000.00	4,000.00	4,000.00	14,000.00	24
					<b>Sub-total GEF</b>	<b>23,960.00</b>	<b>56,231.00</b>	<b>21,500.00</b>	<b>48,000.00</b>	<b>149,691.00</b>	
			71400	Contractual Services-Individuals	75,000.00	75,000.00	75,000.00	75,000.00	300,000.00	25	
		<b>Sub-total UNDP</b>	<b>75,000.00</b>	<b>75,000.00</b>	<b>75,000.00</b>	<b>75,000.00</b>	<b>300,000.00</b>				
			<b>Total Management</b>	<b>98,960.00</b>	<b>131,231.00</b>	<b>96,500.00</b>	<b>123,000.00</b>	<b>449,691.00</b>			
				<b>PROJECT TOTAL GEF</b>	<b>250,330.00</b>	<b>694,101.00</b>	<b>1,043,370.00</b>	<b>1,199,870.00</b>	<b>3,187,671.00</b>		
				<b>PROJECT TOTAL UNDP</b>	<b>75,000.00</b>	<b>75,000.00</b>	<b>75,000.00</b>	<b>75,000.00</b>	<b>300,000.00</b>		
				<b>PROJECT TOTAL</b>	<b>325,330.00</b>	<b>769,101.00</b>	<b>1,118,370.00</b>	<b>1,274,870.00</b>	<b>3,487,671.00</b>		

#	NOTES ON BUDGET (all figures in US Dollars; USD1.00 = LBP1,480.00)
1	International consultant Agro Expert Stock and Action Plan @ USD500/day for activities under Outputs 1.1, 1.2 and 1.3
2	25% of Project Manager overall cost @ USD73,080/year for technical input into Outputs 1.1, 1.2 and 1.3 comprising coordination of Working Groups, authoring of discussion and other papers, lobbying with relevant authorities, liaison with various actors, training and capacity building, production of handbooks and other guidance documents; Agri/Forest Site Engineer (Local Team Leader) @ USD44,530/year, based at LARI in West Bekaa to serve as project gateway at District level and coordinate the various activities in West Bekaa for survey, LUP, LUIMS, Monitoring system and other activities under Outputs 2.1 to 2.5, but primarily to coordinate work under Outputs 1.1 to 1.3, firstly in West Bekaa, but also in the other Districts
3	4 contracts to carry out: (1) Community involvement @ USD259,000 in all three Districts under each of Outputs 1.1 to 1.3; (2) Rangeland trials @ USD260,000 under Output 1.2; (3) Socio-economic assessment @ USD80,000 in all three Districts with relevance to a number of Outputs, in particular Outputs 3.2, 2.3, 1.1, 1.2 and 1.3; (4) Integrated Crop Management and Conservation Agriculture trials @ USD260,000/contract primarily under Output 1.3
4	Basic equipment and running costs for office at LARI, West Bekaa, for the Local Team Leader
5	Grants for forest management and to set up Alternative Income Generating activities. SLM techniques may include a reduction in stock numbers, finding alternative grazing, applying a seasonal approach, and adopting exclusion zones for valuable areas providing ecosystem services (such as remnant forests). Therefore there is a need to find concrete sustainable alternative sources of livelihood or at least diversification of income for some communities. The grants would be used to do so based on technical assessment of needs and finding sound business/financial alternatives which are financially viable and sustainable. These are under Outputs 1.1 to 1.3
6	IT equipment at LARI, District offices and selected Municipalities to allow access to the LUIMS and contribute to and implement the knowledge management and outreach programme, based under Output 3.4 but applicable across the project, especially under Outputs 1.1 to 1.3 and for Land Use Planning activities under Output 2.3
7	Fuel and vehicle maintenance; maintenance/rental of other equipment. This activity is applicable firstly to all Outputs 1.1 to 1.3, but also to Outputs 2.1 to 2.4.
8	Miscellaneous, contingency. To provide for unpredictable expenses
9	Total cost of at least 2 Workshops @ USD17,250/event. These will be in addition to the numerous working groups and public consultation workshops which will be covered under the expenses for specific Outputs. They will be pitched at national level as part of the upscaling and replication effort.
10	25% of Project Manager overall cost @ USD73,080/year for technical input into Outputs 2.1 to 2.4 comprising coordination of Working Groups, authoring of discussion and other papers, lobbying with relevant authorities, liaison with various actors, training and capacity building; LUP Site Engineer (Local Team Leader) @ USD44,530/year, based at a host institution in the field (probably Rachaya District) to serve as project gateway at District level for Rachaya District and coordinate the various activities in the field for survey, LUP, LUIMS, Monitoring system and other activities under Outputs 2.1 to 2.4 as well as provide support for activities under Outputs 1.1-1.3.
11	Study Tour – travel and training costs, for selected District and Municipal personnel with responsibilities for LUP and management (Output 2.3), monitoring (Output 2.4), enforcement (Output 2.5)
12	6 contracts to carry out at 2 sites: (1) Diagnostic studies + surveys @ USD85,000/site (Output 2.2); (2) LUIMS @ USD50,000/site (Output 2.1); (3) ILUMP @ USD90,000/site (Output 2.3); (4) LU Monitoring systems + training @ USD50,000/site (Output 2.4); (5) LU equipment @ USD 50,000/site ; (6) Awareness Campaign @ USD50,000/site – under Output 2.1, 2.2, 2.4 and in relation to Output 3.4
13	Printing/publication costs for electronic and hardcopy brochures and other information materials and guidance manuals under Output 2.2, 2.3, 2.4 and in relation to Output 3.4
13	Local consultants – Legal @ USD700/day to coordinate work under Output 3.1 seeking institutional reforms necessary for SLM; Environmental Economist/Finance @ USD500/day to lead a Working Group to develop incentives and disincentives under Output 3.2 and produce guidelines for application; LUP Expertise @ USD500/day for delivery of training and capacity building under Output 3.3 – likely to be through formal cooperation agreement/s with academic institutions, NGOs and/or private sector specialists in the field.
14	25% of Project Manager overall cost @ USD73,080/year for technical input into Outputs 3.1, 3.2 and 3.3 comprising coordination of Working Groups, authoring of discussion and other papers, lobbying with relevant authorities, liaison with various actors, training and capacity building, production of handbooks and other guidance documents, etc.
15	Contract for awareness campaign, knowledge management and outreach (Output 3.4)
16	Production of handbooks and other guidance documents, other knowledge management under Output 3.4
17	International consultants for independent MTE and TE @ USD32,500/contract
18	Travel for project personnel - field visits, preparing for replication, outreach, project exposure
19	Setting up Office at MoE for three personnel
20	Office consumables – stationery, books, etc for the main office and also for the office bases of the two Local Team Leaders at district level
21	IT equipment (X3) for office in MoE @ USD5,077
22	Miscellaneous, contingency. To provide for unpredictable expenses
23	Direct Project Costs are estimations based on the expected services to be provided. However, the exact amount will be charged annually based on the actual transaction costs (using UNDP Universal Price List) of services provided. A Letter of Agreement (refer to draft LoA in annex 8) will be signed between UNDP and the Government of Lebanon, and will include the description and the breakdown of the support services.
24	Workshops and Conferences @ USD3,500/event (4 events over 4 years) to publicize project, outreach and exchange lessons, as well as for personal professional development.
25	25% of Project Manager overall cost @ USD73,080/year for purely management and administration input including planning, reporting, accountability, financial planning and management; Project Admin & Finance Assistant all inclusive @ USD38,385/year; Driver all inclusive @ USD22,400/year (vehicle will be provided by UNDP at no cost to the project; driver required to satisfy UNDSS Security requirements). UNDP co-financing in cash provides the required flexibility for this item



**SUMMARY OF FUNDS IN US DOLLARS: <sup>77</sup>**

<b>FUNDING SOURCE</b>	<b>Amount Year 1</b>	<b>Amount Year 2</b>	<b>Amount Year 3</b>	<b>Amount Year 4</b>	<b>Total</b>
GEF	250,330.00	694,101.00	1,043,370.00	1,199,870.00	3,187,671.00
UNDP	112,500.00	112,500.00	112,500.00	112,500.00	450,000.00
Ministry of Environment <sup>78</sup>	4,400,000.00	4,400,000.00	4,400,000.00	4,400,000.00	17,600,000.00
<b>TOTAL</b>	<b>4,762,830.00</b>	<b>5,206,601.00</b>	<b>5,555,870.00</b>	<b>5,712,370.00</b>	<b>21,237,671.00</b>

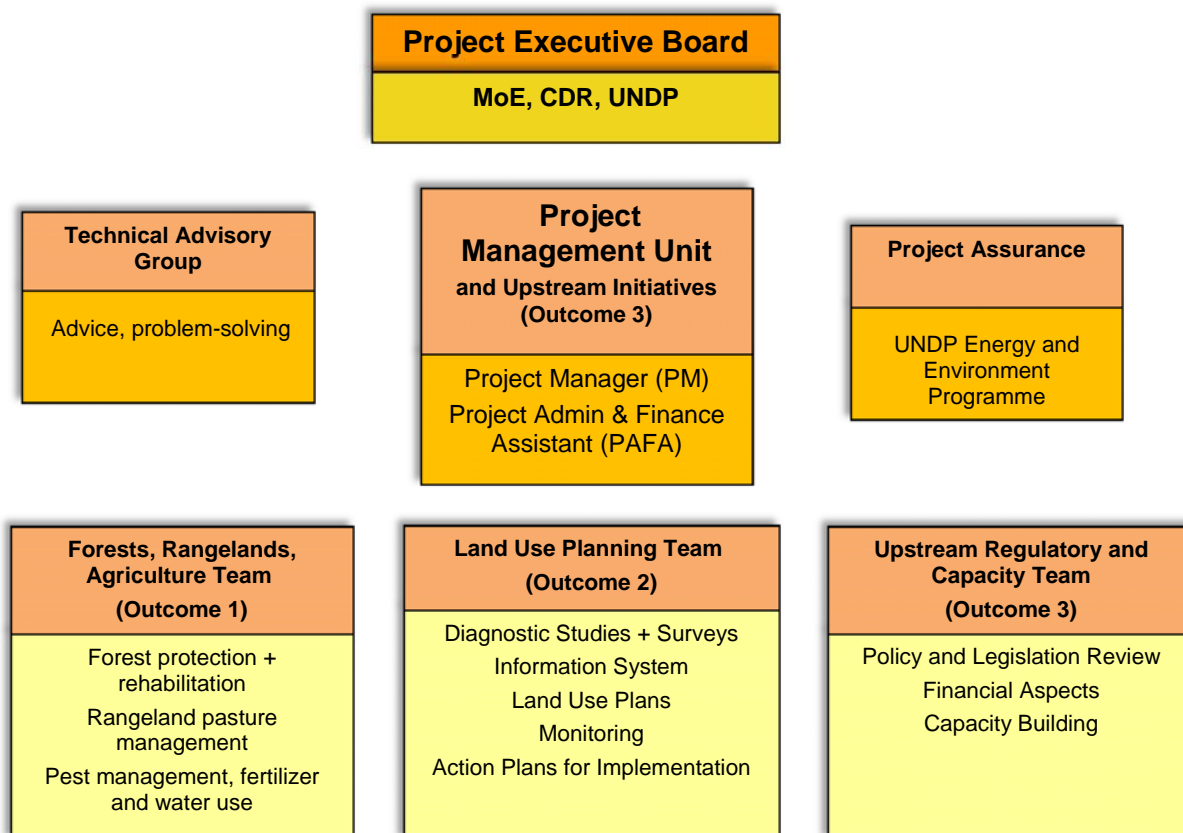
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<sup>77</sup> Summary table includes all financing of all kinds: GEF financing, cofinancing, cash, in-kind, etc...

<sup>78</sup> As a result of the political and security situation in Lebanon, co-financing sources identified in the PIF did not materialize. However, the MoE was able to make up for the difference.

## 5 IMPLEMENTATION ARRANGEMENTS

The project will be implemented through the following framework comprising governance, coordination and management, and implementation.



UNDP is the GEF Implementing Agency (IA) for the project which will be implemented over a period of four years and will have the Ministry of Environment as the Executing Agency / Implementation Partner. Other government and non-government organizations will also play important roles in implementation. The project will be executed in the Support to NIM modality using the direct payment approach, in line with the Standard Basic Assistance Agreement (SBAA) between the UNDP and the Government.

### National Focal Point

The Government will appoint a high level official who will serve part time as the National Focal Point (NFP) for the project. The NFP will be a senior person appointed to oversee the project who is accountable to the Government and UNDP for the implementation of the project in line with the signed project document. He/she is the approving officer for the project and will be responsible for providing government oversight and guidance for project implementation. The NFP will not be paid from project funds, but will represent part of the government in-kind contribution to the project.

Among the duties and responsibilities of the NFP are the following<sup>79</sup>:

1. Serves as a focal point for coordination of the project with implementing agencies, UNDP, Government and other partners
2. Ensures that Government inputs for the project are available and that the project activities are in line with national priorities.
3. Leads and coordinates partners in the selection of the Project Manager/Coordinator.
4. Coordinates with the Project Manager/Coordinator and facilitates his/her work and all staff.
5. Ensures that the required project work plan is prepared and updated and distributed to the Government relevant entities.
6. Will represent the National Executing Agency at project meetings and annual reviews.
7. Will lead efforts to build partnerships for the support of outcomes indicated in the project document.
8. Will support resource mobilization efforts to increase resources in cases where additional outputs and outcomes are required.

### **UNDP Country Office**

As GEF Implementing Agency, UNDP Country Office (UNDP-CO) is ultimately accountable and responsible for the delivery of results through the PEB. UNDP will provide the day-to-day oversight and quality control over project deliveries and shall provide project cycle management services (equivalent to GMS fees cited in paragraph 4 of the Letter of Agreement), that will include the following:

- Providing financial and audit services to the project
- Overseeing financial expenditures against project budgets approved by PEB,
- Ensuring that activities including procurement and financial services are carried out in strict compliance with UNDP/GEF procedures,
- Ensuring that the reporting to GEF is undertaken in line with the GEF requirements and procedures,
- Facilitate project learning, exchange and outreach within the GEF family,
- Contract the project mid-term and final evaluations and trigger additional reviews and/or evaluations as necessary and in consultation with the project counterparts.

The related fees will be paid directly by the UNDP-GEF Unit to the Country Office, and will be not part of the Project Management Cost allocation identified in the project budget.

At the request of the Government of Lebanon, UNDP shall also provide **Direct Project Services (DPS)** specific to project inputs according to its policies and convenience. These services, and the costs thereof, are specified in the Letter of Agreement in paragraph 3. In accordance with GEF requirements, the costs of these services will be part of the executing entity's Project Management Cost allocation identified in the project budget. UNDP and the Government of Lebanon acknowledge and agree that these services are not mandatory and will only be provided in full accordance with UNDP policies on recovery of direct costs. Direct project services will be charged annually using the Universal Price List for Direct Project Services requested by the Government of Lebanon.

Support Services for Implementation are related to the recovery of costs for providing services to the implementation of the project based on real costs or transaction fees, including:

1. Payments, disbursements and other financial transactions
2. Recruitment of staff, project personnel, and consultants
3. Procurement of services and equipment, and disposal/sale of equipment
4. Organization of training activities, conferences, and workshops, including fellowships
5. Travel authorizations, visa requests, ticketing, and travel arrangements
6. Shipment, custom clearance, vehicle registration, and accreditation

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<sup>79</sup> See UNDP Bureau of Management (2003) Country Office Support For Effective Project Management: Working Paper #3- National Project Directors Manual

These costs are an integral part of the project implementation and will be charged to budget 74599 in the Project Management component, according to the current Universal Price List for transactional services.

### **Project Executive Board**

Project Governance will be through the Project Executive Board (PEB) which will be convened by UNDP in consultation with the government and will serve as the project's governance and decision-making body. The PEB, will comprise representatives of UNDP, CDR, MoE and other entities as agreed between UNDP and the Government. The PM will also be in attendance at PEB meetings. It will meet as necessary, but not less than once every 12 months, to review project progress, approve project work plans (including budgets) and approve major project deliverables. The PEB is responsible for ensuring that the project remains on course to deliver products of the required quality to meet the outcomes defined in the project document. The PEB's role will include: (i) overseeing project implementation; (ii) approving all project work plans and budgets, as put forward by the PM, for submission to the UNDP Regional Centre in Bangkok and the GEF Unit in New York; (iii) approving any major changes in project plans or programmes; (iv) providing technical input and advice; (v) approving major project deliverables; (vi) ensuring commitment of resources to support project implementation; (vii) arbitrating any conflicts within the project and/or negotiating solutions between the project and any parties beyond the scope of the project; and (viii) overall project evaluation.

### **Project Management Unit**

A Project Management Unit (PMU)<sup>80</sup> will be set up to provide the day-to-day coordination and administration of the project. The project will hire a Project Manager (PM) who will lead the PMU and report to the Project Executive Board (PEB). He/she will work in close collaboration with the NFP to ensure cost efficient, technical and administrative project operations. In addition to the Project Manager (PM), the PMU will comprise the Project Administration and Finance Assistant (PAFA). The PMU will also include the two Local Team Leaders (LTL), one to lead the Land Use Planning Team (Outcome 2) and one to lead the Forests, Rangelands and Agriculture Team (Outcome 1). Both will be hosted by the Lebanese Agriculture Research Institute (LARI).

Project staff will be recruited using standard UNDP recruitment procedures. The PM, with the support of the PAFA, will assume the lead responsibility for the Upstream Regulatory and Capacity elements of the project (primarily Outcome 3), as well as provide oversight and coordination among the key Implementing Partners at the various downstream localities, namely, West Bekaa, Rachaya and Zahle Districts. The PMU, while assuming responsibility for the upstream activities, will provide advice, support and coordination for all project activities. The PM will liaise and work closely with all partner institutions to link the project with complementary national programmes and initiatives. The PM is accountable to the PEB for the overall quality, timeliness and effectiveness of the activities carried out, as well as for the use of funds.

Many outputs will require technical know-how and expertise most of which will be obtained through consultancies and contracts with individuals and companies. Often, as described in Section 2.2.4 above, the expert will lead or coordinate a working group made up of representatives from the key stakeholders. A list of all the delivery contracts envisaged is in Annex 7.

The PM will collate the input from the key Implementation Partners and produce Annual Work and Budget Plans to be approved by the PEB at the beginning of each year. These plans will provide the basis for allocating resources to planned activities. The PM will further produce collated quarterly operational reports and Annual Progress Reports (APR/PIR) for submission to the PEB. These reports will summarize the progress made by the project against the expected results, explain any

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<sup>80</sup> Terms of Reference for key project personnel are in Annex 7

significant variances, detail the necessary adjustments and serve as the main reporting mechanism for monitoring project activities.

### **Technical Advisory Group**

The PM will be supported by a Technical Advisory Group (TAG) which will provide advice and support on any technical aspects, in particular the reviewing and drafting of Terms of Reference and reviewing the outputs of consultants and other subcontractors. The TAG will be made up of representatives of key implementing partners, stakeholders and beneficiaries as well as some individuals and organizations selected in recognition of their particular expertise of interest to the project. Expertise sought will range from institutional, legal, policy development, land use planning, ecosystem services, biodiversity values and vulnerability, community involvement, private sector involvement, capacity building, etc. The PM will attend TAG meetings to the extent possible. The TAG will meet as required and will be based centrally. The TAG will regulate its own procedures but it is proposed that the Chair will be selected by consensus and will become an *ex officio* member of the PEB meetings (see above) to contribute technical advice. In addition to providing advice to the PEB, the TAG will also advise the PM, the Local Team Leaders and the key Implementing Partners – on request as well as on the TAG’s own initiative. TAG members will not be paid from project funds but their contribution will be recognized as a contribution in-kind.

### **Local Advisory Committees**

A Local Advisory Committee (LAC) will be set up at each of West Bekaa, Rachaya and Zahle Districts. The LACs will be set up by the PM, in consultation with key local stakeholders and with the support of the LTLs. Each will comprise representatives of the local Implementing Partners (Districts and Municipalities), relevant central government organizations (MoE, MoA, CDR, etc), the private sector, NGOs, communities and individuals known to possess valuable expertise. The LACs, which will be chaired by a nominee of the respective District, will perform a similar task to the central Technical Advisory Group (see above) and provide advice and support to the LTLs, the PM and others involved in project implementation.

### **Reporting arrangements**

The PM will collate inputs from Local Team Leaders to produce the comprehensive project AWP which will be approved by the Project Executive Board with advice from the Technical Advisory Group. Each of the local implementation teams will have a distinctive AWP component for which they will be accountable. The LPLs will report to the PM quarterly to inform his/her reporting to UNDP and the PEB.

### **Audit**

The audit of NIM projects is made through the regular external (UN Board of Auditors) or internal audits (audits managed by UNDP’s Office of Audit and Investigations).

## **6 MONITORING FRAMEWORK AND EVALUATION**

The project will be monitored through the following M&E activities covered by a budget as provided in the table below. However, M&E expenditure is not identified specifically in the budget but covered under various items in project management costs.

## Project Inception Workshop

A Project Inception Workshop will be held within the first two months of project start with the participation of those with assigned roles in the project organizational structure, UNDP Country Office and district and municipal representatives, technical and policy advisors from various government entities, as well as communities and other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first Annual Work Plan.

The Inception Workshop should address a number of key issues including:

- a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and UNDP-RCU staff *vis à vis* the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- b) Review the Strategic Results Framework (the Logframe) and confirm the Outputs and, in particular, define the specific parameters that will be used by the Indicators as necessary.
- c) Based on the project Strategic Results Framework (the Logframe) and the relevant GEF Tracking Tool, finalize the first Annual Work Plan. Review and agree on the Indicators, Baselines, Targets and their means of verification, and recheck Assumptions and Risks.
- d) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- e) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- f) Plan and schedule Project Executive Board meetings. Roles and responsibilities of all project organisational structures should be clarified and meetings planned. The first Project Executive Board meeting should be held within the first 12 months following the Inception Workshop.

An Inception Workshop Report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

## Quarterly Monitoring

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in ATLAS, a Project Progress Report (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

## Annual Reviews

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (year ending 30 June). The APR/PIR combines both UNDP and GEF reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual).

- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (*i.e.* GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

### **Periodic Monitoring through site visits**

UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess at first hand project progress. Other members of the Project Executive Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Executive Board members.

### **The GEF Portfolio Monitoring and Tracking Tool**

Tracking tools are an important component of projects submitted to the GEF and are invaluable for monitoring results of GEF operations in the various focal areas, including progress towards achieving the GEF mandate on global environmental benefits. The Land Degradation Focal Area Portfolio Monitoring and Assessment Tool (PMAT) is one such tracking tool and serves as a means to capture the necessary data and information during project design and implementation. Annex 4 contains the first completed Tracking Tool for this project. As noted below, it should be repeated at the time of the Mid-Term Evaluation and again at the Terminal Evaluation.

As noted in the Guidelines, the GEF recognizes that not all components of the PMAT will apply to every project and this project is no exception. The project proponents faced some challenges in completing the first PMAT. In particular, it had to cope with the incomplete and outdated data in Lebanon on land use in general and its total lack at the District level. This has affected the information recorded on socio-economic aspects such as income levels, and primary productivity per hectare for forests, rangelands and agricultural arable land. The project will address these information gaps during the inception phase, thus setting a baseline for the PMAT as well as the M&E system.

### **Mid-term Evaluation**

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (around 24 months since inception). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course corrections if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project. The Terms of Reference for this Mid-Term Evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).

As noted above, the PMAT Tracking Tool will also be completed during the mid-term evaluation.

### **Terminal Evaluation**

An independent Terminal Evaluation will take place three months prior to the final Project Executive Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).

As noted above, the PMAT Tracking Tool will be completed during the terminal evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results. It is desirable for the Project Terminal Report to be made available to the independent Terminal Evaluation.

### **Learning and knowledge sharing**

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Finally, there will be a two-way flow of information between this project and other projects with a similar focus.

### **Communications and visibility requirements**

Compliance is required with UNDP's Branding Guidelines as applied in Lebanon, taking into account the security situation. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo.

The GEF logo can be accessed at: [http://www.thegef.org/gef/GEF\\_logo](http://www.thegef.org/gef/GEF_logo). The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

Compliance is also required with the GEF's Communication and Visibility Guidelines as agreed to be applied to the situation in Lebanon. They can be accessed at: [http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08\\_Branding\\_the\\_GEF%20final\\_0.pdf](http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf). Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.



## M&E Workplan and Budget

The following M&E Plan and Budget will be reviewed during the Inception Workshop, adjusted as necessary and adopted by the Project Executive Board.

**Table 11. Early M&E Plan to be confirmed at Inception.**

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Inception Workshop and Report	<ul style="list-style-type: none"> <li>▪ Project Manager</li> <li>▪ UNDP CO, UNDP GEF</li> </ul>	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results.	<ul style="list-style-type: none"> <li>▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.</li> </ul>	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	<ul style="list-style-type: none"> <li>▪ Oversight by Project Manager</li> <li>▪ Project team</li> </ul>	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	<ul style="list-style-type: none"> <li>▪ Project manager and team</li> <li>▪ UNDP CO</li> <li>▪ UNDP RTA</li> <li>▪ UNDP EEG</li> </ul>	None	Annually
Periodic status/ progress reports	<ul style="list-style-type: none"> <li>▪ Project manager and team</li> </ul>	None	Quarterly
Mid-term Evaluation	<ul style="list-style-type: none"> <li>▪ Project manager and team</li> <li>▪ UNDP CO</li> <li>▪ UNDP RCU</li> <li>▪ External Consultants (i.e. evaluation team)</li> </ul>	Indicative cost: 30,000	At the mid-point of project implementation.
Final Evaluation	<ul style="list-style-type: none"> <li>▪ Project manager and team,</li> <li>▪ UNDP CO</li> <li>▪ UNDP RCU</li> <li>▪ External Consultants (i.e. evaluation team)</li> </ul>	Indicative cost : 35,000	At least three months before the end of project implementation
Project Terminal Report	<ul style="list-style-type: none"> <li>▪ Project manager and team</li> <li>▪ UNDP CO</li> <li>▪ local consultant</li> </ul>	0	At least three months before the end of the project
Visits to field sites	<ul style="list-style-type: none"> <li>▪ UNDP CO</li> <li>▪ UNDP RCU (as appropriate)</li> <li>▪ Government representatives</li> </ul>	For GEF supported projects, paid from IA fees and operational budget	Yearly
<b>TOTAL indicative COST</b> Excluding project team staff time and UNDP staff and travel expenses		US\$ 187,000	

## 7 LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement (SBAA) between the Government of Lebanon and the United Nations Development Programme, signed by the parties on 10 February 1986.

Consistent with the Article III of the Standard Basic Assistance Agreement (SBAA), the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner's obligations under this Project Document.

The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via [http://www.un.org/sc/committees/1267/aq\\_sanctions\\_list.shtml](http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml). This provision must be included in all sub-contracts or sub-agreements entered into under/further to this Project Document".

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