

Towards a

National

Park

in

Upper

Akbar

*Achievements,  
Challenges and  
Perspectives  
2005 - 2008*

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#### **Organization Profile**

Mada ([www.mada.org.lb](http://www.mada.org.lb)) is a non-sectarian NGO established in Lebanon in the year 2000. Mada works with different groups in Lebanon on various developmental and environmental projects to facilitate positive change based on local and comprehensive efforts, as well as policies and regulations tailored to local realities. Mada achieves this mission by:

- Supporting marginalized persons or groups and providing a creative space for initiatives to be carried out by those invested in change.
- Contributing to the establishment of relationships and concrete partnerships between locals and other stakeholders.

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## **Introduction**

This report presents an assessment of the achieved goals and challenges met during the implementation, in the time period between 2005 and 2008, of the project “Towards a National Park (NP) in Upper Akkar”. This will be followed by a summary of the prospects for the project in the coming years.

This initiative, undertaken by Mada and implemented in close collaboration with concerned municipalities, in partnership with governmental and international agencies, has benefited from the financial support of several donors, such as the Royal Society for the Conservation of Nature (RSCN), The Canadian Embassy, the Swiss Development Company (SDC), the Ford Company, the Royal Netherlands Embassy, Save the Children, the Heinrich Boell Foundation, Handicap International, and the Comité Catholique Contre la Faim et pour le Développement (CCFD).

This report presents the outcomes and findings of the collaborative efforts of the Mada staff with the involvement and commitment of different consultants contracted for specific tasks.

The federations of municipalities of el Joumeh and Jord el Keitta and the municipality of Qobayat, as well as the Park Steering Committee (PSC) and the Technical Park Committee (TPC) are the pillars of the project and the energy they devoted has been vital to this success. Furthermore, the project profited from the support and constant involvement of the Ministry of the Environment (MOE), the Council for Development and Reconstruction (CDR), the Ministry of Agriculture (MOA), and the General Direction of Urban Planning (DGUP).

## **Project Overview**

In 2004, the Lebanese government designed a National Master Plan for Lebanon which included recommendations for the Upper Akkar- Donnieh- Hermel area to establish a NP, in order to safeguard the extraordinary biodiversity and landscapes in the area. The NP suggested by the SDATL is the only NP on the Lebanese territory next to six suggested Regional Natural Parks. In 2005, following the governmental outlines, Mada initiated a set of activities aimed at paving the way for the establishment of a NP over a pilot area of 220 km<sup>2</sup> in Akkar and Donnieh. These included launching biodiversity assessments (flora and bird surveys), ecological monitoring, socio-economic surveys, the creation of geographical information database about the area (land use map, soil map, existing protection decisions, vegetation map, cultural heritage map, etc), as well as implementing local economic and ecotourism initiatives.

Mada also initiated an education program including: an assessment of educational services and reasons for school dropout, a teachers training, support classes to students in foreign languages (French and English), in addition to encouraging extra curricular and environmental activities for children.

In 2006, Akkar municipalities<sup>1</sup> located in the NP Pilot area, signed protocols of cooperation with Mada. These protocols specify the process towards a participatory map of potential land uses allocations that defines priorities for future land use and takes into account the NP perspective.

In full coordination with the concerned municipalities, the federations of Jord el Keitta and el Joumeh, and the municipality of Qobayat decided to focus the process on an area including Qamouaa<sup>2</sup> and the surrounding villages, Akkar el Atiq, Fnaideq and Qobayat. This area, covering 101 km<sup>2</sup>, would represent a pilot perimeter that might be extended to the other municipalities upon the approval of the NP Charter, once it is ready.

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<sup>1</sup> Fneideq, Hrar, Michmich, Qabait

<sup>2</sup> Qamouaa is an important natural area, rich in different forest types, various exceptional landscapes and water resources. Qamouaa has been designated by various ministries (MOE, MOA, MOT, DGU) as a natural area to be protected

## Methodology

The process towards the designation of a protected area is complex and involves many stakeholders including municipalities, local inhabitants, governmental and non governmental agencies. It requires a solid scientific basis to articulate a robust vision of and strategic orientation for future activities. Accordingly, Mada has aimed to combine a scientific methodology, the networking with concerned stakeholders, as well as effectively implementing tangible action on the ground in order to support development and to build trust.

All scientific assessments and specifically the biodiversity assessments (flora and avifauna) were performed on the basis of extensive field surveys by national experts, closely backed up by a Scientific Steering Committee<sup>3</sup> gathering national and international experts, academics and researchers in biodiversity conservation and sustainable management from various disciplines. The Annex presents a list of the various technical reports performed during this first phase of the project

In 2008, the federations of municipalities and the municipality of Qobayat, supported by Mada, have created specific committees to follow up the issue of the NP: a Park Steering committee (PSC) composed of representative<sup>4</sup> of both Federations of municipalities, Al Joumeh and Jord el Keitta, as well as the municipality of Qobayat; a Technical Committee (TPC) including technical persons<sup>5</sup> mandated by the municipalities.

The TPC is in charge of coordinating the work with Mada and other actors, to define priority needs and projects for 2009- 2012, and to start drafting the preliminary charter of the NP in cooperation with other national and local stakeholders

## Brief Description of the Park area

The Governorate of Akkar, with a total surface area of 798km<sup>2</sup>, is characterized by the presence of high mountains to the east and a relatively large coastal plain to the west, which is the second-largest and most important agricultural plain in the country after the Bekaa Valley. Akkar is considered the most rural district of Lebanon, with 80% of residents living outside of cities and towns.

Several studies<sup>6</sup> have classified Akkar as one of the most deprived regions in Lebanon, with the highest overall poverty rate in the country. In 1998, Akkar was home to 12.5% of the poorest segment of the population in the country, with 63.3% of the families in this region living in poverty. Akkar has the lowest average income level and highest illiteracy rate per capita in Lebanon. The region is furthermore characterized by a dense population and a high age dependency rate.



**Fig. 1: The Natural National Park Pilot Area in Lebanon**

<sup>3</sup> The SSC is composed of Georges Akl and Nabil Assaf, (Ministry of Environment); Carla Khater, (project's scientific advisor); Arnaud Martin (University Montpellier II -France); Marie-Hélène Parizeau( University of Laval- Québec); Isabelle Peillen, (Project Coordinator); Nada Saoud (Herbarium curator- AUB); Elsa J. Sattout, (expert on terrestrial ecosystems –flora assessment).

<sup>4</sup> The PSC is composed of Sajih Attié, president of Al Joumeh federation, Cheikh Samih Abdel Hay, president of Jord el Keitta federation, Khaled Bahri, president of Akkar el Atiqa municipality and Abdo Abdo, president of Qobayat municipality.

<sup>5</sup> The TPC is composed of Alphonse Georges (Qobayat), Khaled Zahraman (Fneideq) and Mohamad Khalil (Akkar el Atiqa).

<sup>6</sup> "The National Survey of Household Living Conditions 2004," MoSA, CAS, UNDP. "Poverty, Growth and Income Distribution in Lebanon: Country Study #13," International Poverty Centre and UNDP, 2008.



Akkar suffers from the serious ground water pollution due to the mixing of drinking water sources with wastewater and contamination through an open solid waste dump. In addition, the area suffers from a lack of services of all kinds and displays a comparatively very low presence of governmental and nongovernmental organizations in most villages.

In the heart of the NP Pilot area lays the Upper Akkar territory. It extends through the mountainous areas of the Federations of el Joumeh and of Jord el Keitta and the municipality of Qobayat. The Upper Akkar territory is among the largest natural areas in Lebanon, and it is unique for its exceptional landscapes featuring continuous forest cover made up of different varieties of trees. This forest area covers 20% to 44% of the concerned villages' lands.

The Qamouaa region boasts many varieties of trees, including juniper, cedar, turkey oak and pine. The densest turkey oak (*Q. cerris*) forest in Lebanon is located in Fnaideq. In addition, the territory is home to unspoiled views and picturesque villages like Qobayat, Beino and el Bire, as well as archaeological sites, such as the fortress of Akkar el Atiq along with various Roman steles, tombs and temples. It is home to the largest green reservoir in the country as well as important water resources (in Qamouaa) that serve most Akkar villages.

The Upper Akkar territory is one of the most deprived areas of Akkar. With an estimated population of 50,000 inhabitants<sup>7</sup>, this region suffers from poverty, lack of job opportunities,<sup>8</sup> poor basic infrastructure<sup>9</sup>, and bad conditions in the education<sup>10</sup> and health sectors.

The establishment of a NP there offers potential for socio-economic development and for the protection of natural resources through increasing tourism. But before Akkar can reap the benefits of a natural park, there are a significant number of challenges to be met with the support of the public sector. Some of the obstacles are: unclear land ownership, difficulties with conflict management, a risk of urban expansion into forested areas, the weakness of legal protections, unsustainable activities such as quarrying and woodcutting, and improper land management.



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<sup>7</sup> Permanent residents, according the SDATL method. Municipalities estimate around 100,000 inhabitants including non-permanent residents.

<sup>8</sup> In Fnaideq, one of the core villages on the territory marked for the park, 19% of the children are left out of the education system, and 31.2% of families live on less than \$300 per month.

<sup>9</sup> The poor state of water networks are a big source of pollution of rivers and ground water, and cause disease outbreaks annually. The water networks are generally under-delineated, and access roads to the region need improvement.

<sup>10</sup> The lack of adequate space and basic equipment, understaffed facilities and under-qualified staff.

# 1 Achievements

## 1.1 Preliminary Analysis of the National Park Area

### 1.1.1 Natural Resources and Heritage

#### 1.1.1.1 Flora

The flora assessment area extends over the cazas of Akkar and Donniah covers 220km<sup>2</sup> (See Figure 2, p 12). The area is home to a mosaic of many types of trees. It covers land representing four vegetation zones: the Eu-Mediterranean, Supra-Mediterranean, Mountain Mediterranean and Oro-Mediterranean. The region is also a critical biodiversity repository, as it harbors varied kinds of forests, such as Calabrian pines; mixed cedar, fir and juniper; mixed fir and cedar; pure fir; evergreen oak; and turkey oak relic stands. The study was designed to assess the flora and the forest composition in the area and to develop guidelines for their management and conservation. Flora and forest composition assessment included compiling a detailed plant checklist and forming an analysis of diversity indices and forest age, structure and composition. The report also included a map on habitat conservation and management, as well as a detailed vegetation map defining the distribution of forest types and the zoning of the vegetation patches.

The areas are rich in biodiversity with an approximate 420 plant species, among which 17 are endemics. Diversity indices were very high, registering between 17 and 49 species per 400 m<sup>2</sup>. There is a mosaic of Mediterranean species present: *Quercus calliprinos*, *Quercus infectoria*, *Pinus brutia-Cupressus sempervirens*, *Juniperus excelsa*. There are also non-Mediterranean species such as *Quercus infectoria*, *Quercus cerris*, as well as the mountainous species of *Cedrus libani-Abies cilicica* and the Oro-Mediterranean species of *Juniperus excelsa*. The study area has different patches of Mediterranean landscapes, thus giving a high value to the biological component of the site.

Michmich and Qamouaa contain mixed tree species as well as pure patches of either cedar or fir. Mixed forests in the area show a dominance of *Abies cilicica*, *Cedrus libani*, *Juniperus excelsa* and *J. foetidissima*.

The Qamouaa region is also home to different forest types. *Pinus brutia* grow at the lowest altitude, as do *Quercus cerris*, which is important given their usual growth at middle altitudes. Mixed patches of *C. libani*, *A. cilicica* and *J. excelsa*, as well as pure patches of *J. foetidissima* and *J. excelsa* also dot the area.

At the lowest altitude of the study area, Qememine, Hrar, Jayroun and Qabait are home to varied vegetation, though *Quercus calliprinos*, *Pinus brutia* and *Pistacia palaestina* are dominant in Qememine, *Pinus brutia* is dominant in Hrar, and in Jayroun, there are mixed forests of *Q. calliprinos*, *Phyllirea media* and *P. brutia*. The dominant trees are mostly mature in age.

To date, 613 plant specimens collected from the pilot area are being kept at the AUB herbarium. An electronic database of the herbarium has been designed and will be accessible online in 2009 on the AUB Herbarium website.





### 1.1.1.2 Avifauna

Four sites already adopted for the flora assessment, Qememine, Michmich, the Fnaideq forest and Qamouaa, were surveyed for the avifauna assessment from March to December 2007. Added to these was a fifth site in late summer 2007 where studies focused on soaring bird flyways. For each site, the number and quality of resident, migrating, summer, visiting, and breeding summer visiting species were documented. Major flyways were also delineated and threats were identified.

The overall field results show a total of 13,183 birds belonging to 131 species distributed over four different ecosystems, as follows:

**Qememine** - Qememine is a river valley habitat that has healthy resident bird populations. It also proved to be an important stopping post for migrating aerial feeders such as swifts and hirundines, swallows and martins, and two species of soaring birds: white pelicans (*Pelecanus onocrotalus*) and cranes (*Grus grus*). Of particular interest here is the resident dipper population, the rufiventris subspecies, which is endemic to the country.

**Michmich** - Michmich has cultivated lands that are home to mixed conifers, *Quercus*, and other low-lying trees and shrubbery. It has a broad base of resident species and is a heaven for autumn migrants. It is also a breeding spot for summer visitors, though they and winter visitors are poorly represented. Most abundant of the nesting visitors were the shrikes, Spanish sparrow (*Passer hispaniolensis*), Syrian serin (*Serinus syriacus*) and buntings. Of particular importance is the confirmed nesting of the mistle thrush (*Turdus viscivorus*) and the globally-threatened Syrian serin. The probable nesting of the sombre tit (*Parus lugubris*), and the occurrence of the crimson-winged finch (*Rhodopechys sanguinea*) and the Isabelline shrike (*Lanius isabellinus*) are also noteworthy.

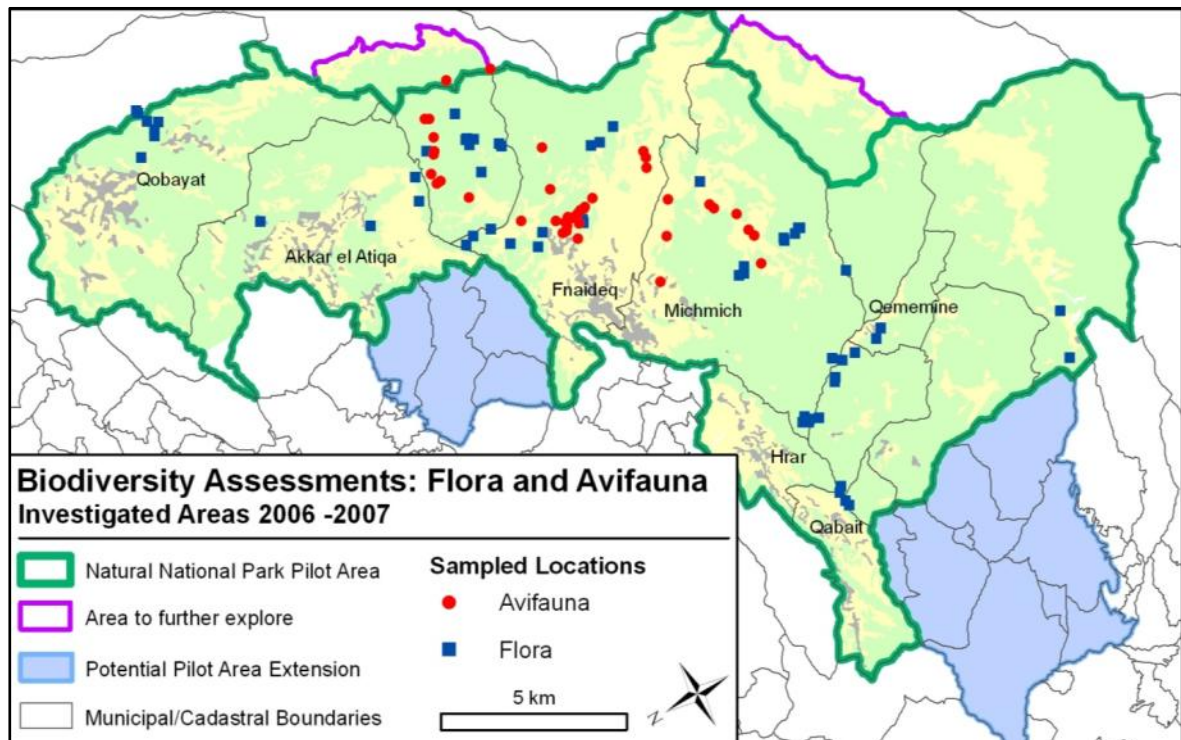
**Fnaideq** - Fnaideq is home to a deciduous oak (*Quercus cerris*) forest, distinctive in Lebanon and within which a limited number of resident and migrating species stay. The variability observed during the different visits showed that this site is still of some value for birds of passage, such as the wryneck (*Jynx torquilla*), the golden oriole (*Oriolus oriolus*), a few warblers and flyover raptors, and other aerial feeding species. Four breeding shrike and finch species, the biome-restricted black-headed bunting and the globally-threatened Syrian serin population were also observed in Fnaideq, and the area could also play host to a hooded crow roost.

**Qamouaa** - Qamouaa is sub-divided into four predominant habitats: mixed trees, flat open lands, scattered coniferous trees and sub-alpine territory. Varied migrants, summer breeding visitors and many high-altitude species were noted among the rather limited population typical to such high-elevation habitats. Most interesting of the height-adapted species are the shore lark (*Eremophila alpestris*), the pale rock sparrow (*Carpospiza brachydactyla*) and the crimson-winged finch (*Rhodopechys sanguinea*). Nesting of the hoopoe (*Upupa epops*) and the globally-threatened Syrian serin (*Serinus syriacus*) was confirmed as well. The diverse soaring bird migration, although limited in quantity, included 26 out of a possible 33 species.



The threats to bird populations come almost completely from human activities, whether from over-grazing and hunting to wood cutting and, in Fnaideq particularly, the encroachment of construction projects into wooded areas. All of these pressures on local habitats are interrelated, and the entire pilot area is very heavily used by the surrounding communities, who cultivate fields, allow cattle to graze fairly freely, chop down trees and extract water from the source, leaving little in the way for birds or any form of wildlife to thrive on.

Each of the four sites studied does qualify for Bird Life’s Important Bird Area (IBA) designation on its own, the presence of the globally-threatened species being the main reason, followed by the presence of the biome-restricted species and soaring birds.



*Fig. 2 : Sampling Locations for the Biodiversity Assessments: Flora and Avifauna*



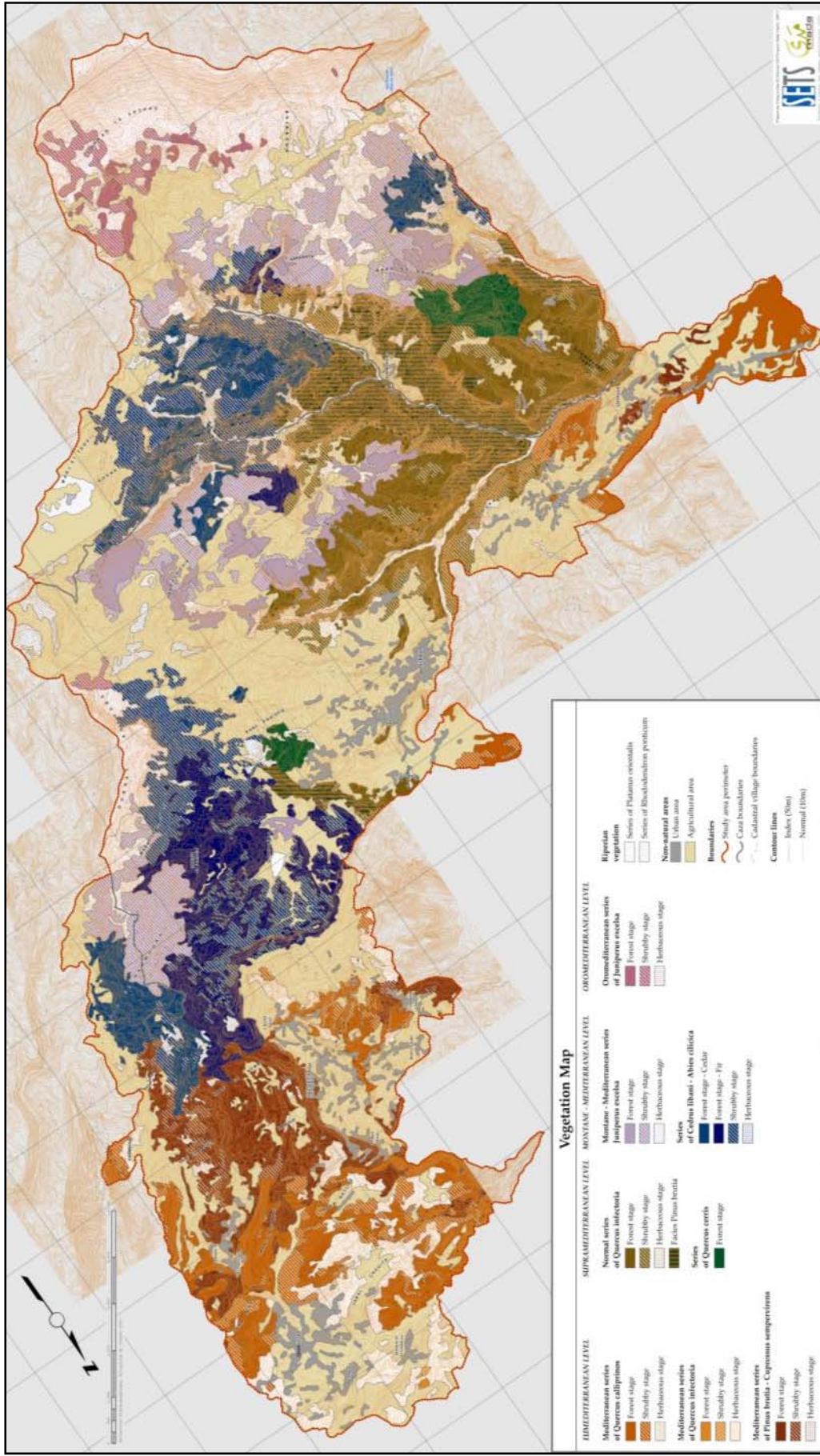


Fig. 3: Vegetation Map

### 1.1.1.3 Cultural and Historical Heritage Sites and Landscapes

Although no extensive assessment has been published, the Upper Akkar region is known to be rich in historical and cultural heritage. It hosts several historical sites, such as the fortress and old mills in Akkar el Atiq, graves in Qobayat and Fnaideq, and old houses and churches in Qobayat, among others. Figure 4 on the next page shows the main locations of these historical sites. Most of the heritage sites need to be focused on and restored as they represent potential tourist destinations.

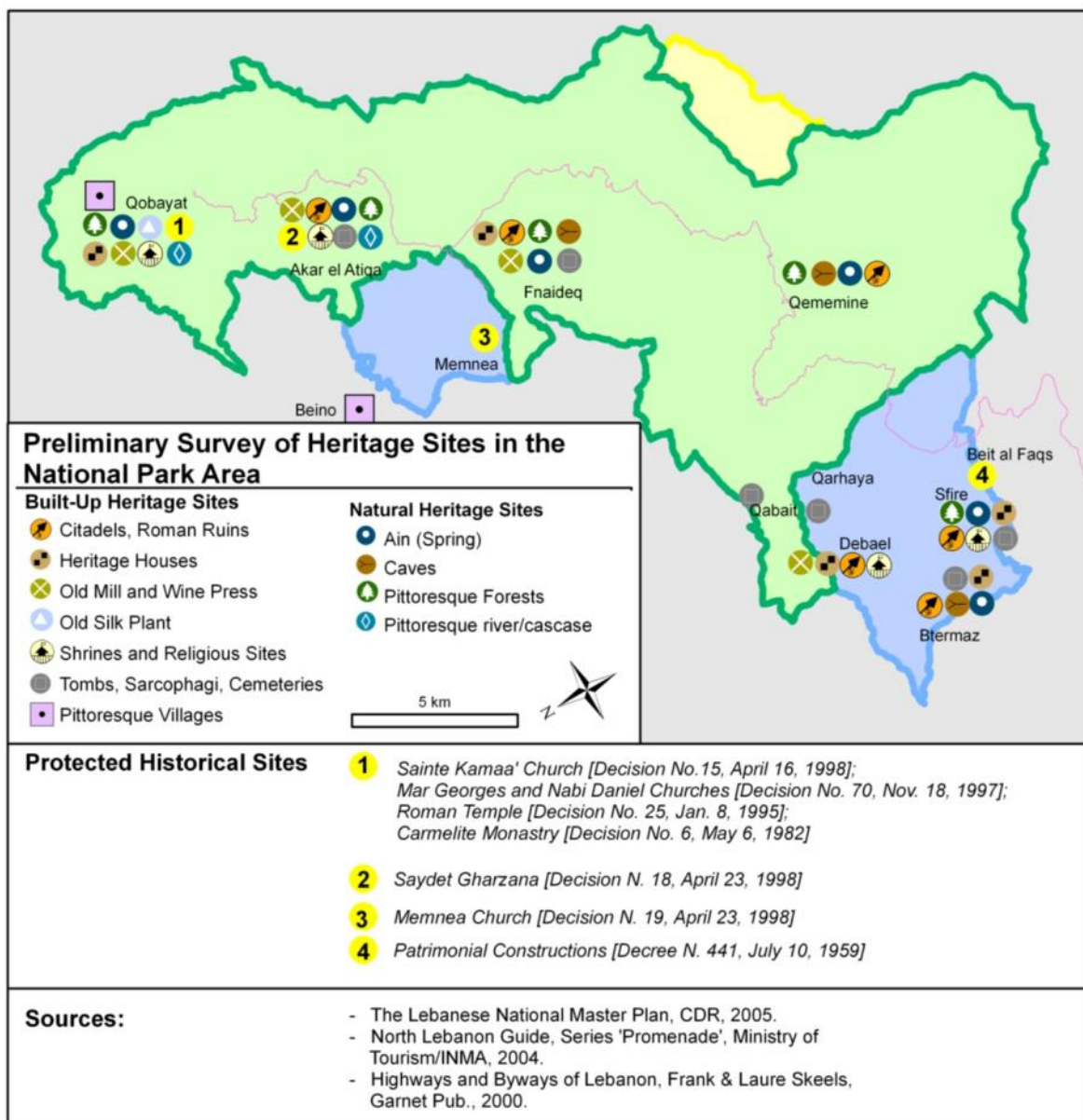


Fig. 4: Cultural and Historical Heritage Sites in the National Park Area



Moreover, the Upper Akkar and Donnieh area hosts some fantastic scenery and was listed by the SDATL in 2004 as being one of the 11 exceptional landscapes in the country. Impressive geographical sites in Akkar Donnieh include the cliffs in Hrar, gorges in Wadi Jhannam, mixed rocky forests in Qamouaa, turkey oak stands in Fnaideq, pine forests and oak groves in Qobayat, wooded hills in Michmich and waterfalls in Akkar el Atiqa.

Due to its topography, the region offers various remarkable views (view of Qabait on the valley of Abu Moussa river, view of the Jord of Michmich on the Wadi Jhannam gorges, as well as the view on the larger territory south of the Sfireh forests, west to the Lebanese and Syrian coastal plains, east to the Akroum mountains and North to the Homs plain).



### 1.1.2 Basic Infrastructure and Networks

The Upper Akkar territory suffers from lack of basic infrastructure and has been neglected by the central government for years. Preliminary investigations showed that Akkar el Atiqa and Fnaideq are suffering considerably from a lack of services usually provided by the state, while Qobayat is better endowed.

**Roads** - Main access roads to the Upper Akkar territory (Abde-Fnaideq, Abde-Halba-Akkar el Atiqa) are usually narrow, damaged and lack proper safety measures, especially in the lower villages. This neglect is most evident on the Abde-Halba road, though internal roads managed by municipalities tend to be in the worst shape.

**Electricity** - The villages receive their electricity from Electricité du Liban and around 80% of the houses are linked to the grid. In many cases the networks are old and in need of repair and maintenance. Unpredictable supply and power outages are very common. On average, electricity is available for only 6 to 10 hours per day, and the villages do not have access to public generators.

**Water facilities** - The region is rich in water resources, in particular the important water reserve on the Qamouaa plain. Although no in-depth assessments of water resources have been undertaken, a preliminary evaluation estimates that on average, 9.2 M m<sup>3</sup> of rainwater falls on the Qamouaa plain every year. Some of this is lost to run off but it also percolates into the groundwater and in turn feeds the numerous springs in the area. As no management strategy for water resources is in place its potential is certainly underused, and as most of the sources of pollution are located either on top of the watershed or along the water's course, water resources in the pilot area are seriously threatened and heavily polluted, resulting in the spread of diseases and in water shortages.

In Qobayat and Fnaideq, 90% and 75% of the households respectively are connected to the public water networks. The remainder of homes depends on either artesian wells or private water networks.

**Sewage facilities** - Public sewage networks exist only in the central areas of the villages but are lacking waste water recycling facilities. Qobayat is the only exception, there one third of the houses benefit from a sewage network linked to a water treatment plant.



In the rest of the villages, housing units use septic tanks, most of which do not meet minimum health and safety standards and have a negative impact on the quality of the ground water. Cases of diarrhea as well as typhoid have been identified in the Fnaideq and Michmich villages and there is a high probability that these are related to the bad state of water supply and the resulting bad water quality.

**Waste management** – The solid waste situation is particularly alarming in the village of Fnaideq, as a garbage dump is located just above the two main sources of drinking and irrigation water in the village. Dumping occurs in the rivers of the area, especially the Wadi Fnaideq between Michmich and Beyt Ayoub and Wadi Naba in Fnaideq.



### 1.1.3 Legal Framework

#### 1.1.3.1 The Existing Legal Protection and Land Use Regulation

The legal framework governing protected areas in Lebanon was conceived to guarantee the protection of ecosystems and cultural heritage sites. But actual practices aren't always in line with existing legal mandates. Several decisions from the MOA, the MOE, the Ministry of Tourism, the Council of Ministers and the Higher Council of Urbanism have focused on different parts of the study area, and the Qamouaa area itself has been named in several official decisions as a core zone for conservation. Table 1 presents a complete list of official decisions that were found either in governmental or municipal archives. Figure 5 displays the estimated<sup>11</sup> geographical areas targeted by those decisions, since no maps or visual aids were annexed to those texts.

Most of those decisions, especially those issued by the Minister of Agriculture, have not yet been published in an official bulletin, nor has the process of effective delineation been initiated, despite these actions being core elements for endorsement of the decisions.

On the other hand, in the absence of protections, survey delineation and management body on site responsible for enforcement of those decisions, violations are reported daily and little or no action is undertaken against them. Sporadically, mostly within the framework of land conflicts between villages, decisions have been taken by the state to stop construction in Qamouaa.

The SDATL of 2004 suggested that the establishment of a NP be used as a framework for an integrated protection program including Akkar, Donnieh and Hermel. The SDATL, has been approved recently (March 2009) by the Council of Ministers but its implementation still requires legal endorsement.

The MOE, which is in charge of protected areas in Lebanon, has prepared a draft General Framework Law for Protected Areas (GFLPA) that details the need to set up categories of protected areas that will benefit from different types of protection over the various zones on site.

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<sup>11</sup> The estimations have been made according to the rough indications included in the decisions and in reference to discussions with the person in charge of the Forest Department in the Ministry of Agriculture in Tripoli as well as the local forest guard.

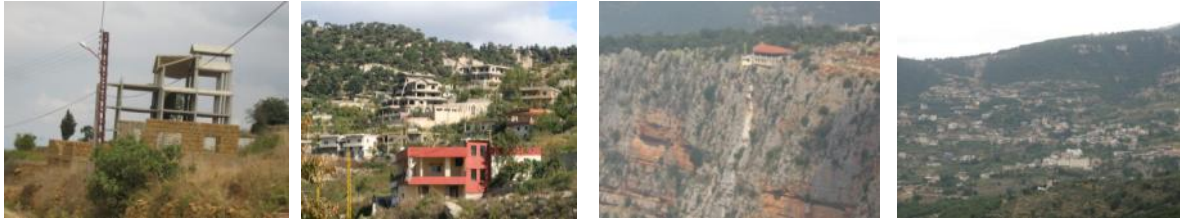
**Table 1: List of Available Decisions on Protection Across the Pilot Area**

Authority	Legal text	Targeted zone	Content
<b>Ministry of Environment</b>	<i>Decision 19/1 issued on 11-03-2002</i>	<i>Qamouaa</i>	<i>Qamouaa forest protection and initiation of the process to declare a protected area</i>
	<i>Decision 14/1 issued on 06.10.1995</i>	<i>Karm el Chbatt</i>	<i>All governmental lots are subject to natural reserve regulation</i>
<b>Ministry of Agriculture</b>	<i>Decision 11/1 issued on 17.01.1997</i>	<i>Mghrebine-Wadi Jhannam</i>	<i>Law 558 issued on 24.07.1996 protects the cedar, pine and juniper forests.</i>
	<i>Decision 1/591 issued on 30.12.1996</i>	<i>Bezbinia – Akkar</i>	<i>The ministry is undertaking liberation and limitation of the forests in line with Law 588</i>
	<i>Decision 1/588 issued on 30.12.1996</i>	<i>Qamouaa</i>	<i>Protection of the forest according to Law 558 of 24.07 1996.</i>
	<i>Decision 1/589 issued on 1996</i>	<i>Karm el Chbatt</i>	<i>Protection of the forest according to Law 558 of 24.07 1996.</i>
	<i>Decision 11/1 issued on 17.01.1997</i>	<i>Mghrebine-Wadi Jhannam</i>	<i>Protection of the forest according to Law 558 of 24.07 1996</i>
	<i>Decision 1/165 issued in 1991</i>	<i>Qamouaa</i>	<i>National Hima</i>
<b>Higher Council for Urbanization</b>	<i>Decision issued on 22.02.2006</i>	<i>Qamouaa</i>	<i>Declaration of Qamouaa as an area under study for one year, re-conductible after one year</i>
<b>Ministry of Tourism</b>	<i>Decision 198 issued in 1993</i>	<i>Qamouaa</i>	
<b>Council of Ministers</b>	<i>Decision 35 issued on 1.10. 2006</i>	<i>Qamouaa</i>	<i>Creation of a natural reserve once the land survey is completed</i>

The draft GFLPA has been prepared, reviewed and amended by the concerned ministries and parties, but to date, it is still being kept on hold in the MOE as it has for the past two years. The MOE has also prepared a special draft law dedicated to the creation of a reserve in Qamouaa located on public lands (though the perimeter is unclear), but this draft law too has been on hold since 2006.

In parallel, a draft decree categorizing protected areas has been prepared by the MOE. It calls for the establishment of a NP in the project area. However, the NP as described in the draft decree does not include villages and roads, but is restricted to a core zone for strict protection, and a sustainable-use zone where light activities such as eco-tourism and agriculture could take place. In contrast, the NP as conceived for the Upper Akkar region in this project extends over an inhabited region that includes areas with potential for protection and conservation initiatives, areas dedicated to agro-pastoral activities, as well as areas for socio-economic development.

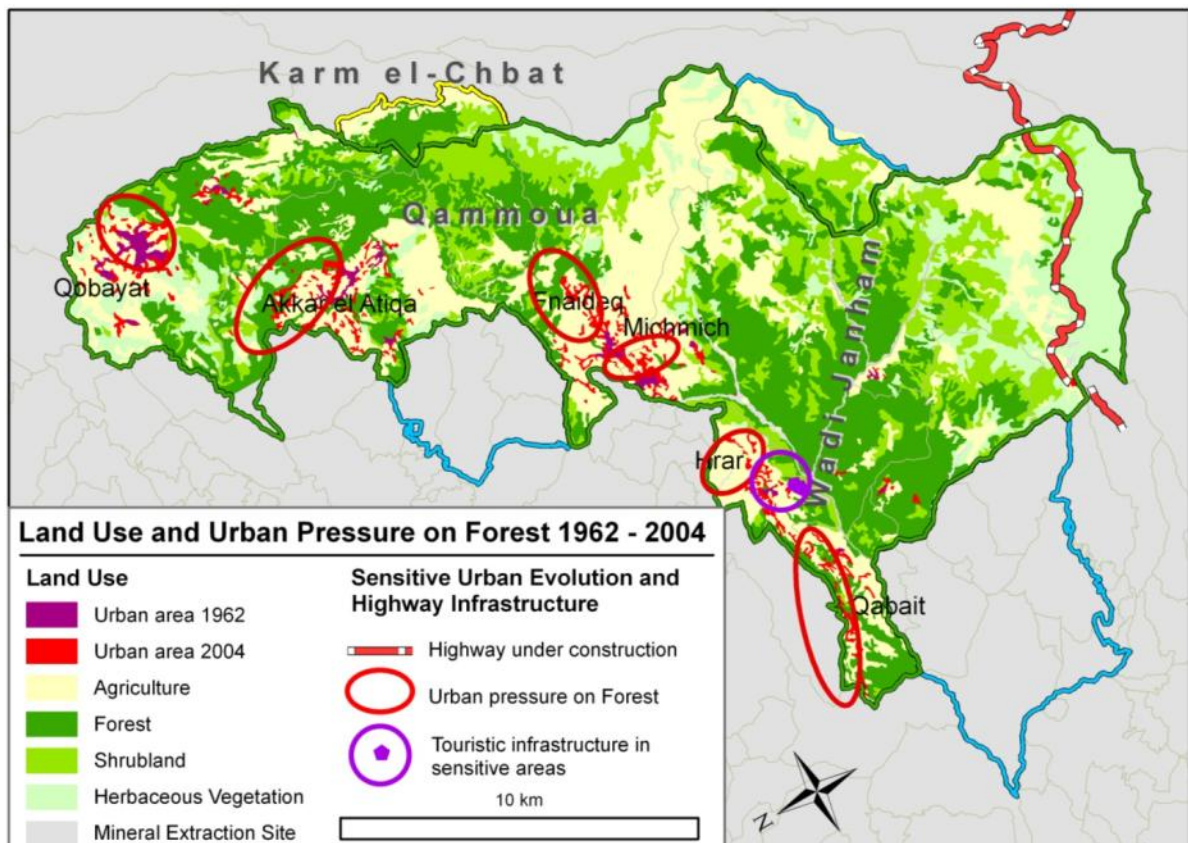
It is now important to include the needed amendments and modifications to the draft decree of protected area categories as well as the GFLPA in order to reconcile the approach initiated for Upper Akkar with the demands of local authorities and the legal system.



Moreover, the whole Upper Akkar area is not covered by a master plan, and until 2005, construction and urban development projects were referred to the General Law of Construction, where all parcels of land, including agricultural lands, (except those included in protected areas) were eligible to be built on.

The ratios (40 % of total land surface and 0.8 building ratio), were specifically high and inappropriate for rural areas and have resulted in irremediable damages to the landscapes of the region. Moreover, over the last 40 years, urban areas have grown considerably and are increasingly taking over forest areas (see Figure 6).

The SDATL of 2004 formulated a strong recommendation to reduce the amount of building in areas that are not covered by a master plan to an limit of 25% of total land surface (instead of 40%) and a 0.5 building coefficient (instead of the previous 0.8). Since 2005, the Higher Council of Urbanism has adopted those recommendations, but it should be noted that even if such an initiative effectively limits the negative impacts of urban sprawl, it does not cover the preservation of landscapes or ecologically sensitive areas.



*Fig. 5: Land Use and Urban Pressure on Forests 1962 - 2004*



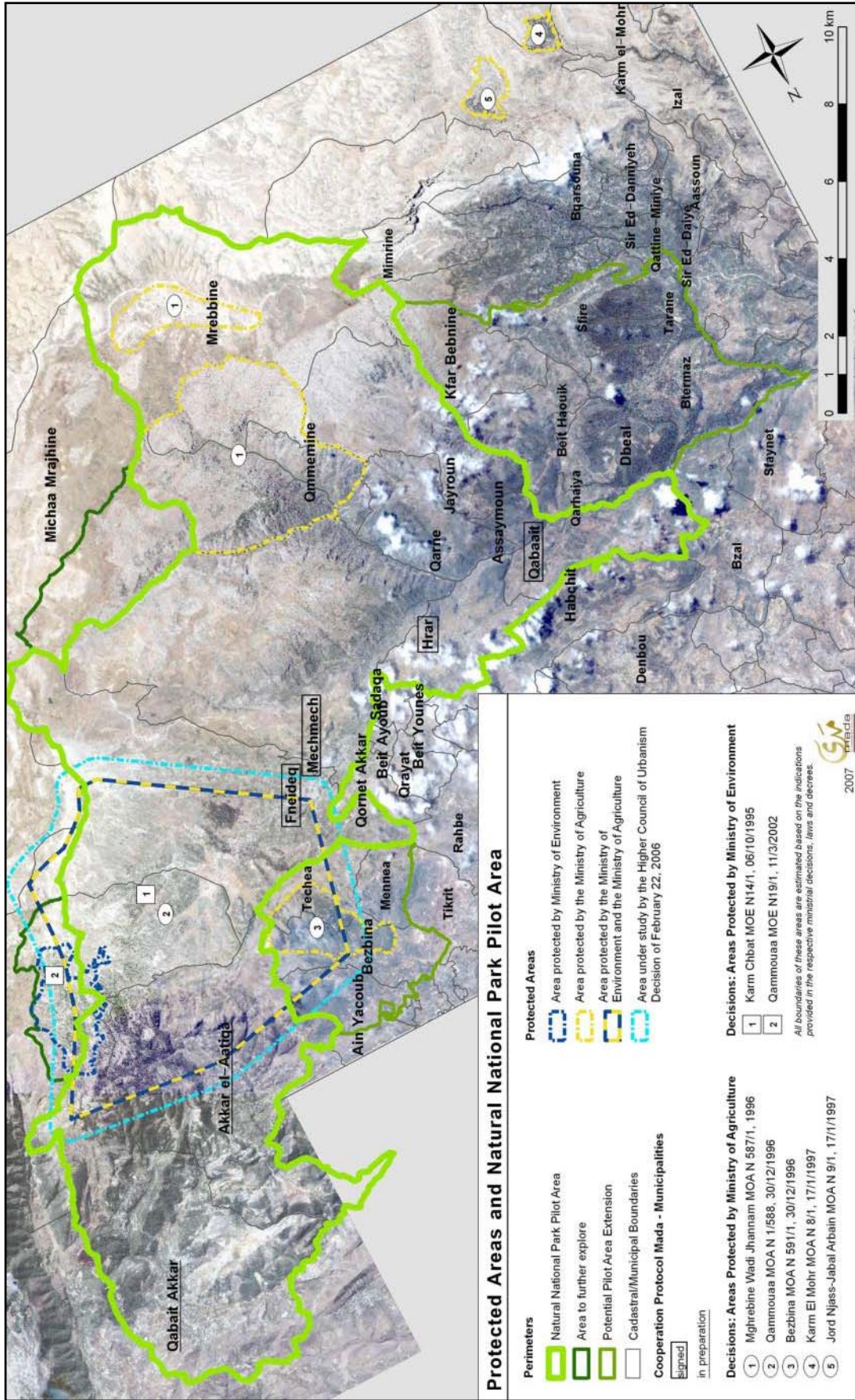


Fig. 6: Protected Areas in the Pilot Area

### ***1.1.3.2 Towards an Adapted Legal Framework***

With the encouragement of the MOE, Mada and the TPC have started working on an adaptation of the draft law for protected areas. The proposed NP category, mainly adapted for natural areas, needs to be reviewed, and discussions with the MOE started early 2009.

But aware of the long-term process to create an adapted legal text (involving not only technical clearance but also political will) Mada and the TPC are looking at an alternative approach that aims to care for the park area by trying to obtain an international designation as a protected biosphere. As an initial step, a delegation from the National Focal Point for the UNESCO MAB project in Lebanon has visited the region with Mada and has confirmed the importance of protecting it.

### ***1.1.3.3 Land Ownership and Land Survey***

One of the major obstacles Mada faces trying to establish a NP in the Upper Akkar region is the absence of clear and legal land ownership (No register land). In the target area, there is no clear distinction between private, municipal and governmental properties, which render protection, conservation and sustainable development initiatives more complicated and difficult to achieve. This problem is particularly constraining in the conflict zones within the pilot area, such as Qamouaa and Karm el Chbat (which lie in the direct extension perimeter of the pilot zone).

With the aim of initiating a territorial management process, and in the absence of any official land-use document, municipalities have worked with Mada to preliminarily define future land use, as illustrated in the land-use allocations map (Figure 7). This process was started in 2007 in the hopes of reaching a common agreement on future land use. The Land use allocations map is also being used as a base for discussions to end conflicts over land.

It is hoped that this participatory approach will result in reaching a common agreement among the different municipalities and the central government agencies on land use allocation that could later serve as basis for the development and adoption of a master plan for the area or be included in the NP Charter as a binding document.

### ***1.1.4 Demographic and Socio-Economic Investigations***

Populations living on the NP pilot area face major economic difficulties, partly due to recent events, such as the summer 2006 war and Nahr el Bared conflict, which both led to a severe deterioration of living conditions for residents.

But the economic situation in the region goes back farther, too. Since the country's independence, Lebanese economic policy has focused on the development of the services sector (banks, insurance companies, tourism, etc) and public investments were focused on Beirut and Mount Lebanon.

The pilot area defined by Mada with local municipalities (Fneideq, Qobayat and Akkar el Atiq) is home to around 27,000 and 33,000 permanent residents, although during summer time, when members of the Diaspora return home, the number increases drastically - by 33% on average to close to 40,000 residents. The population is very young, as those under 25 years old represent around 48% of the total inhabitants of the area.

A large percentage of households derive an income from agriculture, this revenue though is not enough to sustain a minimum living standard. In Akkar Al Atiq, due to the degradation of infrastructures (irrigation networks, agricultural roads, etc) and the lack of technical support to fight insect invasions, the revenues from the agricultural sector have drastically decreased in the



last years. In Fneideq some 60% of the population is still involved in agriculture related activities but people try to shift to more profitable occupation. The main crops are fruits and cereals. In Qobayat, the main produces are olives and olive oil.

Akkar is one of the main animal husbandry regions. Nevertheless, agro food industries are relatively limited and only a few small-scale dairy farms and cooperatives specializing in traditional produce exist.

Less than 5% of establishments in Akkar employ more than five workers. In the pilot area, small businesses are mainly car and construction related, and services are limited to retail trade, mostly grocery stores and clothing shops.

Most heads of households have more than one job, and women's participation in economic activity is relatively limited. Women's workload within the household, their relatively low level of education (especially as far as the older generation is concerned), the lack of access to transportation, and cultural pressures, all limit their seeking and obtaining employment.

In terms of job opportunities, the army is a major source of employment for a large section of the population (in Akkar el Atiqa, 70% of the males heads of household are employed by the army, in Fneideq, it is estimated at 50%). Most self-employed individuals work in the non-formal sector. The unemployment rate is quite high in Fneideq (17%) but underemployment is even more of a problem. Young people, mostly males, tend to migrate locally or internationally in order to find better jobs. Remittances from emigrants make up a major part of the local economy, but the situation varies from one village to another, some having a stronger tradition of emigration.

The per capita income is much lower in North Lebanon than the national average. In the North, 28% of the population is considered poor and 8% extremely poor. North Lebanon is home to 20.7% of the country's population, but 38% of the entire poor population and 46% of the extremely poor. Fifty-five percent of households have a monthly income below \$600 US, which translates into a per capita income of \$2.85 US per day. However, almost all families own their home, since traditionally buildings are progressively constructed in order to accommodate the whole family as it grows.

As far as education is concerned, enrolment rates in the primary school do not differ significantly from the national average. However, dropout rates are much higher and only 27% of children enrolled in primary school complete their studies and pass the baccalaureate exam.

The number of graduates is lower. For example, in Fneideq, 2.3% and 4.8% female and male residents, respectively, go to university. Illiteracy rates are also much higher in North Lebanon than the national average, at 15.3% for females and 9.4% for males. A higher percentage of girls leave school before graduation in order to get married, and nearly half of the girls who drop out do so to get married.

The main reason for the poor state of educational services in Akkar is the dearth in physical and human resources. In most villages there are no organized activities targeting neither youth nor the facilities for such activities. Civil society organizations, through local associations, try to offset this paucity in educational resources, but recreational and social activities are still limited and do not have much of an effect.



## 1.2 Management Framework for the National Park

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### 1.2.1 Pre- Institutional Management

As the vision of a NP comes closer to being realized, no management structure has yet been adopted or implemented. Therefore, Mada has supports local actors and simultaneously coordinates with governmental and international stakeholders to produce a management plan.

In May 2006, a colloquium on development and natural resources in Upper Akkar-Donnieh was organized in Tripoli by the French Public Agency Region Rhône-Alpes, the French NGO Corail and Mada in partnership with Université Saint Joseph. This event, which brought together 14 municipalities as well as local and national stakeholders, can be considered the public beginning of the park process.

#### 1.2.1.1 Creation of the Park Committee

Municipalities located in the pilot area have been involved in activities launched by Mada since 2005. In full coordination with the federation of municipalities of Jord el Keitta and el Joumeh and the municipality of Qobayat Mada has supported the creation of a Technical Park Committee (TPC) and a Park Steering Committee (PSC) *bringing together the presidents of the three municipalities of the pilot area of the NP. The TPC and Mada have since January 2008 started a series of regular meetings aiming to reach an agreement over the vision, objectives and priority projects.*

Over the period from January until December 2008 the TPC and Mada took a number of steps towards establishing a pre-institutional management structure for the NP. These are summarized in the following:

- A visit to France in July 2008 upon the invitation of and in partnership with the Region Rhône-Alpes to see park experiments in Haut-Jura and Chartreuse and to work with experts on defining a clear road map towards the promulgation of the NP Charter.
- The production of a series of documents that have been officially approved by the federations of municipalities, including a document of the mission and role of the TPC, a document on the preliminary elements of the NP Charter, and a document on the NP's priority needs and projects for 2009-2012.
- Involvement in the elaboration of visual material on the NP in order to increase local awareness and interest in the creation of the park.
- Participation in the drafting of project proposals submitted by Mada to donors (Agence Française de Développement, the Spanish Embassy) in order to fund the priority projects identified by the TPC.
- Initiation of a process to lobby for the NP through regular contacts with Akkar deputies in 2009-2012

The TPC is also planning to work on the elaboration of the NP Charter, to enlarge the TPC and the PSC by including additional villages in the pilot area, to improve and validate land use allocation maps, and to continue networking with central government agencies and local stakeholders on behalf of the NP.

### **1.2.1.2 Coordination with Central Governmental Agencies**

Creating the NP requires the intensive involvement of governmental agencies. Therefore, Mada has undertaken several initiatives to ensure regular meetings and communication with the central government, mainly:

- Holding regular meetings with concerned ministries (Environment, Agriculture, Public Works and Interior) and the CDR.
- Involving the MOE with the project's scientific committee.
- Seeking support from the CDR and the MOE through endorsement letters.
- Organizing field visits to the pilot area for the staff members of the different concerned ministries to introduce the area and the project.
- Informing the president's counselors on environmental issues as well as the minister of Finance's counselor on development about the project.

### **1.2.2 Preliminary Features of the Charter**

The Park Charter is a detailed document that describes the site's background and the main threats to the protection and sustainable development of the land. It is being conceived to be implemented over a period of 8 to 12 years and integrates the vision for the NP and the long-term operational objectives and management strategies. It also details the operational objectives for the park; these are direct and practical and cover the specific tasks needed to bring the vision of the park to reality.

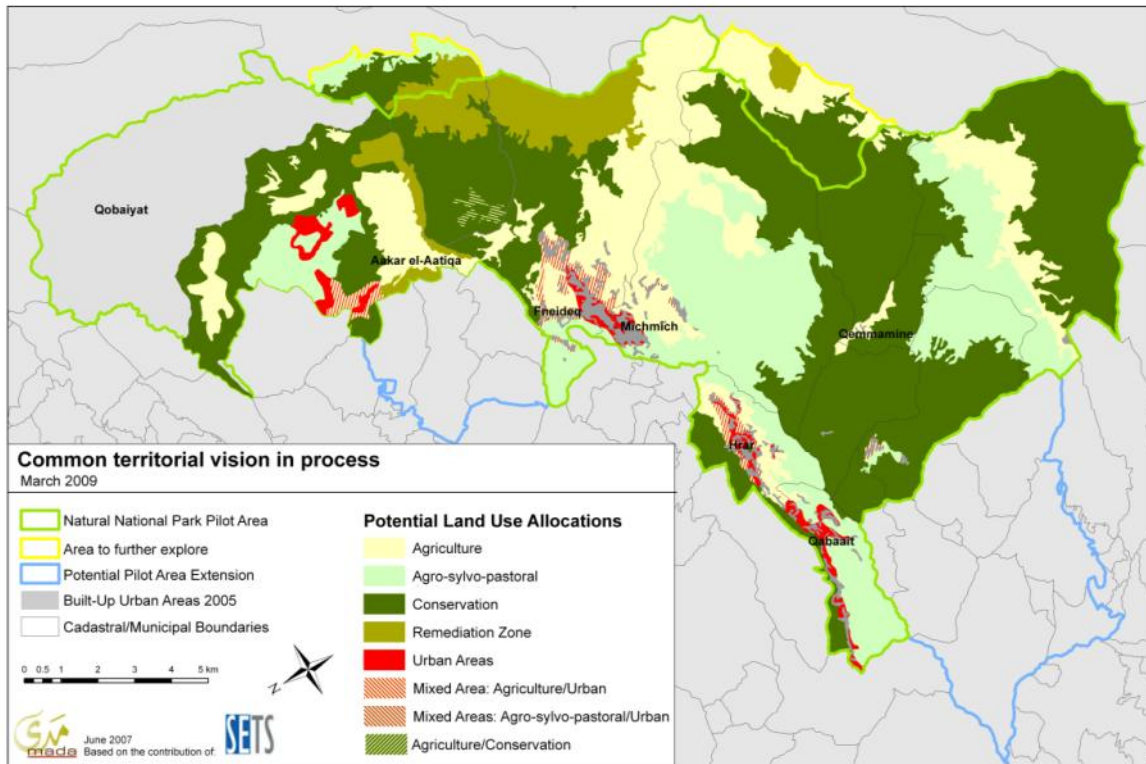
#### **1.2.2.1 Towards a Potential Land Use Allocations Map**

*In the process towards the establishment of the NP in Upper Akkar, Mada initiated a participatory process aiming at reaching a preliminary agreement of the future land use priority orientation within the pilot area.* Based on the results of the flora assessment and the vegetation map, as well as the maps of existing legal protections and the risk of urban encroachment to forests, detailed suggestions for potential land use allocations were produced. These were divided into five subcategories: conservation, agriculture, agro-sylvo- pastoral activities, urban development, and remediation. Other subcategories might also be included as the process develops in cooperation with the involved municipalities or governmental actors, e.g. tourism development and *exceptional landscape zone*. A list of the characteristics and guidelines for the subcategories as well as the activities that should be allowed or banned on the land is being developed and will be submitted for review.

This process was initiated with the municipalities of Fnaideq, Hrar, Michmich, Qabait and Akkar el Atiqa in 2007-2008 and shall start soon with Qobayat.

In line with the scientific findings of the various reports produced, and based on Mada's extensive knowledge of the area, the organization has also suggested a land use allocations map. Both maps shall be discussed with concerned authorities in order to reach a common agreement on future use of the area.

Such maps cannot be binding and serve only to direct future land use in the area. They are especially useful for the areas affected by land ownership conflicts as they help parties reach agreements on land use in those areas.



*Fig. 7: Potential Land Use Allocation Map based on Participatory Mapping Process*

### **1.2.2.2 Setting a Preliminary Vision and Mission for the National Park**

In close collaboration with the TPC, Mada has developed a working document aimed at defining a preliminary vision and a mission for the NP, which is in the process of being approved and will be shared with concerned stakeholders for review.

### **1.2.2.3 Defining Priority Projects for the National Park**

The TPC has defined priority actions to be undertaken for the NP area which shall serve as a first step towards directing activities while the charter is being finalized.

#### **Identified Priority Needs for 2009-2012**

##### **Institutional and Legal Aspects**

- 1) Lobbying for the completion of land registrations (cadastre)**
  - a. Obtaining land registration for Akkar el Atiqa and Qobayat
  - b. Initiating and obtaining land registration for Fnaideq
  
- 2) Lobbying and coordinating with concerned governmental agencies to keep the park initiative in line with draft legal texts on protected areas, or preparing a specific law for the NP**

##### **Environment and Basic Infrastructure**

- 1) Improving basic infrastructure**
  - a. Improving the water network
  - b. Providing waste water management
  - c. Developing solid waste management
  - d. Improving access roads to the NP area

## **2) Providing specific management tools for the NP**

- a. Designing a forest management plan (fires, grazing, protected areas, etc.)
- b. Initiating local master plans for villages in line with the NP vocation map
- c. Establishing pilot information points and information panels
- d. Building park houses ecologically and sustainably
- e. Securing foot paths within the NP accompanied by an adequate brochure

### **Socio-Economic Development**

#### **1) Developing tourism**

- a. Defining tourist investment zones
- b. Equipping new lodges within the NP area or doing maintenance on existing lodges
- c. Promoting an ecotourism network at the regional and national levels

#### **2) Improving the education sector**

- a. Improving the physical infrastructure of schools
- b. Building on the capacity of school staff
- c. Integrating environmental education into curricula

### **1.2.3 Exposure and Networking**

#### **1.2.3.1 Mobilizing Local Actors and Communities**

Since 2006, activities aiming at raising awareness of the NP have been initiated with local actors, specifically through the visits to natural parks in the Rhône-Alpes region of France, the release of reports and newsletters, and the production and distribution of detailed visual aids describing the benefits of the NP for the region.

In 2008 Mada started implementing various environmental awareness activities with youth from a newly-opened regional office located in the park territory in Hrar. A total of 768 children from five municipalities enjoyed at least one extracurricular activity as part of the program. Children from 6 to 10 years old took part in interactive environmental play sessions; the children watched a documentary and took part in a discussion session about the problems facing their local environment. Others played environmental games centered on Qamouaa, a very important natural area that lies in the core zone of the NP.

In addition, an environmental tool kit including a set of posters displaying the natural richness of the area (birds, landscapes, forest, flora, water), and visual material on the NP were distributed in 38 schools in the area.

In 2009, environmental awareness activities with women alongside the creation of women's working group in the concerned villages will take place. The aim of these is to give women the opportunity to be part of the NP Charter process.





### 1.2.3.2 Networking

Mada has built on its position within the donors' network to attract key actors and funds to the NP and is encouraging other NGOs to get involved. To date international stakeholders such as the Rhône-Alpes Region in France, the European Union, and UNDP-Art Gold have been involved in the NP process.

Cooperation with the above has led to some positive developments for the project, namely:

- The European Union has included the Natural NP in its budget for North Lebanon planned for 2010.
- The UNDP-Art Gold program has included the park in its strategy for the next three years and has adopted the SPC as one of its working groups.
- The Rhône-Alpes Region is assisting in the process of drafting the preliminary park charter and invited the PSC and the TPC to Rhône-Alpes in December 2007 and July 2008, and is now preparing a protocol of cooperation with the municipalities inside the territory.
- The CDR hosted a preliminary donors meeting in February 2009 aiming at better coordinating the funding to the NP initiative.

In addition, various international NGOs have contacted Mada to learn more about the project. Mada has provided the NGOs with documents on each concerned village and has outlined for them the specific needs expressed by the municipalities.

As a result, OTI<sup>12</sup>, an American NGO has been funding activities with local youth, several Italian NGOs have submitted a proposal to work on the water network in Fnaideq, and International Relief and the YMCA are planning to support ecotourism and socio-economic projects.



### 1.2.4 Implementation of Socio-Economic Project

In 2005 Mada initiated, as per the request of municipalities and local groups, a set of ecotourism projects and other socio-economic projects.

#### 1.2.4.1 Ecotourism

The main objective of these activities is to promote and support ecotourism development in the area, which will provide economic opportunities and enhance the standard of living of locals while at the same time promoting eco-friendly and sustainable business practices.

The war in the summer of 2006 and the Nahr el Bared conflict in 2007 greatly thwarted the development of ecotourism projects. But despite the unfavorable circumstances, Mada has provided assistance, training and promotional materials (websites, booklets, posters) to several lodges located in Hermel (the Aqua Assi, Jannat el Assi, Marjhine and Kweikh lodges), Jord Hermel (the Lazzab Lodge) and Donnieh (the Qememine guesthouse). These projects were

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<sup>12</sup> Office of Transition Initiatives

included in the Tarhal Network ([www.tarhal.org](http://www.tarhal.org)) and the participants have agreed to adopt a responsible tourism chart. They are all committed to following environmental protection and service quality guidelines and to redistribute wealth to the local community in a fair manner.

Trails have also been identified in the park area and need to be secured, referenced on GIS and reported on detailed maps.

The Lebanon Mountain Trail initiative and Tarhal have already had a positive impact on the park area, but existing initiatives (lodges facilities, trails, guide equipment, capacity building, promotion, etc) and new projects should be encouraged so as to improve the quality of guest and tourism management in the area while promoting a culture of respect for the environment.

Mada, in partnership with ARCS, an Italian NGO, is also supporting a women's co-operative in Kweikh, which has been active in the production of traditional food. Two old houses are being renovated and transformed into a lodge and a small restaurant. Training sessions on hospitality and guiding tours were also held, and tourist boards are indicating interest in the sites.

Tarhal will also be reinforced by a new project in partnership with SPNL and IUCN, with Italian support. Proposals have also been submitted to the Spanish Embassy and to Agence Française pour le Développement (AFD) to bolster ecotourism initiatives within the NP area.



#### ***1.2.4.2 Other Socio-Economic Projects***

Between 2005 and 2008, upon the request of municipalities and local communities, Mada has been developing a set of socio-economic projects mainly focused on generating income and improving education. Groups of women and cooperatives have benefited from the following initiatives:

- The introduction of chami goats and bio farming with women in Akkar, Donnieh and Hermel in 2005 and 2006
- Financial support to 13 co-operatives in 2006 and 2007
- An initiative to introduce rural women to beekeeping and cultivating aromatic plants in 2007
- The rehabilitation of a water source in Qememine in 2007
- The Relaunching of the Fnaideq cooperative in 2007 and 2008
- The distribution of equipment to a beekeepers co-operative in Michmich in 2005

In addition, a report on socio-economic realities in Akkar entitled "Forgotten Akkar" was drafted in 2007. It analyzed the health, education and economic sectors and highlighted the deprivation of the area. It was distributed to concerned stakeholders, governmental agencies and donors. A similar document is being produced for the Hermel area.

Meanwhile, in 2008, an exhaustive survey of 38 schools was undertaken to assess the situation of the educational system and the reasons for the high dropout rate in the region. Based on the findings, and upon the request of the municipalities, school directors and children, Mada designed new projects and implemented the following activities:

- Training courses for 63 teachers from 24 schools in 13 municipalities
- French and English language classes for students
- A training program for 14 to 18 year-olds that includes acting classes and environmental awareness sessions
- Producing extra-curricular and environmental activities to raise children's awareness on environmental issues
- The distribution of environmental education material to be used in schools and for the broader public

These educational activities will be extended in 2009.



## 2 Constraints and Challenges

In addition to the numerous challenges to be expected in any preparation phase for the establishment of a protected area the path towards the NP in Upper Akkar faced several challenges. These were related to the nature of the project for example the location in a remote rural area with poor accessibility or the constraints related to the area itself such as aforementioned unsustainable practices. **The concept of a NP is an attempt to define, with local stakeholders, a common territorial project including development, conservation and sustainable use of existing resources and build on strengths and weaknesses of the area.**

A brief summary of a preliminary SWOT analysis for the pilot area is presented in Table 2.

S: Strengths	W: Weaknesses	O: Opportunities	T: Threats
Exceptional natural habitat, biodiversity and landscapes	Absence of effective protections, including the lack of a legal framework and the decentralization of the state	A chance to launch a new project by tapping in to unexploited potential	Unsustainable ingrained practices such as over grazing, wood cutting, hunting, agriculture
Commitment to the protection and bettering of the territory	Social and political differences between villages	Availability of donors ready to invest in the region	Sprawling deforestation over the area from logging and forest fires
Common agreement on the value of and risks to the territory	Poverty and lack of job opportunities	Restoring of government interest in the region	Influx of Syrian products that might seriously affect local production
Geographical location is tourist friendly and close to neighboring Syria	Bad roads and reduced accessibility to the area	Inclusion in the SDATL's suggestion for the region	Conflicts between villages
Strong local ties to the area	Absence of a good education system	The SDATL has been approved by the Council of Ministries in March 2009.	The government may not approve a protected area designation
Important agricultural potential	Very little social mobilization	High number of emigrants represent potential tourist income	Political instability in the region
Important water resources		Seven deputies in parliament represent the region	
Potential for different types of tourism (eco tourism, Islamic tourism, traditional tourism)		Eligibility of the area to be named as a Man and the Biosphere reserve	

As concluded by the SWOT analysis of the area, the main challenges facing the establishment of a NP in Upper Akkar are as follows:

- Mobilizing interested parties who are ready to work in remote areas and to tap the locals' potential
- Involving motivated stakeholders in the process, including lobbying the government
- Working in a socially and politically unstable area
- Working effectively and efficiently in a climate of complete and profound distrust on behalf of local authorities towards any initiative involving governmental institutions
- Reaching a common agreement with local and national stakeholders for a territorial project
- Involving the central government in solving the Fnaideq-Akkar el Atiqa conflict
- Raising funding for the coming years
- Quickly delivering results on the ground
- Facilitating cooperation between the MOE and CDR and other governmental agencies
- Facilitating coordination between the donors
- Engaging with political actors while staying neutral
- Managing around different elections (parliamentary and municipal) and maintaining the project despite possibly unfavorable election results
- Integrating projects that started with the SPNL and IUCN on the Hermel side of the mountain and initiating discussions between the Jaafar and Qobayat
- Continuing the activities of Mada while strengthening its organizational structure and attracting new members

Meanwhile, it is necessary to:

- Work within a framework where natural parks are not yet defined by Lebanese law
- Define a natural park category on the basis of the process already initiated
- Seek a government endorsement of a legal framework for the NP

Creating the NP will come not only from coordination with the various parties involved, nor from the readiness of the stakeholders and the government to adopt and endorse the park initiative, but rather from the ability to work around the challenges according to a single vision of the expected outcome.



## 3 Conclusion – Further steps

Working to declare any type of protected area, especially working with multiple stakeholders and raising public awareness, can take five to eight years. In the Rhône-Alpes Region, the average length of time from the day the process was launched to the day the park was officially opened took on average there seven years.

In Lebanon, the project for a NP in Upper Akkar is unique. It is a pioneer project which is also building the foundations for similar projects in the future.

The project towards the NP in Upper Akkar- initiated in 2004 and launched in 2005, has seen important achievements on the scientific, institutional and communication levels. It has succeeded in raising awareness on the park on the local, national and international levels, as well as in producing and disseminating several documents on the process.

Work on the NP in the coming few years will focus mainly on:

- ⇒ Increasing awareness and conducting dialogue with local communities
- ⇒ Getting new municipalities to participate
- ⇒ Finalizing the NP Charter
- ⇒ Establishing a legal framework for the official government endorsement of the NP
- ⇒ Adopting an institutional management scheme for the NP
- ⇒ Creating a national steering committee for the NP
- ⇒ Lobbying for the creation of an inter-ministerial committee under the supervision of the Ministry of Interior to discuss the Qamouaa issue
- ⇒ Maintaining and strengthening the socio-economic projects on the territory focused on ecotourism, job creation and participating in maintaining the park
- ⇒ Improving communication on the NP
- ⇒ Adopting a forests management plan (conservation, wood collection, hunting, NTFP collection, fire monitoring, reforestation)
- ⇒ Improving environmental education
- ⇒ Lobbying with local and international actors to work on the NP priorities, especially on improving water and waste infrastructures and the road network
- ⇒ Creating projects on the ground (tourism, education, infrastructure improvement)

The success of the park initiative depends largely on the mobilization and commitment of various stakeholders, but also on securing the involvement of the government and international agencies.

## Acronyms and Abbreviations

<i>CDR</i>	<i>Council for Development and Reconstruction</i>
<i>DGUP</i>	<i>Genral Direction of Urban Planning</i>
<i>HCU</i>	<i>Higher Council Of Urbanism</i>
<i>MOA</i>	<i>Ministry of Agriculture</i>
<i>MOE</i>	<i>Ministry of Environment</i>
<i>PSC</i>	<i>Park Steering Committee</i>
<i>SDATL</i>	<i>Schéma Directeur d'Aménagement du territoire du Liban</i>
<i>SPNL</i>	<i>Société de Protection de la Nature au Liban</i>
<i>TPC</i>	<i>Technical Park Committee</i>
<i>IUCN</i>	<i>International Union for Conservation of Nature</i>

## Annex

- **The flora assessment** was designed by Dr. Elsa Sattout and implemented between 2006 and 2007 in collaboration with field technician Engineer Dominique Choueiter under the supervision of Dr. Sattout. Twenty-five people from local villages were recruited and trained as field collectors. Plant identification and confirmation were made at the Post Herbarium, part of the Faculty of Art and Sciences, Department of Biology at the American University of Beirut.
- **The flora monitoring manual** was developed by Dr. Sattout to be later implemented by the field collectors under the supervision of the park committee.
- **The Vegetation map and preliminary potential land use allocations** were developed by SETS based on the flora assessment report and the results of a participatory exercise with concerned municipalities.
- **The bird assessment** was carried out by the Society for the Protection of Nature in Lebanon (SPNL) between March and December 2007. Ten people from local villages were associated with the field survey and trained for bird identification and monitoring. The A Rocha Organization participated in the training.
- **A bird monitoring manual** was developed by the SPNL to be later implemented by the field trainees under supervision of the park committee.
- **The socio-economic investigations** were developed by Delphine Compain on basis of field data collected by Mada.
- **The assessment of education services** was developed by an expert in Mada, Aicha Mouchref, based on an extensive field survey covering 38 schools. Subsequently, an independent education expert, Roy Saab, performed a training needs assessment and designed and implemented a teacher training program.