COASTAL AREA MANAGEMENT PROGRAMME
CAMP-LEBANON

DAMOUR

JULY 2004

This document is the end result of the following Coastal Area Management Programme- Lebanon (CAMP) thematic reports:

- Urban management and sustainable development, prepared by M. Walid Bakhos;
- Integrated water resources management, prepared by ARD;
- Cultural heritage and sustainable development, prepared by Dr. Sami Al-Masri (Historic Lebanon);
- Marine Conservation Areas, prepared by the Scientific team of Amwaj Al-Bi'aa;
- Overview of the socio-economic situation, prepared by M. Charles Abdallah;
- Sustainable tourism, prepared by Dr. Marwan Owaygen;
- Participatory programme, prepared by MADA;
- Environment, agriculture and fishery, prepared by Mores;
- Thesis "The fishery sector in CAMP area", prepared by Ms. Tania Mouawad.

The document is prepared by Ms. Sawsan Mehdi.

To access the full reports of CAMP-Lebanon, please contact:
Ministry of Environment
Antelias –Lebanon
Tel: 00 961 4 522222 (Ext. 451)
Tel: 00 961 4 418910
E-mail: lchamas@moe.gov.lb

Priority Actions Programme/ Regional Activity Centre
Kraj Sv. Ivana 11
HR-21000 Split– Croatia
Tel: 00 385 21 340 475
Fax: 00 385 21 340 490
URL: http://www.pap-thecoastcentre.org

ACRONYMS

CAMP	COASTAL AREA MANAGEMENT PROGRAMME
CAS	CENTRAL ADMINISTRATION OF STATISTICS
DGA	DIRECTORATE GENERAL OF URBAN PLANNING
DGUP	DIRECTORATE GENERAL OF URBAN PLANNING
EPA	ENVIRONMENT PROTECTION AGENCY
EU	EUROPEAN UNION
FAO	FOOD & AGRICULTURE ORGANISATION
GOL	GOVERNMENT OF LEBANON
ICAM	INTEGRATED COASTAL AREA MANAGEMENT
IWRM	INTEGRATED WATER RESOURCE MANAGEMENT
LBPs	LEBANESE POUNDS
LRA	LITANI RIVER AUTHORITY
MAP	MEDITERRANEAN ACTION PLAN
MoE	MINISTRY OF ENVIRONMENT
MoEW	MINISTRY OF ENERGY AND WATER
O&M	ORGANISATION AND MONITORING
SLWWE	SOUTH LEBANON WATER AND WASTEWATER ESTABLISHMENT
UNEP	UNITED NATIONS ENVIRONMENT PROGRAMME
USAID	UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
WB	WORLD BANK

PRELUDE

The CAMP-Lebanon Project is one of the national Coastal Area Management Programmes of the Mediterranean Action Plan-UNEP (MAP/UNEP). CAMP is the MAP component for sustainable coastal management, integrating environmental concerns into development planning and management, oriented at understanding and resolving practical environment, development and management problems in Mediterranean coastal areas.

CAMP immediate objectives call for:

- Identifying and elaborating strategies, solutions, tools and actions for sustainable development, environment protection and rational utilization of coastal and marine resources of the national coastline, in particular related to the Southern Coast of Lebanon,
- Applying methodologies, tools and practices of sustainable coastal management and of Integrated Coastal and Marine Areas Management (ICAM),
- Contributing to the upgrading of the relevant national and local capacities,
- Providing for the application in practice of the Project results and experiences, creating conditions for and implementing the post project activities, as envisaged by the Project Agreement, and
- Using the experiences and results achieved by the project in other areas at national and regional levels.

The decision to implement a CAMP project for Lebanon was adopted at the Meeting of the Contracting Parties to the Barcelona Convention held in 1995 following a request presented by the Government of Lebanon. The Agreement to effectively execute CAMP Lebanon was signed in April 2001 (Decision no. 921/B, date April 6, 2001). CAMP project area was defined at two levels:

- The national coastal area located to the South of Beirut, the Capital, and
- The three municipalities of Damour, Sarafand and Naqoura, as the operational level.

By applying the principles of sustainable development, as well as the methodologies and tools of Integrated Coastal and Marine Areas Management (ICAM), CAMP-Lebanon was executed through selected thematic and sub-thematic activities, some of these thematic activities being divided into sub-thematic components, with the intent to boost the benefits expected from project outputs, whether during its implementation or after its phasing out. These thematic activities are:

- Integrated Coastal Area Management, which covered the following components:
  - Urban management (land-use planning)
  - Diagnostic analysis of the environment, agriculture and fishery
  - Cultural heritage
  - Socio-economic overview
  - ICAM National Law
  - ICAM National Strategy;

- Integrated Water Resource Management (IWRM);
- Tourism and sustainable development;
- Participatory Programme;
- Systemic and Prospective Sustainability Analysis (SPSA);
- Marine Conservation Areas;
- Urban management and sustainable development;
- Data and information management.

The three municipalities of Damour, Sarafand and Naqoura chosen for the purpose of CAMP-Lebanon project were selected derived from a number of criteria, the most important ones being:

- The environmental situation at the municipality level;
- The level of cooperation of the municipal council;
- The presence of active non-governmental groups and/or local community;
- The relevance of CAMP methodologies at the municipal level;
- The capacity to replicate results and lessons learned obtained to other coastal towns and cities.

The present document is a sequence of three distinct reports targeting the coastal towns of Damour, Sarafand and Naqoura, drawing together key analysis and findings acquired throughout the various CAMP-Lebanon thematic activities at the level of every municipality, thus aiming to assist the newly elected municipal councils along with other coastal towns in attaining sustainable development while properly set up and put into practice sustainable municipal development plans.

Last but not least, CAMP-Lebanon duration effectively extended between May 2002 (date of CAMP inception workshop) and December 2003 (Project phasing out). Therefore, information included within this document does not account or refer, by any mean, to impending recent events that might have occurred following the project closing.

photo 1. Damour, panoramic view of the agricultural plain

MUNICIPALITY OF DAMOUR:
GENERAL DATA

Population	30,000 (officially) and 5,000 residences
Main Economic Driver	Agriculture
Health Services	1 Clinic
Educational Services	3 Schools (one public, two private through baccalaureate)
Priority of the municipality and surveyed members of the community	Preservation of Damour valley as an agriculture field Protection of Damour river Protection of the shoreline Take possession for the collection of solid waste by the Municipality and halt the dependency on Sukleen
Agriculture	
Beekeeping	One farmer: Owns 40 beehives, mainly for household use.
Farms (Livestock)	Two (2) dairy farms, close to the Damour river channel: One with 70 cattle and one with 30 cattle (the larger one having state of the art equipment).
Crops	Banana mainly between highway and coastline. Vegetables mainly east of the highway. Citrus mainly in the Damour River valley. Some greenhouses. Experimenting with exotic fruits such as mango and avocado.
Irrigation	Two main aqueducts/channels from dams in the area where the Safa and the Hamam rivers meet to form the Damour River.
Industry	
Industry	10 light industry (shops) including wrought iron (welders), 1 cement block casting and numerous car mechanics.
Gas Stations / Lube Oil and Car Mechanics	5 gas stations, 3 of which offer car wash services and all offer oil change services. Oil is sold reused for 10$/ 200L.
Tourism	
Restaurants/Resorts	Two restaurants and two cafes are found along the Damour River
Waste Management	
Waste water	Wastewater is collected in septic tanks. The solids are emptied and disposed of in Ouzai (most probably at Ghadir). Wastewater collection network present but not activated pending completion of main collector by CDR to route all waste to plant at Ghadir.
Solid Waste	Production of 3-4 tons per day. Collections done by Sukleen

Table 1. Municipal Questionnaires- CAMP Office (2001).

DAMOUR

Damour is a coastal town extensively covered with agricultural lands. Since the fifties, Damour inhabitants have converted their fertile plain many times, from planting mulberry trees to bananas and to a lesser extent into citrus trees. In the beginning of seventies, two types of activities were developed:

- Agriculture taking place at the edge of urban areas; and,
- Urbanisation.

More than any other localities, the development of Damour was heavily affected by the Lebanese war. Inhabitants were forced to displace to other Lebanese regions or to even immigrate. The mid-nineties witnessed a partial return of Damour populations. Following the war era, the village reconstruction was carried out in an uncontrolled manner. This explains the pitiful sight of the recreated locality, the existent urban failure and the disfiguration of a traditional town even to the eyes of its own inhabitants.

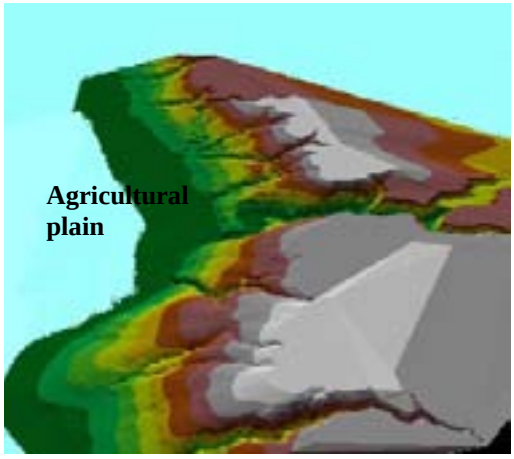
At this present moment, the status of the coastal plain and upper hills is beyond doubt perceived as a development tool. Considerable efforts are deployed to elaborate urban management plans aiming at preserving the available resources, notably the agricultural resources, and to put forward new physical developmental spaces for future industrial activities.

1. Geographical context

Damour municipality is located between Beirut and Saida. It is characterized by the presence of a still preserved agricultural plain and a compacted urban core town. The southern highway separates the agricultural plain from the urban area. The municipality of Damour includes also the localities of Mechref and Saadiyat.

2. Altitude

The circumscription of Damour is characterized by a small surface area situated at sea level (7%). The largest section is located at altitudes varying between 5 to 50 meters. 21% of the municipal lands are located between 50 to 100 meters altitude. 13% of the surface area is located at an altitude above 150 meters.



Map 1. 3D simulation of top of Damour

3. Population

The Damour village was severely affected by the civil war. The almost entire destruction of the village in 1975 has provoked the

This had led to a total abandon of the village. During the reconstruction phase, Damour was subject to a specific programme concerned with the return of displaced.

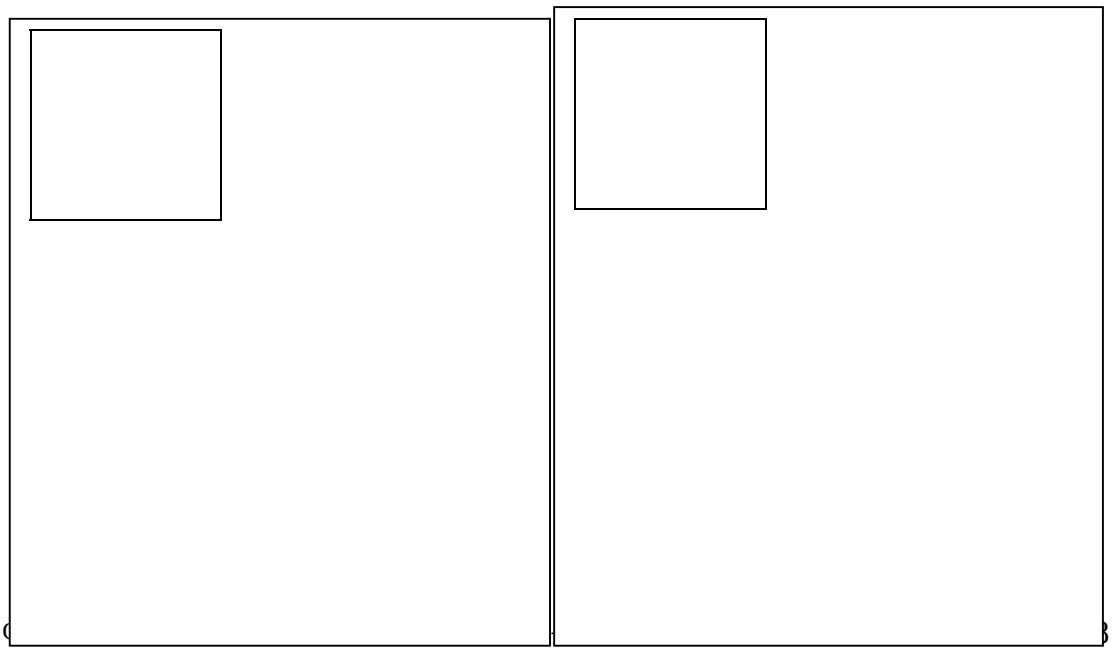
In 1996, the Administration for Central Statistics (ACS) surveyed 662 buildings. Permanent inhabitants were estimated to reach thousand persons. Moreover, ACS considered that people aged less than 20 years constitute 32.3% of the inhabitants which corresponds to a total of 350 persons.

In 1998-1999, and based on aerial photos, 752 buildings were counted, which is equivalent to an increase of 13.5% in two years of time. Since this survey, the displaced programme assistance facilitated the return of around 1.000 to 2.000 persons.

4. Land-use patterns

Damour village used to encompass a number of buildings of prominent heritage value which used to be a topic for a number of researchers, architects and orientalists. In addition to the intrinsic value of buildings, it is the urban composition of Damour which has made of it a model similar to villages well known for their landscape value such as Deir Al-Kamar, Douma or Hasroun. Therefore, it becomes of high significance to analyse changes that has occurred to the traditional village of Damour, which was totally or almost destructed in 1976, compared to the reconstruction phase that took place in 1994. This thorough analysis does not mean that Damour reproduction should look similarly to the village as it used to be prior to 1975, but it is rather meant to gather key components and features in order to get inspired for the typologies of the future village extensions and for the traditional village itself.

On the other hand, the analysis of the land ownership types shows the important role that the public local authorities could play in terms of urban and economic development. Indeed, 3.3% of lands are public lands. The municipality owns 10.5% of the lands that are located in their majority in the backward of the village. The maronite *waqf* is the owner of 8% of lands mainly located in the agricultural lands. People not originating from Damour own 29% of the lands. Damour inhabitants own almost 35% of the lands. The private development companies had acquired 9.39% of the lands circumscription.



Map 2 & 3. Land-use changes between 1994 and 1998

Besides, Damour inhabitants own 54% of the agricultural lands, 30% of natural lands and 16% of constructed lands. Foreign ownership include mainly natural parcels (66%), agricultural lands (27%) and only 8% of the constructed lands.

4.1 Land-uses

Between 1994 and 1998, urbanised areas have increased to cover 16% of the total Damour surface area. Agricultural surface areas have also augmented to 26%; the agricultural plain being deserted during the war. These increases took place at the detriment of natural zones which surface area has decreased of 10% but still occupying nowadays 55% of the village surface area. Forests and herbaceous zones were mostly affected by these changes.

4.2 Urban zones

The analysis of the aerial photos dating back of 1975 and 1998 shows that the village count 800 buildings in 1975 while only 750 buildings were count in 1998. The destructions caused by the war dramatically reduced the urban expansion of Damour. In fact, the urban zone of the actual village is similar, and even slightly reduced, compared to the village before 1975. Other urban zones were developed at the localities of Saadiyat and Mechref, this urban expansion being developed independently of the 1975 events.

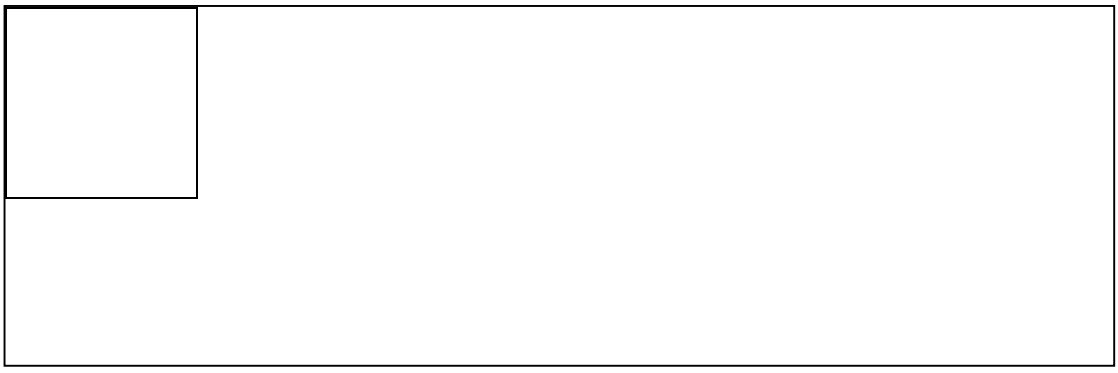


Photo 2. Examples of construction works

There are two distinct types of urban development:

- The reconstruction of the historical village, mainly carried out by people originating from Damour;
- The operation of private grouped human settlements located on Damour hills.

In 1994, the constructed zones were mainly located on altitudes included within [5 – 50 meters] and [50 – 100 meters] with respectively 42% and 45% of the total urban areas. The expansion of urban zones was mainly made based on [50 – 100 meters]

going from 11% up to 18.3%. The altitude zone exceeding 150 meters has witnessed a significant urban zone expansion, which has reached 12.8% of the surface are in 1998, while in 1994, the same area was almost empty. This zone corresponds to the higher part of the Mechref project which early construction took place after the year 1994. Indeed, one of the Mechref settlements attracts particularly the population of high income which is of « gated community » type.

4.2.1 Housing stock

The housing stock has almost disappeared during the war. Following the events of the year 1976, 620 buildings were destroyed. One has to wait until the war is over to observe the reconstruction process. The impact was not only observed on the number of buildings but also on the type of construction (buildings replacing the traditional houses), the number of floors per construction, etc.

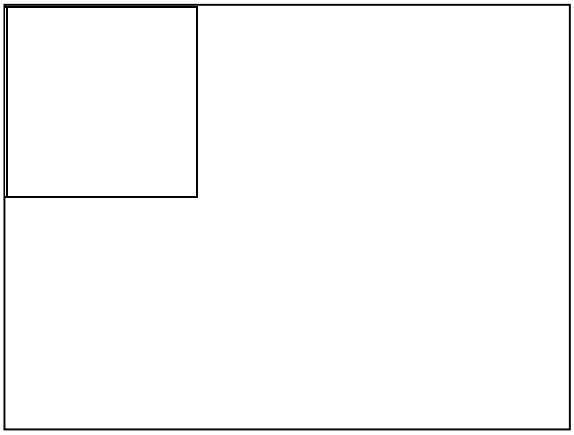


Photo 3. Palace dating back to beginning of XX Century

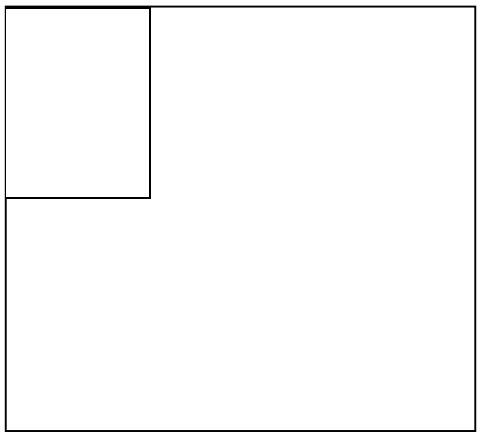


Photo 4. Survived traditional house

It is to note that there are still few elevated buildings (only 2 buildings having more than 7 floors). One third of the total number of buildings are composed of one floor, another third of the buildings contain two floors, while the last third of constructions have between 3 and 6 floors. It is also worth noting that the number of buildings and floors, and contrary to cases of more classical urban development, does not reflect the number of inhabitants.

4.3 Natural areas

Natural areas are strongly present in Damour. In fact, one third of the land circumscription is covered with woodlands. Coniferous mostly found on the Mechref hills are being gradually replaced by broadleaved trees (such as oaks) in Saadiyat area, while the Damour River constitutes a natural barrier separating between the two species. The forest surface area is very significant as it corresponds to 33.3% of the land circumscription in 1998. Finally, 14.5% of Damour surface area is covered with herbaceous areas.

Remnants still exist of a pine forest on a hill overlooking Damour village. According to town officials, that area is being reforested and approximately 6,000 pine trees were planted there, of which 600-700 trees have survived.

On the other hand, the beach of Damour has endured in the past years the illegal actions of sand extraction. It was reported that the Damour shoreline narrowed around 25 m, equivalent to the disappearance of 0.1 km^2 of beaches. This narrowing of the shoreline was noticed by comparing the cadastral maps of the 1940s with aerial photographs taken in 1994 and 1998 (Bakhos, 2003). According to the municipality, this was probably due to unlawful and massive sand dredging during the years of civil war. Such illegal activities need to be sanctioned and stopped. Otherwise, any potential development of ecotourism or environmental friendly projects along the coast will be negatively affected.

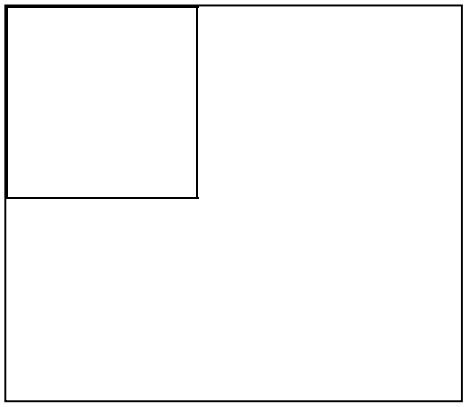
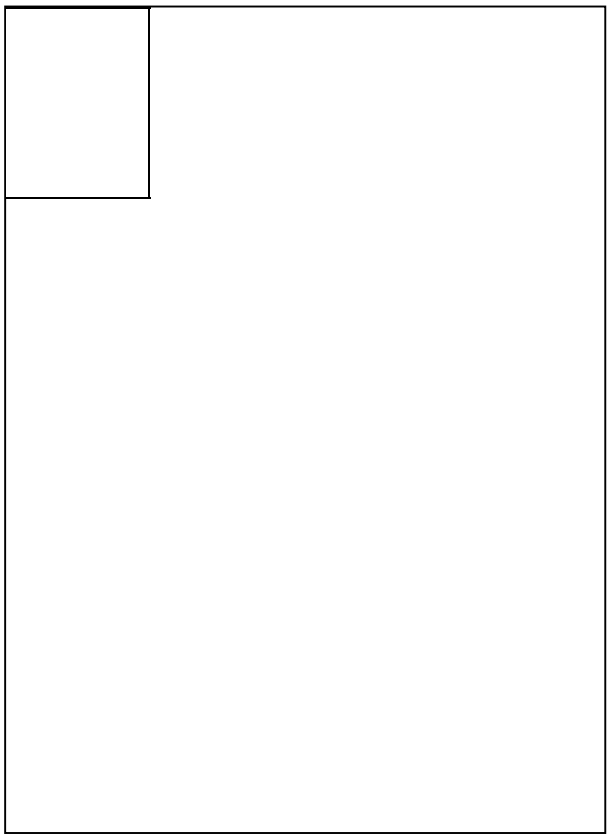


Photo 5. Beach erosion



Map 4. Surface area of beaches that disappeared all along the coast.
Blue line: coastal line corresponding to 1998.
Yellow line: coastal line corresponding to cadastral map of years 1940.

4.4 <u>Agricultural lands</u>

Agriculture constitutes a major activity of the region. Therefore, changes occurring to agricultural lands are relatively constant. Indeed, in 1963, 2% of lands were subject to alteration while only 1.4% was observed in 1998. This weak percentage is explained by the fact that since 1994, the reconstruction phase has focused on the traditional core village. The forest has undergone less important transformation, passing from 0% in 1963 to 0.8% in 1998. Nevertheless, this percentage does not comprise urban extensions of Mechref and Saadiyat areas which undergo higher land conversions.

One should mention that the risks of land conversion and the loss of the agricultural identity that characterises the Damour plain have encouraged local stakeholders to

propose measures aiming at protecting agriculture by reducing land use coefficients from 30% to 5%.

4.5 Road network

Roads occupy 31.2% of the urbanised surface areas and 4.98% of the total land circumscription area, whereas this percentage is of 2% all overall Lebanon. Accordingly, we can observe that roads occupy in Damour a surface area high above the average. This phenomenon is due mainly to the highway passage (three times two roads) which crosses the circumscription from south to north, but also it is the result of roads created by Mechref and Saadiyat settlements.

The highway separates the agricultural plain situated to the west from the rest of the land circumscription. It links Beirut to the cities of the South (such as Saida, Nabatyieh and Tyre). It is considered the entrance gate to the Chouf region as well. A secondary road serves Saadiyat locality. In the absence of any deviation, the Baouarta public road crosses the village which creates circulation problems due to heavy passage of trucks. An internal road serves the Mechref village.

4.6 Parking

According to CAS, 507 buildings owned one parking, which is equivalent to 76% of surveyed buildings. In the absence of recent data, it is not possible to know whether in parallel with the reconstruction boom, there was a balanced provision of parking plots.

4.7 Impact of land-use regulations

In 1968, a master plan was elaborated, subdividing the municipal territory into six zones: two mixed zones (commercial and residential) at different densities, a residential zone, an agricultural zone, an industrial zone, and a touristic zone. The zone corresponding to the core village has had the highest land exploitation rates. The tendency was, and still, to promote higher concentrations inside core villages, a matter which threatened the historical heritage of the localities. The agricultural plain is weakly protected since its zoning could be modified. Some clauses of the urban regulation allow the establishment of specific handcraft activities (repair workshops) even inside the residential districts. A large part kept to touristic activities is used to the purpose of villas construction.

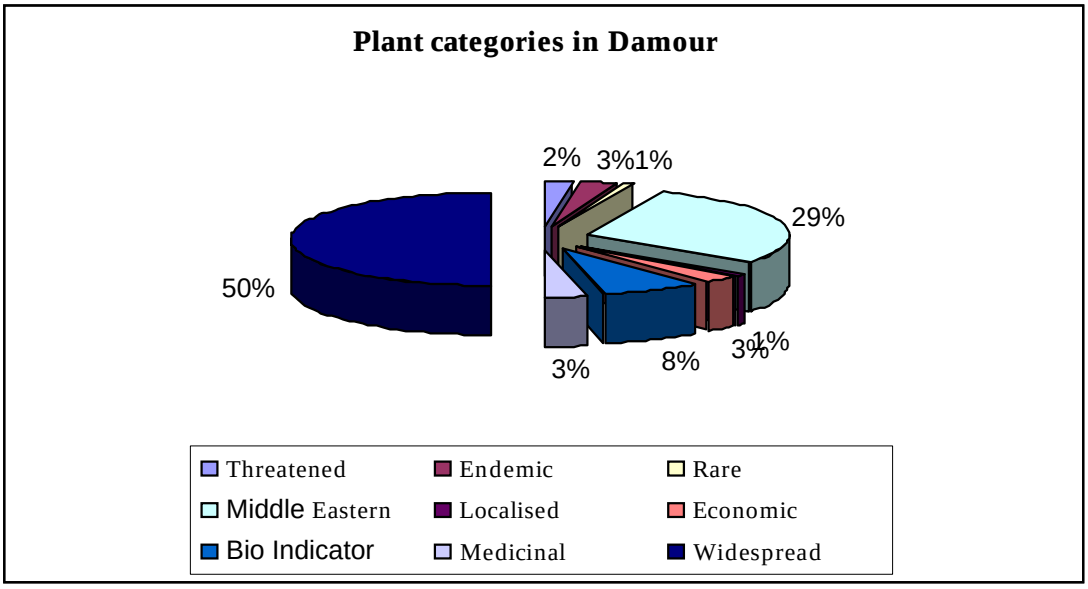
In 1994, a decree was issued to cancel the roads projected inside the agricultural plain, with the objective of avoiding all risks of urban development. In 1998, the DGUP approved a new master plan; however, this plan was rejected by the municipality which proposed in return another alternative that was postponed by DGUP. This plan has anticipated a decrease in land exploitation rates as well as a decrease in the touristic perimeter for the benefit of establishing a green belt aiming to protect the agricultural plain against harmful activities, the aqueduct, old canals, in addition to the reorganisation of urban development towards the hills.

5. Fauna and flora

5.1 Terrestrial flora

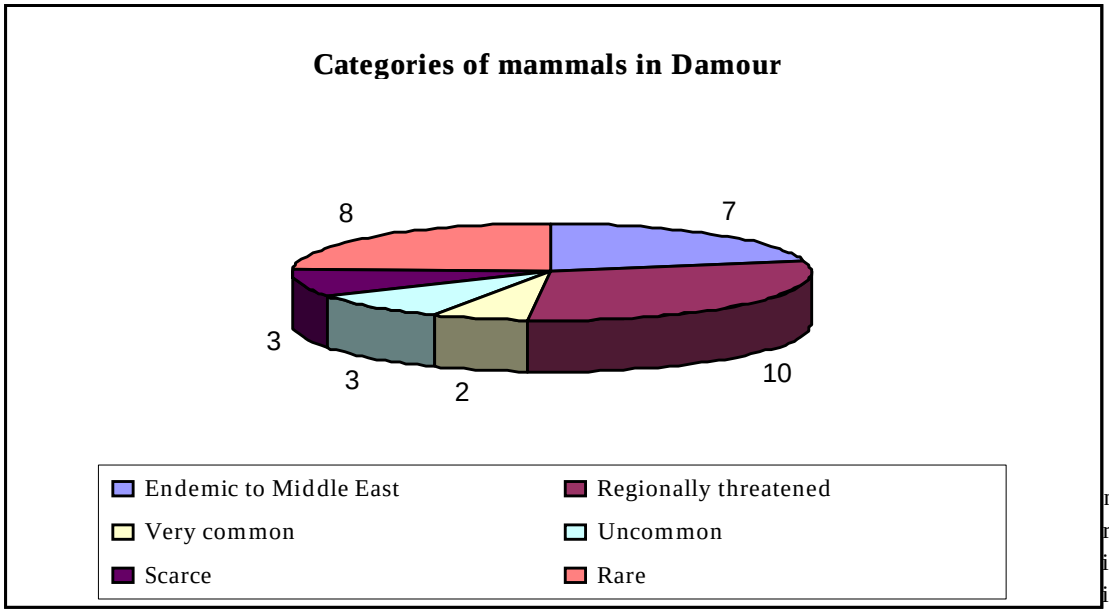
According to the Corine classification of habitats, the vegetation and the climate of the Damour make from the latter a Mediterranean area located within the Thermo-Mediterranean Level (0-500m). The dominant types of wild plant formation range from batha (degraded garrigue) to maquis (mattoral) through garrigues (degraded maquis) (*pres. obs.*).

During the spring 2004[1], intensive surveys led to identifying the existence of 370 plant species distributed over 71 families. The list of species shows that the Damour is habitat to 10 threatened species, 14 endemic, 3 rare, 131 east Mediterranean and 22 economic species.



5.2 Mammals

Sixteen species distributed over 12 families were identified in Damour.



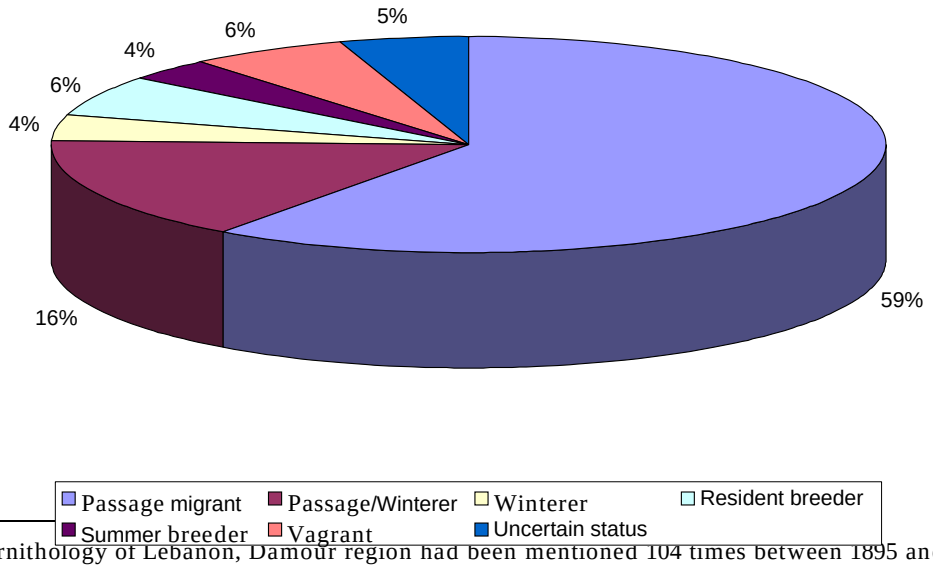
n.
re
in
in

spring 2004 to update the existing list.

5.3 Birds

The Ornithology of Lebanon reported that 73 bird species were recorded in Lebanon. In the context of CAMP, and during a study period[2] extending between August 2003 and early May 2004, 214 birds were observed, adding as such 116 new species to the previous list of the Damour site.

Status of birds in Damour region



[2] In the Ornithology of Lebanon, Damour region had been mentioned 104 times between 1895 and 1999 by only seven authors [Van Dyck (1895), West (1954), Flach (1959), Nevins (1960), Kumerloeve (1962), Macfarlane (1978) and Ramadan-Jaradi & Ramadan-Jaradi (1997, 1999, 2004)]. They produced all together a list of 98 bird species. Of which 73 recorded only from Damour alone and 25 species from Khaldeh few km to the north of Damour. Between August 2003-early May 2004, G. & M. Ramadan-Jaradi visited the Damour area on a monthly basis where the observed birds were recorded using the 20-minutes Point Count Method.

6. Socio-economic activities

6.1 Agriculture

Agriculture is the main economic driver in Damour and is part of the identity and the "nationalism" of the Damour residents. Agricultural lands are characterized by a rich and thick topsoil cover, ample water for irrigation and enjoy suitable weather. Of approximately 11 million square meter total surface area of Damour, around one third (over 3.6 million square meters) is being cultivated. In the early nineties, agriculture shifted strongly from citrus, which had replaced mulberry, to bananas that can start primarily producing within a relatively short period of time (2 to 3 years). Recently, pressure had been mounting in relation to possible permitting of the construction of resorts within the soil rich agricultural plain. Such permitting would lead to the irreversible loss of productivity of the land, through the removal of the topsoil.

According to a 1982 report by FAO, the agricultural plain of Damour is one of the most important agricultural fields in the country as the mountains from the east and hills from the south protect it and is the last agricultural plain within the greater Beirut area. As indicated by historical accounts and interviewed farmers and traders that are operating in Damour, agriculture in Damour has over the ages sustained the community in produce and in profits. Actually, banana plantations occupy 16.7% of the total area of Damour and around 65.3% of total cultivated area.

Photo 6. Agricultural plain of Damour (looking north)

Damour valley is irrigated through two main aqueducts/channels that carry water from dams in the area where the Safa and the Hamam rivers meet to form the Damour River. The municipality is managing the agricultural file and regulates the allocation of irrigation waters, to the various agricultural plots. Although there is abundance of water to irrigate the Damour fields even at times of low rainfall, inadequacy of supply has taken place and has been attributed to mismanagement by the authorities and illegal practices up-stream from Damour. Recently, and with the water shortages of the past years, water that used to be the right of the community since many decades have been diverted to other areas. Unless properly addressed,

this issue could become a constraint. Water rights and water-use efficiency is a critical issue that is continuously gaining importance and that should be resolved at the national level both from the policy and technical point of view.

The main agricultural products are bananas (16.7% of total surface area) which have increased of 38% between 1994 and 1998. Banana plantations are found in the agricultural plain and Damour River Valley. In this respect, farmers have developed an agricultural know-how which was

Photo 7. Farmer from Damour

Vegetable gardening represents 10.7%; however, a decrease of 19% in cultivated surface areas was observed. These lands are mainly located to the east of the highway. Few greenhouses are still reported.

Farmers market their products via exhibition stands constructed all along the highway.

The municipality of Damour is fully aware of the fact of transforming the village into a suburb to Beirut metropolitan at the expense of its own resources unless a policy is adopted to halt this transformation. This would concretely mean:

- The construction of new residential buildings on agricultural lands;
- The definitive disfiguration of the village;
- The loss of available resources.

The recommended actions are of two levels:

- Regulatory actions: they are actions that could be activated based on administrative decisions enacted by the Municipality of Damour or by the government.
- Economic actions: these are actions which are based upon using the economic instruments. The objective is to enable running the area by using indirect measures which impact the economic behaviour.

The regulatory actions

- *Agriculture and natural landscape*: It is advised to elaborate a land-use plan which imposes the utilisation of the Damour plain, i.e. the lands located to the west of the highway, for strictly agricultural purposes. In addition, agricultural lands located to the east of the old roads, actually non-built and presenting a territorial continuity are categorized into strictly agricultural usage. The Damour River Valley is preserved against all types of constructions. Its vocation as an agricultural valley is clearly confirmed.

- *Tourism*: The municipality is charged of managing and running the beach as well as other sites to be preserved. The agricultural character of the Damour plain and the Damour River Valley in addition to the public character of the beach should equally favour the implementation of a multitude of alternative tourism activities.

  The main key of success for any touristic development of a given locality is to reconstruct the historical nucleus of the Damour town which should be complemented by forcing the local community to abide to the management plan content. This latter should impose limitations to the height of constructions. A homogenisation of the reconstruction style should be equally examined as well.

- *Industry*: The only industrial activities authorized in the areas close to the highway and old road as well are those activities designed for packaging and processing the agricultural products. They are clustered to the east of the old road and nearby the Chouf feeder. No agricultural lands will be converted into land on industrial lands. Non-polluting handcraft activities could be located inside the inhabited areas.

  Heavy industries are not permitted. The only permitted industries could be the high technology industries such as the BETZ project, a technological project currently implemented by an American company. This project is expected to provide an average of 5.000 job opportunities.

- *The residential zones*: A homogenisation of construction styles is required if a certain character is to be given to the locality.

The economic instruments

The economic instruments at the disposal of the tourism sector

Some economic instruments could be applied regarding the management and use of Damour beaches. We propose to impose fees on the:

- Cost of renting kiosks and straw huts;
- Cost of parking areas managed by the municipalities;
- Cost of bus tickets that transport tourists from parking areas to the beach.

On the other hand, the development of hotels and restaurants inside the village could benefit from loans subsidised by the government in favour of touristic SME through KAFALAT (loans amount: 200.000$; actual interest rate with the subsidy: 2-3%).

6.2 Industry

In 1996, only 44 buildings had an economic allocation among which 35 buildings for commercial purposes. The service sector count 6 buildings: five buildings are allocated to the industrial activity. Similarly to the nationally implemented statistics, 10% of the units have more than 5 employees. These data dating back to 1996 cannot take into account the activities that are increasingly developing since the return of inhabitants.

	agriculture	Industry	commerce	services	Others	Total
Less than 5 worker			31	6	3	**40**
More than 5 workers		5	4		1	**4**
Total	**0**	**5**	**35**	**6**	**4**	**44**

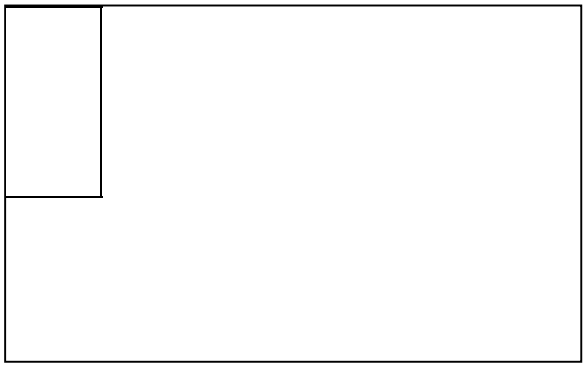
Table 3. Number of building allocated to economical activity. *Source: Central Administration of Statistics, Buildings survey, 1996.*

Silk industry used to constitute a very important activity in the region which has largely developed during the last decade without including any activity that refers nowadays to this old industry.

Small industrial workshops are found, notably those connected to iron works, cement blocks cutting as well as a number of vehicles repair and maintenance shops.

A technological park project (BETZ), located to the north of Damour, is currently under study. This project, headed by the municipality of Damour, is an innovation at the national level, since it is a pioneer initiative associating a given local community to private investors.

Photo 8. Site expected to host BETZ Project (technological park)



Various proximity commercial shops are found in the village. Some of these activities, mainly in selling seasonal agricultural products, are established all along the highway. The regulation limits basically the increasing establishment of activities in this location.

6.3 Services

In terms of touristic equipment, two restaurants and two coffee shops are operational close to Damour River, while two tourism resorts are located on the local maronite

church. Lately, a third beach resort was expected to move to Damour from Jiyyeh, provided that the resort is established based upon environmental conservation criteria for the agricultural plain context and identity (absence of long-term or cemented constructions, conservation of agricultural lands, promotion of agricultural products, etc.).

As for the educational services, three schools and one private technical university (MECAT University) are established in Damour. In addition, two cultural centres are located inside the traditional village as well as a sport municipal centre. A clinic answers the medical needs of the locality.

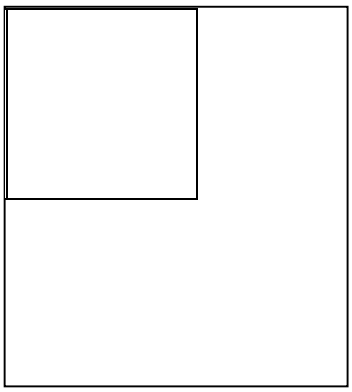


Photo 9. Private University

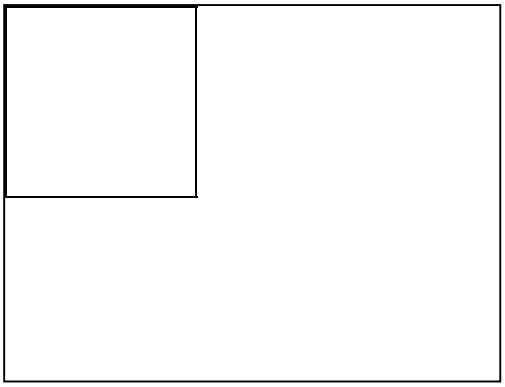


Photo 10. Cold store

6.4 Fishery sector

Despite the fact that the Damour Sea is a mixture of rocky and sandy beaches which is the perfect shore for fishing, the practice of this profession has been hindered in the Damour area, according to Damourine inhabitants, due to the lack of a port.

In the past the outlet of the Damour Sea was a site where the fishermen used to place their fishing boats. Because of the winds and high tides most of the boats were destroyed so this act came to an end. Nowadays the fishermen from the Damour are faced with the burden of placing their boats in the neighbouring villages.

The exact number of fisherman in the Damour area is very hard to track because of the immigration of most of its residents and due to the fact that no port exists in the area, many people tend to live in other areas for fishing. Consequently, what was been able to record includes around 12 boats hosted in the Dora port, three or four other boats in Saadyat, while some other boats are sheltered in Jounieh port. As for the types of equipment used, some fishermen still use outmoded tools such as nets, hooks, and beach seines. On the other hand, Damour area lacks a cooperative neither a syndicate, as a consequence to the lack of a port which is conditional to apply for a cooperative. (Mayor A. Ghafari, 2003, personal interview). However, most of the Damourine fishermen are members of the Beirut syndicate and the Dora cooperative because (1) most of the fishermen work in the Beirut area and (2) Damour area is legally considered a part of the Greater Beirut area.

There are many problems that the Damourian fishermen are facing, among these we can name:

- Lack of fishing port in the Damour area, which stops the fishermen from organizing themselves into a cooperative.
- The setback of placing their boats in neighboring areas. One example is the high transportation costs, the fact that their boats are placed in distant areas, the fishermen have to leave their home town in order to fish in other areas.
- Competitiveness, because fishermen carry out their activities in other areas, competitiveness with hometown fishermen is faced.
- Decrease in the number of fish markets in the Damour area because fishermen are not provided with proper equipment needed to transport fish for long distances, so the fishermen prefer to sell their fish directly.
- Fishermen leave their sandy and rocky shores to go and fish amongst the crowd and pollution of the city.

When considering Damour's related attributes and constraints, one cannot but notice two facts: first, although historically people had been relocated out of their land, the sense of identity and roots to the land is very prevalent; and second, being a young community with a rich history, the town presents a unique opportunity to further develop as an agro-touristic based economy. Its proximity to Beirut and Saida, makes it an easy resort that develops around agriculture. The unique location, the presence of all sustainable elements for a successful agricultural sector (rich history, water, soil and weather), should make a strong case towards enlisting the field of Damour as an agricultural reserve.

Although discussion with certain farmers and traders reveal that certain scientific research regarding agriculture in Damour has been performed on an individual level, no direct promotion of ideas regarding farming in general and no capitalization on the promotion of the Damour produce or the promotion of organic farming to meet the escalating demand of such produce in nearby

7. Transportation network

A study for road traffic carried out in 2000 reported that the daily annual average day witnesses 51.000 vehicles per day on the highway. The access road to Chouf is borrowed by an average of 7442 vehicles per day. In addition, an average of 2746 users crosses the road leading to Baouarta. The internal road of Mechref is used by 2.000 vehicles per day.

8. Waste management

Most dwellings in Damour have septic systems. The sludge generated by such systems is currently being hauled by cisterns and disposed off outside the city, mainly at the Ghadir plant. A wastewater network exists in Damour; however, it is not operational yet. It is to note that around 285 buildings (there were 662 buildings surveyed in 1996) are connected to this network; a number that is contested by the municipality which states that the wastewater network is not operational since the end of the war. It is expected that this network will be put into service following the construction of the main collectors that would route the wastewater, partly to Ghadir and partly to Ras Nabi Younes wastewater treatment plants. At present, the actual routing of the main collector is not identified yet.

Solid waste generation reaches 3 to 4 tons per day. Despite being faced by problems

similar to those of any other Lebanese locality, the area of Damour falls within the jurisdiction of the sole private operator in the area (Sukleen), the generated solid waste is being collected and treated away from the city.

9. Water resources management

Water resources in Damour consist of the Damour River, which water is used for agricultural needs, and the underground water, which is exploited by the various as well as several wells executed in the region for both agricultural and domestic usage.

9.1 Legal and Institutional Framework

Damour used to fall under the jurisdiction of Barouk Water and Irrigation Authority. After the emergence of the New Water Law it will be part of the newly established Beirut and Mount Lebanon Water and Wastewater Establishment. The municipality is currently successfully managing by itself two wells for domestic water consumption located within its municipal boundaries. In addition, the municipality is also managing the distribution of the Damour river water to agricultural fields located mainly in the Damour plain.

One main legal and institutional problem specific to the Damour area is related to the management of the Damour River water. Current legislations do not handle the issue of the river water distribution among neighbouring lands and villages and do not specify responsible bodies to manage such distribution. Damour farmers have stated on their land ownership certificates the right to irrigate their lands located in the plain using the Damour river water. However they have been facing water shortages especially during summer because of overexploitation of upstream river water. Legislation is also not clear about who is responsible to monitor river water quality.

Improved coordination between the Damour municipality and the water establishment would help avoid conflicts in the future related to water resources management in the area.

9.2 Water supply

9.2.1 Surface Water

The major river that passes through Damour area is the Damour River. This river is one of the 17 perennial rivers in Lebanon. It originates at an altitude of 948 m. Safa and Barouk springs, along with other smaller springs, supply the river with water throughout the year. The total length of this river is 40 Km with the last 8-10 Km crossing the CAMP area. Two dams are constructed on the Damour River to divert part of the water for irrigation purposes. The lower dam diverts approximately 1,100 m^3/hour and the upper dam diverts about 650 m^3/hour.

9.2.2 Ground Water

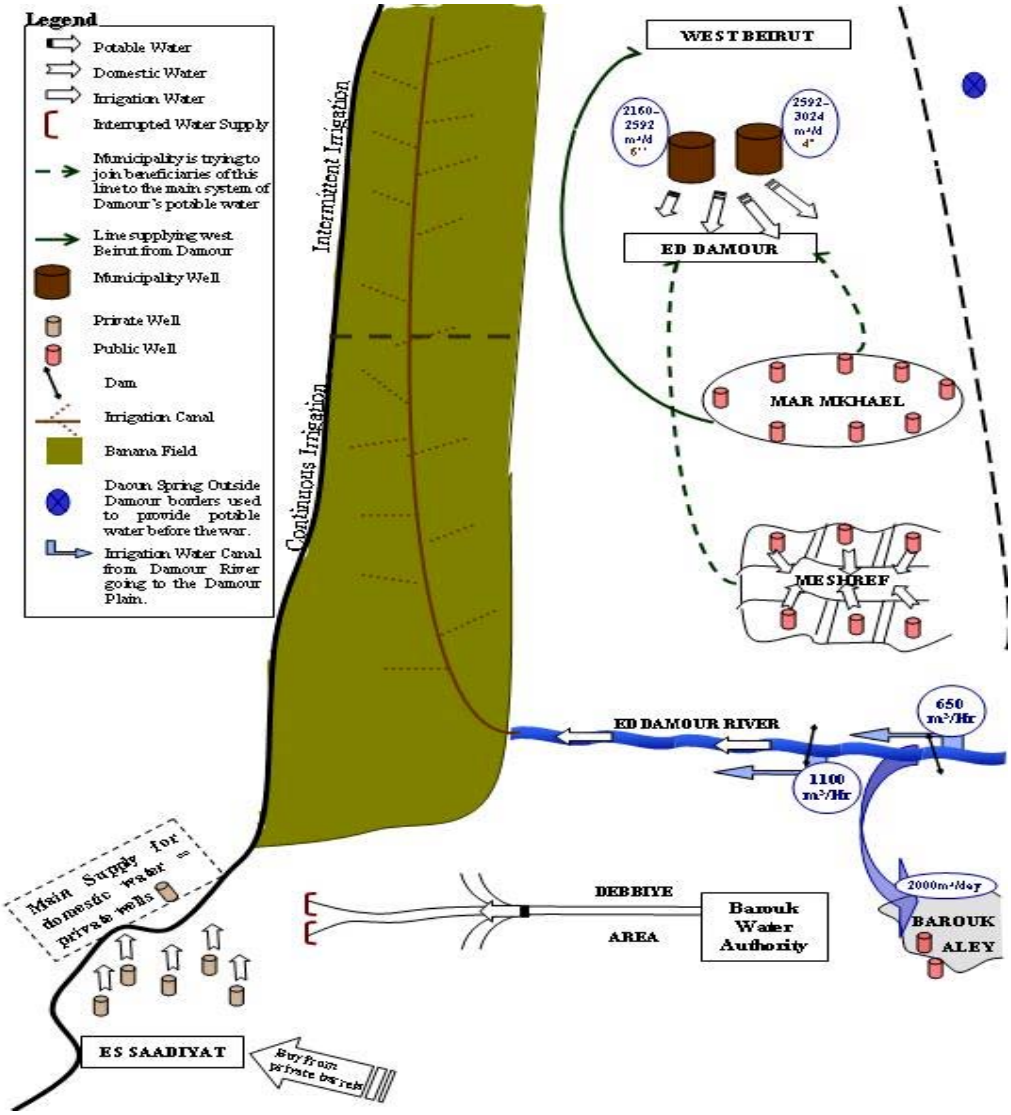
The groundwater resources in Damour area are mainly stored in the Sannine Aquifer, which is being protected from direct contact with the sea by the Chekka Formation. This has resulted in the development of an important source of groundwater. In the Saadiyat area, the Sannine Aquifer is in direct contact with the

sea and the fresh water is mixed with the salt water. Recharge of the Sannine Aquifer in the Damour area is primarily from direct infiltration and infiltration from Damour River. The Sannine Aquifer is being exploited through artificial wells and natural springs.

The total volume of water that is being pumped from Damour and exported to Beirut from July till January is 7.2 Mm^3 according to the Beirut Water Authority. The total estimated consumption from wells in Damour ranges between 1.14 and 1.7 Mm^3/year. These values reach 8.9 Mm^3/year when wells of Beirut water authority are operating. It is interesting to note that based on the present estimations and information from Beirut Water Authority, approximately 80 percent of the total quantity exploited from Damour is used outside Damour.

9.2.3 Water Supply Infrastructure

The Damour municipality operates two wells (5000 m^3/day) that pump for approximately 5 to 10 hours per day according to the season, and generate between 880m^3/day and 1360 m^3/day. One major reservoir (2000m^3) is used to store the water, which is distributed within Damour.



Map 5. Illustration of Water Supply Infrastructure in Damour

The municipality charges housing units connected to the main water network 100,000 LBP[3]s per year for unlimited supply of water. A limited zone of Damour is being supplied by the Meshref wells field and Beirut water authority in El Hamra and Mar Mkhael regions respectively.

Irrigation water is primarily obtained from the Damour River, where two dams store water that is directed though irrigation channels to the agriculture fields. The municipality charges agricultural landowners 30,000 LBPs per 1000 m^2 per year. Note that in the Saadiyat area, the main source of domestic and irrigation water is through private wells. Last but not least, Damour faces the problem of water withdrawal from within its boundaries to serve other regions. It is worth mentioning that according to Beirut water authority data, the Damour area provides 10 percent of the total water consumption of the Beirut area which is about 500,000 m^3/day. On the other hand, the Damour River is being highly exploited by up stream neighbouring villages, especially through wells upstream that induce recharge from the Damour River, thus diminishing its discharge at the Damour plain. As a matter of fact, the plain faced water shortage during summer 2001, and farmers had to exploit existing and new wells to satisfy irrigation water needs.

9.3 Water demand in Damour

Water demand in Damour is primarily from domestic and agriculture origins. While domestic consumption is derived from groundwater wells, irrigation water is mostly obtained from the Damour River.

9.3.1 Domestic Water Demand

Fields surveys have been conducted in the Damour region. Domestic water consumption in the Saadiyat area was estimated to range between 340 and 400 L/c/day. Estimated values for daily water consumption in the Damour area range however between 130 and 170 L/c/day. While the domestic consumption in Saadyiat is higher than typical average domestic consumption values (150 L/c/day), consumption in Damour is within the regular range. Due to the absence of a metering system in Damour, it is very difficult to calculate losses in the networks. Discrepancies between water supplied by the municipality and water consumed can be attributed to unaccounted for water consumption (in construction activities, etc.) and to losses in the networks. The values fall however typical values for water losses in water supply networks reported in Lebanon.

Table 4. Estimations of Water Losses or Unaccounted for Water in the Damour Area

	Quantities of water supplied by the municipality (L/c/day)	Actual water consumption (l/c/day)	Losses (%)
Winter	180-270	134	25-50
Summer	311-418	170	45-61

[3] One American dollar is equivalent to 1.500 Lebanese pounds.

9.3.2 Agriculture Water Demand

Approximately 364,400 m^2 of agricultural land were surveyed in order to obtain information about the local irrigation practices and estimate the actual values used for irrigation. It can be noted that farmers irrigating using the trickle technique have a much better control of water consumption than those using surface irrigation. In the latter case, actual water consumption exceeds theoretical values[4] by more than 50% during winter and more than 150% during summer (more than twice the theoretical value).

Table 5. Irrigation Water Consumption in Damour

Irrigation Technique	Season	Actual Water Consumption (L/m^2/day)	Theoretical Water Consumption (L/m^2/day)	Over Use (percent)
Surface	Summer	16.7	6.6	+150%
	Winter	8.7	5.9	+47%
Trickle	Summer	4.7	4.4	+6.8%
	Winter	2.7	3.1	-13%

9.4 Water Quality

Both groundwater and surface water quality are at risk in Damour due to overexploitation and lack of adequate sanitation and proper environmental practices.

Table 6. Water Quality Results for Damour Samples

Sample ID	TDS (mg/L)	Chlorides (mg/L)	Nitrates (mg/L)	O-Phosphates (mg/L)	Fecal Coliforms (CFU/ 100 mL)	COD (mg/L)
D1	547	174	30	0.18	0	NA
D2	239	NA	19	0.27	126	<2
D3	222	NA	12	0.17	13	16
D4	1850	1240	14	0.11	0	NA
D5	313	20	5	0.1	0	NA
D6	667	239	16	0.13	0	NA
D7	612	212	12	0.27	0	NA
Guidance Value[5]	-	25	25	0.4	-	-
Maximum Admissible Value[2]	500	200	50	5	0 (domestic) 200 (irrigation)	-

A recent report (CAMP -2003) has highlighted the different environmental violations on the Damour River Basin, which include disposal of untreated sewage from most villages, disposal of restaurants wastewater, industrial wastewater (olive oil, stone cutting, concrete and asphalt), waste oil from gas stations, farm wastes, and use of pesticides and fertilizers.

[4] The theoretical water demand is the one that meets the needs of the crops based on site specific conditions (climate, soil).

[5] All values according to Ministerial Decision 52/1 issued by the MoE, except for TDS where EPA standards are included and fecal coliforms where EPA standards for irrigation are used.

9.5 SWOT Analysis for water management

The SWOT analysis presents the strengths and weaknesses of the Damour municipality in terms of water management, as well as the opportunities and threats that could promote or disfavour, respectively, a sound water management in the area.

Table 7. SWOT Analysis for Water Resources Management in Damour

Strengths	Weaknesses
- Availability of groundwater - Presence of major surface water course (Damour River) - Limited industrial activities - Acceptable level of urbanization - Newly built water supply network - Domestic water supply under control of the municipality - Geological protection from seawater intrusion, except for the section of Saadyiat	- Peak demand for irrigation occurs during summer when water is least available - Incomplete sewage infrastructure and lack of domestic wastewater treatment - Insufficient level of awareness and knowledge of best management practices in agriculture among farmers - Inadequate water pricing to promote efficient water use (on a lump sum basis for domestic and area of land basis for irrigation) - Lack of monitoring in water consumption - Insufficient coordination with water authorities and upstream users
Opportunities	**Threats**
- Potential return of highly qualified old Damour residents - Strong political influence that could be used to attract funds to the area for water related projects/investments	- Attraction of new investments that could pose a stress to water resources if not properly planned - Uncontrolled development of the area with the return of displaced population - Uncontrolled upstream use of river water - Environmental violations in Damour River Basin leading to the deterioration of the river water quality - Aquifer mining to feed water to areas outside Damour (Beirut and Ain El Delbe)

9.6 IWRM in Damour

Integrated water resources management involves projects and actions aimed at increasing the conservation of water and the efficiency in its use and by increasing complementarity and/or decreasing conflicts between competing uses, both in quantity and in quality, by managing both supply and demand and enabling adequate organizations, regulatory frameworks (laws, policies, strategies, plans, programs and rules) and human resources

The recommendations are classified in four major categories: 1) water monitoring; 2) conflict resolution; 3) water quality protection; and 4) community participation.

9.6.1 Strengthening Monitoring Capabilities

- Generation of actual data concerning the upstream utilization and potential pollution of the Damour River that could be used by the Damour municipality in future negotiations with upstream users with respect to the Damour river water rights based on a basin-wide water allocation scheme;

- Increased coordination with the concerned water authorities with respect to the exploitation of the area's groundwater;
- Setting the framework to monitor water losses in the networks and to reform the water pricing structure to encourage water savings.

	QUANTITY	QUALITY
Surface Water (Damour River)	*Objective*: monitor the quantity of surface water available for irrigation *Means*: installation of device at the main irrigation canals leading to the coastal plain to monitor water level (pressure transducer) *Frequency*: continuous *Investment cost*: 2 pressure transducer with datalogger and accessories = USD 5,000 *O&M*: one staff from municipality to retrieve data from device and for analysis	*Objective*: monitor the quality of the river water reaching the coastal plain and its suitability for irrigation *Means*: regular sampling of river water and analysis of specific parameters: pH, fecal coliforms, nitrates, SAR, TDS, COD *Frequency*: bi-weekly or monthly sample taken at the main irrigation channel *Investment cost*: none *O&M*: one staff for sampling; laboratory analysis costs = USD 50 per sample
Groundwater	*Objective*: monitor the quantity of water being exploited from the aquifers and the losses in the networks *Means*: 1) sharing of data with Beirut and Ain El Delbe Water Authorities; 2) installing water meters in domestic water supply networks *Frequency*: Continuous *Investment cost*: 1) none; 2) USD 100,000 – 120,000 to install meters in Damour (cost per meter: USD 300) *O&M*: municipality staff to monitor the meters and assess water consumption and losses	*Objective*: monitor saltwater intrusion and potential bacteriological contamination *Means*: coordination with Beirut and Ain El Delbe Water Authority + groundwater sampling and analysis (chlorides, TDS, and fecal coliforms) *Frequency*: Monthly *Investment cost*: none *O&M*: one staff for coordination with authority and sampling; laboratory analysis costs = USD 35 per sample

9.6.2 Conflict Resolution

Two major conflicts among water users exist in the area involving: 1) Beirut Water Authority and Damour municipality; and 2) Damour municipality and upstream users of Damour River.

Conflict	*Conflict Resolution Elements*
Beirut and Ain El Delbe Water Authorities exploit a significant quantity of groundwater from Damour; groundwater quality has been deteriorating because of excessive pumping, leading to concerns among the Damour population and the municipality	Damour municipality should seek increased coordination with the BWA and data sharing as a means to improve partnership; Damour municipality should initiate negotiations with BWA to reduce the exploitation level; it should base its arguments on scientific basis and on studies showing the increased level of salinity in the aquifer
The Damour municipality suffers from reduced surface water reaching its coastal plain and increase water pollution due to upstream polluting activities	This is a typical conflict in a water basin where there is no coordination among the different water users. The Damour municipality should initiate discussions with upstream villages and stakeholders to form a Damour Water Basin Committee. Such a committee would be responsible to : Conduct, with the assistance of water resources consultants, a comprehensive study for the water

	allocation in the basin Provide a coordination mechanism among the different users Monitor the quantities of water provided to the different users based on the water allocation study Monitor and control environmental violations in the basin Ensure coordination with the public authorities Promote awareness and capacity building in the basin

9.6.3 Water Quality Protection

Four major sources of water pollution predominate in Damour: 1) over exploitation of the aquifer leading to seawater intrusion; 2) upstream violations leading to river pollution; 3) agricultural practices; and 4) lack of a complete sewer network and wastewater treatment plant.

The first two sources of water quality deterioration originate from outside the boundaries of the Damour municipality, and should be dealt with based by focusing on water quality monitoring, improving coordination, and the formation of a River Basin Committee.

The key towards minimizing water pollution from agriculture practices is to inform and train the farmers on best management practices (BMP) related to the use and application of agro-chemicals, their timing and quantities. Since Damour hosts one of the major remaining coastal agricultural plains, it could setup a regional information center for farmers to obtain data on BMPs. This could be done also in collaboration with academic institutions, the MoE, the MoA as sources of information and technical support.

The issue of domestic wastewater treatment is very important and should be given a high priority by the municipality. Disposal of untreated sewage is further threatening both groundwater and surface water in the area. The Damour sewage network should be connected to one of the planned coastal wastewater treatment plants in the National Management Plan for wastewater. Municipalities should have a more proactive approach towards the problem and should not simply wait for the government to secure funds and execute the projects, which is a process that is typically taking very long. The Damour municipality should constantly seek for updated information from the government and show the importance the municipality has set for the problem.

Several municipalities in the country have already taken the initiative, and with the assistance of international donors (USAID, USDA, EC), have implemented rural-based wastewater treatment plants. This could eventually be an option for Damour. In this case however, the sustainability of the projects needs to be assessed at the early stages of project concept and implementation. The municipality should be aware from the beginning of the operation and maintenance requirements of the plant, and should be able to secure the resources needed to operate the plant.

9.6.4 Community Participation

The local community in Damour should become more involved in the water-related activities of the municipality. It is important first that the community builds a sense of identity, pride, accomplishment and ownership so that the local residents get more involved in the management of natural resources.

The community can help in many aspects such as:

- Awareness on the importance of placing water meter devices to monitor water consumption and losses;
- Awareness on water conservation needs and methods;
- Organizing the establishment of the information center for agricultural practices, which could be expanded to cover other water/environment-related topics;
- Promotion of the formation of a water basin committee for the management of the basin's water resources and monitoring of environmental violation;
- Follow-up on the wastewater treatment issue (identification of sources of funds, treatment technologies);
- Encouraging coordination of the municipality with the BWA;
- Assisting in conflict resolution.

10. Environmental pollution

The principal polluting sources to the soil and groundwater in Damour include domestic wastewater, fertilizers and pesticides. Major polluting sources include:

- Direct domestic, commercial (hospitals, gas stations, restaurants…) and industrial (liquid waste from olive presses, farms, quarries and stone cutting, concrete and asphalt…) wastewater discharges;
- Runoff and irrigation return flow contaminated with fertilizers and other toxic chemicals used in agriculture;
- Solid waste dumping in the river basin and directly into its channel.

The untreated wastewater is probably the major polluting source to the Damour River and the groundwater resources in the area. Such pollution impacts directly on:

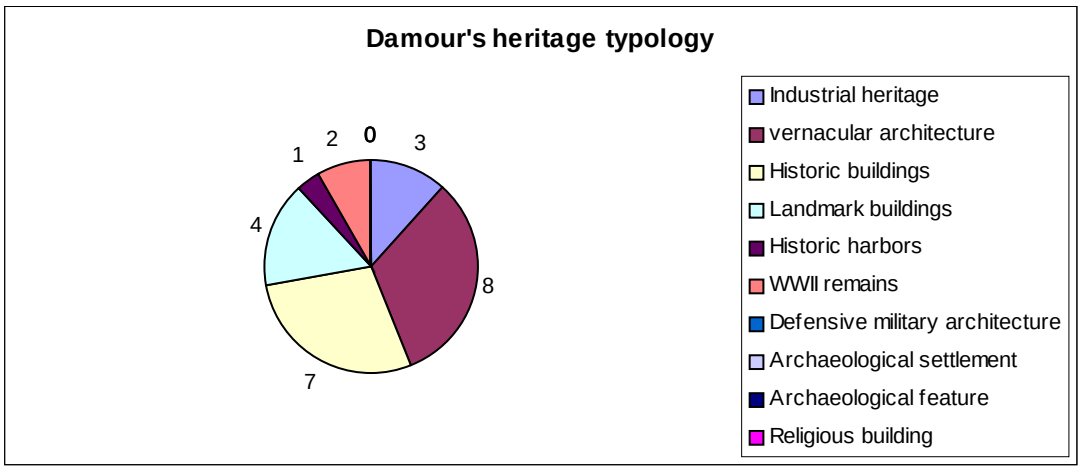
- Human health through proliferation of diseases caused by fecal, bacterial, viral, fungal infections, etc., either by direct consumption or via the food chain and
- River biodiversity.

The main source of noise and air pollution is the traffic along the Beirut-South highway. At present, actual data regarding the level of noise and air pollution do not exist.

11. Cultural Heritage

Damour has a wealthy cultural heritage which includes:

- Historic and vernacular architecture,
- Landmark buildings,
- WWII remains,
- Industrial heritage,
- Surviving old traditional crafts and artisan productions.



The heritage resources of Damour are linked to the development of the locality and the events that shaped its historical background. Accordingly, they could be grouped under the following types:

Historic Buildings: Examples of traditional Lebanese residential architecture are closely linked to the industrial prosperity of Damour and to the development of silk trade with the West. Rich industrialists and property owners commissioned the construction of fine examples of traditional mansions and large houses in the 19th and early 20th century some of which have survived until this day but are nonetheless suffering from neglect and unsympathetic repairs and alterations. Prior to the events of the Lebanese civil war, the architectural heritage of Damour was better preserved and many houses were used as typical examples representing quality traditional architecture in Lebanon.

Traditional vernacular buildings: Mainly farmhouses or central hall houses typical of villages and towns with a preserved old building stock. These structures contribute to the traditional and rural character of Damour and provide the tangible links with the past. Preserving them will help maintain these links and improve the quality of the living environment while providing the necessary setting for the development of scenarios related to cultural tourism development within the town of Damour.

Photo 11 Remains of Silk Factory at Damour. The building maintains the links with the town's important industrial past.

Industrial heritage: the surviving few testimonies of the vivid silk industry and trade, which brought prosperity upon Damour during the 18th and 19th centuries. The few surviving remains of silk and glass factories are important landmarks and the tangible evidence of a once thriving economy and a prosperous trade which was not only limited to Damour but to other localities on the coast (such as Beirut for example) and in the Shouf mountains.

World War II remains: of national and international significance linked to the military history of the area and to the events which opposed the armies of Vichi and the Commonwealth forces joined by the army of De Gaulle. These remains are of monumental character consisting of long stretches of waterfront fortifications and installations carved inside the mountain at the site of the fortress known as "al-Hosn" in the al-Hamra locality.

Surviving old traditional crafts: mainly ceramic productions based in two locations along the highway to the south. These productions are very similar to traditional ceramic wares that were in use for centuries and are characteristic of the material cultural of the coastal area during the middle ages. Other surviving characteristic crafts are the productions of baskets and reed matrices; these can play an important role in the development of tourist gadgets and products.

Artisanal gourmet: in particular, the artisanal home made production of marzipan and Keshek. Such productions can contribute to the integration of the household into the tourism industry and can provide special gastronomic products that support it.

11.1 Assessment of the cultural significance of Damour

Broadly speaking, Damour's main values can be summed up to:

Natural attractiveness of the place: The cultural wealth of Damour juxtaposed with the natural beauty of its coastal line including beaches and plantations have created a setting where man can reflect upon his past and interact with the physical and historical legacy of the area. The sea and the coast, together with the river and its surroundings, provide Damour with picturesque scenery of aesthetic and natural value. This is emphasized by the fact that the coast still preserves a relatively unspoiled and authentic natural character despite the fact that beach sand has been heavily quarried in the past.

Important industrial heritage: The silk factories of Damour are important reminders of the town's industrial history and achievements. Damour was well known in the 19th century for its silk production and trade, not only with neighbouring countries but also with the West. The industrial heritage of Damour survives somewhat melancholically in the remains of two ruined silk factories which testify to the past prosperity and richness of the area.

Important engineering feats and landmarks: Dating back to 1815, the construction of Damour's bridge involved a cost of 100.000 piastres (a sizable sum at that time) and required 150 master masons. This reference gives us an idea about the social and economic importance the place once had in the past. Damour's bridge is also significant to illustrate the glory of the local Emir Bachîr, who ordered its construction, together with several other public works. Emir Bachîr, followed the example of Asaad Pacha al-Aazem, whose 14 year ruling mandate was marked by the undertaking of several public works including a splendid palace and a commercial khan among others in Damascus. In 1806, the glory of the emir was further emphasized by the construction of his palace at Beiteddine. The bridge that we now see over the Damour river replaced the original bridge built by the Emir; it dates back to the French Mandate period.

The old aqueduct of Damour is contemporary with Emir Bachîr's building works in the area. This landmark feature supported the economy of Damour at that time. It was not only used to provide water to the area's agricultural lands, but also to its industrial facilities, namely the silk and glass factories. Although part of the aqueduct is in bad condition with some large sections rebuilt using cement blocks, in other areas it is in fairly good state requiring only some cleaning and maintenance.

Outstanding examples of fine historic buildings and traditional vernacular architecture: Damour still preserves some fine and unique examples of historic buildings reminiscent of a period of economic prosperity associated with the development of silk trade. These buildings maintain the sense of place and depict a fine level of craftsmanship characteristic of that period.
These architectural examples strongly contribute to the authentic character of the area. It is, therefore, of paramount importance to ensure that their natural character

and that of their immediate surroundings are maintained and preserved. Modern unsympathetic repairs and the use of inadequate materials are seriously threatening the authenticity and integrity of these structures.

Place with international significance linked to its past military history: The fact that Damour incorporates WWII remains such as a large waterfront fortification wall and installations cut in the mountain at the location of al-Hosn (al-Hamra area) testifies to the strategic importance of the place and the location where French forces under Vichi and Commonwealth armies fought the fiercest battles in Syria for the control of the region. The WWII remains incorporate as well the memorial to a French soldier visited lately by representatives of the French Embassy and members of his family.

Photo 12. Example of fine traditional architecture from Damour, from before the civil war.

11.2 Assessment of the condition of the cultural resources of Damour

Assessing the condition of the cultural resources of Damour helps identify the needs and requirements of the preservation of the resource in the context of management as well as reveals the range of practices that can be incompatible with conservation.

Heritage Resources	State of preservation and condition
Silk factories	Very bad, continuous decay and loss of fabric due to exposure to the weather without any provision for maintenance or conservation.

Glass factory	Very bad, building collapse and erosion of fabric. Unsympathetic use of part of the structure.
Vernacular and traditional architecture	Bad, due to neglect, lack of maintenance and unsympathetic repairs and additions.
Historic and landmark buildings	Bad to stable, due to neglect, lack of maintenance, abandonment and unsympathetic repairs and alterations.
WWII remains	Bad, due to lack of maintenance, regular truncation and loss of sections through construction activities, deliberate destruction, etc.

Based on the assessment of the condition of these resources, a number of interventions are necessary in order to plan for their conservation:

Heritage Resources	Proposed actions/interventions
Silk factories	Conservation of fabric and provision for a regular program of maintenance supported by the introduction of new uses to these structures. Interpretation and presentation of the remains to the public.
Glass factory	Excavation of collapsed remains, conservation of fabric and presentation of structure.
Vernacular and traditional architecture	Regular maintenance and removal of harmful additions. Adaptive reuse of abandoned structures.
Historic and landmark buildings	Conservation of features and regular maintenance.
WWII remains	Protection, conservation and maintenance of structures. Presentation to the Public in the context of an overall heritage management plan.

The five main key issues that must be dealt with in the proposals for the integrated management of these resources are:

- Extending protection to the resources of the place,
- Conserving the existing resources,
- Providing for regular maintenance of the resources based on proposals for adaptive re-use or presentation,
- Enhancing the quality of the heritage resources, increasing people's appreciation and enjoyment of their heritage,
- Making sure that the management of these resources is carried out in a sustainable way and that local economic benefits are extracted from the use of these resources in a sympathetic and sustainable manner.

Accordingly, management proposals for the cultural resources of Damour should try to accommodate these needs within the existing constraints and the available opportunities.

Any management policy for the town of Damour should be largely based on the conservation and enhancement of the place's cultural and natural heritage. Any enterprise or activity that does not guarantee the sustainability of the available resources of Damour's area constitutes a direct threat to its natural and cultural potential. The overall management policy for Damour should aim at conserving and enhancing the values of the place as outlined in the significance assessment. This is achieved through:

- Providing legal or administrative protection to the cultural resources of the place and its natural setting,
- Ensuring that development needs are balanced with the need to conserve the cultural heritage of Damour,
- Making sure that the process of decay and erosion of the cultural features is slowed down to an acceptable minimum,
- Encouraging the formation and training of local inhabitants in the management of the resources,
- Producing interpretative and presentational material to increase visitor satisfaction and education,
- Providing the necessary infrastructure for the development of cultural and eco-tourism in

11.3 Strategies for implementing a cultural heritage management policy

Ideally, Damour should attract that kind of visitors that can satisfy the economic expectations and the environmental requirements of the area, i.e., respecting not only the socio-economic structure of the place but also its community. There are a number of practices that put the management policy into implementation such practices are:

Recording and documentation	The need to document the historic buildings and landmarks, the WWII remains and industrial heritage. On-going process that could last for a long time. Its implementation requires however sufficient funds and the right expertise, the DGA as well as external funding agencies can contribute to the implementation of this task. Special training can be provided to local volunteers in order to assist in this task.
Conservation of the resources	Conservation of the cultural remains, some require serious consolidation works such as the silk factories, while others only need maintenance works such as the aqueduct. Financial commitment from the Municipality over a long period of time and the contribution of the local inhabitants in terms of volunteer labor and funds can be decisive in this case.
Extending legal protection	Applying for the listing of major historic buildings and landmark buildings such as the the aqueduct as well as the WWII remains and the silk factories. The Municipality should apply to the DGA for listing and should make sure that development does not affect the heritage resources negatively, consequently, there is a need to apply planning restrictions in some cases.
Control of impinging development	Through the provision of buffer zones, landscaping, planning regulations etc.
Encouraging Research	Research into the industrial history of the town and the WWII history of the area. This can be undertaken by interested historians or students supported by the municipality.
Visitor information and management	Upgrading sites to allow for visitor access and education, providing for visitor indications, brochures, maps and panels at the main intersections, access ways, as well as at the WWII remains, the Khan and the harbor. Visitors should benefit from a visitors' center if they are to understand how to visit the town and enjoy the cultural and eco-tourism offer.
Building capacities	Providing training sessions for staff that will care for the preservation and management of the resources of the place, such as the silk factory, a potential visitors' center, the WWII remains. This can be implemented with

	national and international agencies' support and training. Such programs can be organized through the DGA and in coordination with organizations such as UNESCO.

11.4 Visitors scenarios

Damour and its area enjoy great cultural potential, however, if we are to attract visitors to the place (both in the short and long terms), the mere construction of tourist complexes or resorts is not a solution nor is it desirable. Damour cannot (and should not) compete with hotels and other tourist facilities of nearby towns, specially bearing in mind that Beirut is only a quarter of an hour away from it. If we are to attract visitors to the area, this needs to be done in an intelligent and creative way, Damour as a cultural and natural attraction needs to be offered to the people as a *servuction* of facilities, information, interpretation, animation and other amenities. The key piece to ensure the success of any development strategy for a place is to provide visitors with a *differential offer*, something they can see and do in the area which is not available elsewhere.

Some of Damour's cultural heritage provides great opportunities for adaptive re-uses which could have positive effects on the community's sense of well-being and pride but also on the area's economy. Furthermore, it is important to keep in mind that adaptive re-use of cultural resources can strongly contribute to the place's enhancement through the re-investment of part of the generated funds in the conservation and rehabilitation of these resources; we are talking here mainly of the historic and vernacular architecture types.

Open spaces such as some sections of Damour's aqueduct, provide great locations for activities like local gastronomy, handicraft fairs and markets or for the organization of punctual art events. Such events represent important tourist attractions; they help bring heritage and traditions closer to the people, and if well managed, are excellent promotional means to make the area known. They also have very positive effects on local communities in terms of economic profits, strengthening of civic identity and local sense of pride, etc. Providing that maintenance and cleaning regimes are established and strictly implemented, the impact of such events on the heritage resources is minimal and can be easily monitored.

Some of the historic buildings situated in the center of town could become ideal community or cultural centers. But Damour has already a big architectural potential which could be used in the context of an open-air museum of buildings, where people go on promenades within the city, either on foot or on bicycles to contemplate the various examples of historic and vernacular architecture.
In addition to this, the well-maintained beaches of Damour can provide a recreational and relaxation space, which should be available to all inhabitants and visitors and not be restricted to the customers of beachside complexes.

12. Sustainable tourism

Ecotourism is defined as the "*tourism that consists in travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas*" (Hector Ceballos-Lascurain). Accordingly, ecotourism involves a broad spectrum of activities related to nature. At one end of this spectrum, some market segments are relatively small and well defined such as a specialized ornithologist or those who seek out rare species. At the other end, one might have people who casually observe and enjoy scenic beauty while on trips taken primarily for another purposes (Munasinghe, 1994). Ecotourism is seen as a form of alternative tourism. The more widely accepted understanding of alternative tourism is a one involving modes of tourism thought to be more benign with respect to their impacts upon the destination.

The main features of Damour are based upon:

- The landscape (sea, sandy beaches, Saadiyate rocky promontory, Damour river and valley, etc.);
- The spectacular panorama provided by the agricultural plain; and,
- The cultural and historical heritage.

Accordingly, Damour encompasses a wide range of products that could be used for promoting the town, especially through nature-based tourism. The three pillars upon which this kind of non-conventional tourism relies on are the beach, the coastal plain and the Damour River Valley.

The natural beach of Damour has an area of around 170,000 square meters (with a length of around 4 km, a width between a minimum of 20 m and a maximum of 90 m). This beach located between the green banana plantation and the blue sea offers a unique place, at national level, for luxurious sunbathing activities. Although sunbathing is usually associated with mass tourism, the natural beach of Damour is thought to attract a relatively few number of privileged tourists, who are willing to pay a relatively high amount of fees to enjoy such a uniqueness. The beach offers also possibilities for hiking.

The coastal plain of Damour, located between the highway and the sea, encompasses an area of around 1,950,000 square meters. Banana dominates around 70% of the area. The agricultural roads inside this plain present a total length of around 20 km and offer a great opportunity for biking activities.

Map 6. Natural beach and biking roads in Damour

The Damour River Valley is relatively wild and offers good opportunities for hiking and night wildlife-watching. The river banks located between the old bridge and the meeting point of the Safa and Hamam Rivers present a nice place for camping. The tents may be located either between the banana plantations and the river or between the river and the dense oak forest. The few old abandoned houses in the valley could be restored to accommodate tourists.

Agricultural products in the valley can be converted to bio-products to supply mainly the campers and hikers. Visitors to the Shouf Cedar Reserve, who have to drive the road along the valley to reach the reserve are also potential customers. The valley presents a good potential for bee keeping (currently, there is one farmer with 40 bee hives, mainly for household use[1]). Bee keeping would be encouraged if organic farming will be adopted in the valley.

Photo 13. Damour River Valley: Woodlands and abandoned houses

Map7. Biking roads and cropping patterns in Damour

12.1 Carrying capacity assessment

The perceptual carrying capacity of an area is not easy to establish since people have different tolerance thresholds. Therefore, the following assessment should be considered as a rough and subjective estimation[6].

The area of the natural beach of Damour is estimated to be 170,000 square meters. Because an alternative tourism is thought to take place on this beach, a low density of tourists is targeted. The following assumptions are made:

- 20% of the above mentioned area can be used for superstructure (kiosks) and as sunbathing areas; 5% of the remaining area is used for kiosks supplying food and drink;
- An area of 100 square meters (10*10) is allocated per two sunbathers.

Based on these assumptions, the carrying capacity of the natural beach of Damour would be around 2,600 persons per day.

As for the Damour Valley, the camping area is estimated to be around 150,000 square meters. If 50% of this area can be used for superstructure (tents) and if 500 square meters are allocated per one tent (4 persons), the carrying capacity would be 150 tents and 600 persons per day.

12.2 Touristic infrastructure and superstructure

[6] One should mention that these figures of carrying capacity should not be taken as an absolute value. The main objective of such calculations is to give an idea on quantitative estimation of a low density alternative tourism in the sites in question.

The existing support services for tourism in Damour is as follows:

- 1 clinic
- 5 gas stations, 3 of which offer car wash services and all offer oil change services
- 2 restaurants and 2 cafes are found along the Damour River.

Map 3: Camping area in the Damour Valley

Regarding touristic accommodation units, one should keep in mind that the conceived kind of tourism requires simple superstructure, integrated in the natural setting and preferably owned by locals. In this context, the transformation of abandoned historical buildings and traditional houses into accommodation units and restaurants would best match the needs of tourists and would ensure the flow of tourism benefits directly to the local community. For instance, the number of historic buildings and traditional houses amounts to around 15 in Damour. An important issue to be taken into consideration is the management of parking places. These places have to be located relatively far from the attraction in order to minimize the negative environmental impact on the resource in question, mainly fragile habitats like beaches.

12.3 Threat and constraints:

The major threat for potential alternative tourism in Damour is the irreversible loss of the agricultural coastal plain in favour of construction. The main current physical constraints facing tourism development relate to the lack of touristic accommodation

units and of organized parking places. In addition, the bad urban planning and unfinished buildings reflect negatively on tourism potential.

In order to enhance and sustain alternative tourism as a strategic choice for the sustainable use of natural resources and as an economic activity which can complement other economic activities taking place in Damour, the following points have to be taken into consideration:

- *Concerning land use*
- The agricultural plain has to keep its agricultural character and for this purpose, it has to be protected by legislation against construction. This could be through a low coefficient of land use for construction (less than 5% for example).
- The strict preservation through legislation of the natural beach bordering the agricultural plain.
- The declaration of the Damour Valley as a "specially protected area", mainly its part located between the old bridge and the meeting point of the two rivers: Safa and Hamam.

- *Concerning supportive policies for the preservation of the agricultural character*
- Regarding the agricultural coastal plain to be preserved, fees paid by tourists for using this plain for biking would present a small compensation for the benefits forgone. Additional support can come through extension services in order to reduce the cost of production and to improve the quality and the productivity.
- As for the Damour Valley agricultural lands, organic farming can be promoted; the geographical isolation of the Damour Valley combined with its potential for alternative tourism present good conditions for organic farming from supply and demand points of view. The high revenues of bio-products are expected to compensate the benefits forgone from alternative land uses.

- *Concerning implementing agents*

The involvement of the private sector in the implementation of the touristic superstructure is crucial for tourism development. The government is responsible of legislation related issues regarding land use and of improvement of the infrastructure. The media would play an essential role in the

13. Municipal Development Plan

Based on the different CAMP reports outputs as well as the community involvement (though weak in Damour), local agenda 21 principles and techniques were used to promote sustainable development concept among local communities at large and more specifically to be part of the municipal planning. Accordingly, the CAMP thematic recommendations were discussed with the municipal councils and local communities and consequently presented within a proposed municipal development plan.

Photo 13. Local communities meetings in the context of participatory programme activities.

Municipal Action Plan:
DAMOUR
2004

STRATEGIC OBJECTIVE	1**. INTEGRATED LAND USE MANAGEMENT.**				
Output	**1.1 Adoption of proposed municipal master plan and protection of agricultural plain.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Present master plan to community and get feedback.	Municipality	Land use plan for Damour	Community meeting		Refer to recommendations of CAMP report on land-use management
	Community				
2. Enforce protection of agricultural plain by prohibiting construction and finding alternatives for farmers to build in other areas of Damour.	Municipality	Land use plan for Damour	Municipal license	On-going	Refer to recommendations of CAMP reports
	Community		Municipal violation tickets	On-going	
Output	**1.2 Organization of road networks.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Specify entrance and exit to Damour and build in appropriate signs.	Municipality	Land use plan for Damour	Municipal license	First part of year 2004	Applicable to types of vehicles (cars, trucks, etc.)
			Municipal violation tickets		
2. Rehabilitate the existing access roads	Municipality	Land use plan for Damour	Suitable road materials	During year 2004	Useful to other purposes such as agrotourism

in agricultural plains.					
3. Prevent construction of trade shops on the main highway and encourage detours into the village for economic transactions.	Farmers Municipality		Municipal license Municipal violation tickets Signposts into Damour	On-going	Provision of adequate alternative places to farmers
Output	**1.3 Organization of the beach usages.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Consult the community on use of public beach for eco-tourism, promoting wooden kiosks and security facilities for swimmers.	Municipality Land use management expert Community	Public beach use and management plan	Community meetings	During first part of 2004	Awareness programmes should accompany consultation processes
2. Link sustainable beach tourism with agro-tourism and access to village for consumption.	Municipality Alternative tourism expert Community Private sector	Land use plan Alternative tourism management plan Signs	Community meetings	During 2004 – continued process afterwards	Private investors should be committed to sustainable development principles, and aware of benefits resulting from long-term green investments
Output	**1.4 Protection of and display of Damour cultural heritage.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	

1. Promote alternative tourism evolving on nature-based tourism, agro-tourism and cultural heritage	Ecotourism and cultural heritage experts	Alternative tourism management plan	Sites development	First part of year 2004	Enhancement of Damour façade visible to highway (painting dwelling facades, greening spaces, etc.). Refer to recommendations of CAMP cultural heritage and sustainable tourism reports
		Municipal tourism guidebook	Media involvement		
	Ministry of Tourism	Training local community groups on bed and breakfast services			
	Directorate of Antiquities				
	Community private initiatives				
2. Rehabilitate, upgrade and/or classify sites or building of natural, cultural or archaeological significance	Ecotourism and cultural heritage experts	Alternative tourism management plan	Sites protection	On-going	Refer to CAMP report on cultural heritage
	Directorate of Antiquities	Municipal surveillance			
	Ministry of Environment				
2. Set up a museum within the old silk factory to display the history of silk making in Damour.	Private owner	Alternative tourism management plan	Fund raising from international donor agencies	Starting 2004	
	Ministry of Tourism	Specific Plan for the rehabilitation of the silk factory		Initiation of the silk factory museum in 2006	
	Directorate of Antiquities	Memorandum of Understanding with the private owner			
Strategic objective	**2. CULTURAL HERITAGE MANAGEMENT.**				
Output	**2.1 Protection of historical and cultural sites.**				
Activities	**Resources needed**				**Remarks**

	Human	Information/Training	Logistics	Timeline	
1. Register and document historical buildings.	Municipality	List of buildings & map of Damour	Contact the Directorate of Antiquities	Mar-Sep04	Refer to recommendations of CAMP report on cultural heritage
	Directorate of Antiquities				
	Cultural heritage expert	Existing studies on cultural sites.	Stop any building licenses neighboring any of the sites	Continuous	
2. Restore historical buildings by supporting foundations of buildings (e.g. silk factory) or provide maintenance works (e.g. canals).	Municipality	Architectural plans	Traditional materials	Starting mid-2004	
	Directorate of Antiquities	Specific information related to certain aspects of restoration techniques			
	Cultural heritage management expert		Funding resources		
	Community volunteers				
	Funding agencies				
	Sites private owners				
3. Ensure protection of relevant cultural sites by integrating the existing cultural sites in Damour within the national list at the Directorate of Antiquities.	Municipality	Detailed map of historical buildings (silk factory, canals, World War II ruins)	Classification of relevant sites	Starting mid-2004	
	Directorate of Antiquities		Increase guards		
	Ministry of Tourism		Continuous collaboration with the Directorate of Antiquities		
	Cultural heritage expert				

	Non Governmental organizations				
4. Promote historical research about the traditional industrial aspects of the village and the link between history of village and WWII.	Municipality support	Existing material	Exhibitions at the municipal entrance	Starting September 2004	
	Historian students	Pictures	Contacts with universities		
	Cultural heritage expert	Old maps of Damour			
	International cultural heritage institutions				
Output	**2.2 Protection of aesthetic sightseeing areas.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Limit haphazard urban growth and construction by declaring some areas as specially protected sites and to integrate these areas within land use management plans.	Municipality	Land use management plan of Damour	Designation of the specially protected areas	On-going	Refer to results of the CAMP thematic activity on “Marine conservation areas”.
	Directorate of Antiquities		Limitation of construction licenses in these sites		
	Ministry of Tourism	Awareness campaigns to local communities	Contact and collaborate with DGUP		
	Cultural heritage expert	Legal texts or ministerial decrees			

	Directorate General of Urban Planning				
	Ministry of Environment				
2. Renovate 2 pilot houses and use as tourist dwellings for benefit of local owners.	Heritage architect	How to run a tourist dwelling.	Selection of 2 houses	Aprl-Jul04	
	Local owners	Training on tourism services	Agreement with owners		
	Private sector	Brochure promoting B&B in Damour	Traditional material used in construction		
3. Improve panoramic view of Damour city (highway side) through dwellings painting and streets greening	Municipality	Architect	Traditional colors and vegetation	Starting mid-2004	Take into account the design of the core town
	Non Governmental organizations	Landscape designs			
	Local communities	Old pictures and maps			
Strategic objective	**3. DEVELOPMENT OF ALTERNATIVE TOURISM AS A SUSTAINABLE ECONOMIC USE OF COASTAL RESOURCES.**				
Output	**3.1 Protection of the public beach and promotion of low impact tourism on natural resources.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Promote the concept of sustainable tourism among the local community at large	Municipality	Seminars and workshops	Entrance fee kiosk	Continuous	For small number of tourists at higher entrance fees.
	Ministry of Tourism	Tourist conduct signposts	Municipal police		

2. Protect the beach as public property within the municipal eco-tourism initiative	Ministry of Environment	Continuous awareness campaigns	Wooden kiosks	Continuous	20% of 170,000m2 to be used for superstructure kiosks and sunbathing area, 5% of remaining area for food and beverage kiosks run by community members. The involvement of the private sector should be encouraged provided the public beach does not encounter long-term constructions, and public access ensured.
	Alternative tourism expert	Media coverage	Accommodation of approximately 2,600 visitors/day.		
	Non-governmental organizations & youth participation	Brochures and booklets			
	Private sector				
Output	**3.2 Protection of agricultural plain and promotion of agro-tourism.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Prohibit any construction on agricultural plain.	Municipality	Land use management plan	Municipal violation tickets	On-going	The involvement of the private sector should be encouraged provided the agricultural plain does not encounter long-term constructions. Plantations in the plain are not subject to cutting.
	Farmers	Alternative tourism			
2. Use agricultural access roads (total of 20km2) to promote cycling with possibilities to stop by farmers' kiosks to buy produce.	Municipality	Access roads map	Signposts for tourists	starting mid-2004	70% of crops grown is bananas
	Farmers	Rehabilitation of agricultural roads	Media coverage		Assistance to some locals should be provided in order to open a bicycle-renting shop.
	Alternative tourism expert		Appropriate packaging		
	Non-governmental organizations		Training populations		
	Private sector				
3. Promote organic farming to attract tourists and higher prices for produce.	Municipality	Bio produce guidelines	Signposts for tourists	On-going	One of the possibilities is beekeeping.
	Farmers	Training on organic farming	Leaflets for tour operators		

	Alternative tourism expert	Media coverage			Agricultural chemicals used in the plain and valley should be gradually reduced.
	Non-governmental organizations	Continuous laboratory tests and inspection for quality control	Appropriate packaging		The creation of agricultural bio-cooperative should be encouraged and assisted.
	Private sector		Labeling Damour products		Green activities should be conceived to increase local and European tourists frequent visits
Output	**3.3 Declaration of Damour River Valley as natural protected area by law.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Declare River Valley as a specially protected area.	Municipality	Law document	Signposts	Starting end of 2004	The Damour River Valley has been declared as site under protection (MoE decision no. 97/1, 1998).
	Ministry of Environment	List of available fauna and flora	Stop illegal tourism activities on the river borders		
	Non governmental organization	Management plan	Protect river resources from various pollution sources		The protection of the Damour River valley requires continuous coordination and collaboration among the municipalities of towns and villages bordering the river
2. Promote hiking and night animal gazing in the Damour river valley.	Municipality	List of tour operators	Signposts	On-going	Refer to recommendations of CAMP report on sustainable tourism.
	Tour operators	Leaflets	Definition of areas eligible for night grazing activities	Starting mid-2004	Abide by Carrying Capacity Assessment per site.
	Ministry of Tourism	Awareness campaigns about Damour River Valley value	Definition of camp sites and seasons		
	Ministry of Environment		Construction of necessary infrastructure for camping		

	NGOs Schools				
3. Promote eco-tourism camping.	Municipality	List of tour operators	Signposts	Mar-Sep04	On-going
	Tour operators	Leaflets	Definition of camp and hiking sites and seasons Construction of necessary infrastructure for camping		The proposed sites include areas located between old bridge and meeting point of Al Safa river and Al Hamam river, or between banana plantations and river, or between river and thick oak tree forest.
	Ministry of Tourism	Map of area			
	Ministry of Environment				
	NGOs				
	Schools				
4. Renovate old houses in the valley and use them as eco-lodges or kiosks for organic produce to sell bio-products to ecotourists.	Municipality	Architectural plans.	Signposts		Potential tourists are those that go up to Chouf Cedar Reserve or to cultural/archaeological destination in the Chouf area.
	Architects	Rehabilitation and equipment of eco-lodges and/or kiosks	Appropriate material		
	Organic farmers		Access roads		
	Community owners		Appropriate media coverage		Carrying capacity assessment should be carried out to preserve such sites.
Output	**3.4 Participation of community, NGOs, private sector and concerned agencies to market alternative tourism in Damour.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Awareness raising within community and promotion of private initiatives.	Municipality	Alternative tourism examples/ lessons learned in Lebanon	Community meetings	Starting mid-2004	In case of non-availability of NGOs or eco-tour operators in Damour, collaboration with NGOs and/or eco-tour operators from neighboring villages or town is advised.
	Alternative tourism experts				
	Private sector	Capacity building			

	Community	Technical assistance			
2. Encourage eco-tourism and agro-tourist experts to develop local tourism plans with community.	Municipality Alternative tourism experts Community	Alternative tourism examples in Lebanon	Credit facilities	Starting mid-2004	There are several national NGOs that are currently promoting ecotourism and agrotourism concepts by providing financial or technical assistance in order to launch or expand an ecotourism initiative. Such NGOs are the NGOs benefiting from USAID funds.
Strategic objective	**4. INTEGRATED WATER RESOURCE MANAGEMENT (IWRM)**				
Output	**4.1 Develop further water resources monitoring capacities to stop over-exploitation, and to promote water conservation by adequate pricing of water costs.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Municipality to monitor quantity of surface water available for irrigation from Damour river by installing a monitoring device in main irrigation canals leading to the agricultural plain.	Municipality Water resources expert. Concerned Water Authority	Train one municipal worker how to take samples. Regular analysis Sample tracking file	Cost of monitoring device $5000	Regularly	Refer to CAMP report on Integrated Water Resource Management
2. Municipality to monitor quality of river water reaching the irrigation the agricultural plain and to what extent it is appropriate for irrigation.	Municipality Laboratories Litani Water Authority	Train one municipal worker how to take samples. Regular analysis	Cost of analysis $50/sample	Regularly	Refer to CAMP report on Integrated Water Resource Management

		Sample tracking file			
3. Municipality to monitor quantity of water extracted from underground aquifers and the degree of intrusion of different waste sources in the water network.	Municipality Water Authority	Train one municipal worker how to take samples. Regular analysis Sample tracking file	$100,000-$120,000 for water metres	Regularly	monthly basis This required continuous mechanism for sharing information with Water Authority and installing water meters on household consumption networks. Refer to CAMP report on Integrated Water Resource Management
3. Municipality to monitor the mixing of underground water with seawater and the possibility of pollution.	Municipality Water Authority	Train one municipal worker how to take samples. Regular analysis Sample tracking file	$35 per sample	Regularly	once every month This matter requires continuous coordination with Beirut Water Authority and Ein El Delbeh, and by analyzing underground water. Refer to CAMP report on Integrated Water Resource Management
Output	**4.2 Resolution of conflicts over use of water resources.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Create a committee of water resources in the Damour River Basin.	Municipalities in Basin Ministry of Water & Energy Beirut Water Authority Barouk Water Authority Engineers	Updated information on water resources use, quantity and quality.	Regular information sharing	on-going	Refer to CAMP report on Integrated Water Resource Management

	Farmers				
	Private sector (tourism, etc.)				
2. Halt over exploitation of underground aquifers in Damour by information sharing and negotiation with Beirut Water Authority, based on objective data and studies showing high salt intrusion.	Municipality	Research studies and expert opinions.		on-going	Refer to CAMP report on Integrated Water Resource Management
	Ministry of Water & Energy				
	Beirut Water Authority	Community complaints			
	Engineers	Records of metre analysis			
Output	**4.3 Protection of water quality.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Treat household wastewater to prevent more pollution of surface and underground water by looking at alternative government funding sources.	Municipality	Alternatives such as CDR proposition to link Damour network to treatment plant in Jiyyeh.	Maintenance information and provisions	Feb-Dec04	Refer to CAMP report on Integrated Water Resource Management
	CDR				
	Donors (EC, USAID, others)				
2. Stop exploitation of underground aquifers that causes salt intrusion, and pollution in the higher parts of the river as a result of abuse.	Municipalities in River Basin	Research studies		Continuous	Refer to CAMP report on Integrated Water Resource Management

	Water Authorities	Community complaints			
	Ministry of Environment				
	Ministry of Energy & Water				
3. Improve agricultural and irrigation methods through farmer training on best alternatives especially with regards to the use of chemicals and fertilisers.	Municipality	Educational material	Regional Agricultural Facility Access	on-going	
	Ministry of Environment				
	Ministry of Agriculture				
	Syndicates of Farmers				
	Litani Water Authority				
	Funding agencies and institutions				
Output	**4.4 Water resources awareness and conservation through promoting local committees**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Raise awareness about importance of installing water meters to monitor consumption and waste.	Local Committee established during CAMP.	Awareness raising material	Meetings/workshops	Continuous	Refer to lessons learned of the Participatory programme about establishing local committees
	Non-governmental organizations				

	Water resource expert				
	Municipality				
2. Raise awareness about ways to preserve water (including maintenance).	Local Committee established during CAMP.	Awareness raising material	Meetings/workshops	Continuous	Refer to lessons learned of the Participatory programme and IWRM workshops about establishing local committees for water conservation
	Municipality				
	Water resource expert				
3. Organize an agricultural information center	Local Committee established during CAMP.	Awareness raising material	Meetings/workshops	During 2004	For optimum results, this center should be localized within or at proximity of the agricultural plain.
		Data and Information collection	Facility		
	Syndicates of Farmers	Training in communication skills	Management resources		
	Experts of various backgrounds		Funding resources		
	Municipality				
4. Develop the Damour River Basin Committee to manage water resources in the Basin and to monitor abuses and environmental consequences.	Municipalities in River Basin	Existing research	Meetings/workshops	Jan. 2004	on-going
	Water Authorities	Legal references			Ministry of Environment should be periodically involved.
	Community members				
	Litani Water Authority				

	Barouk water authority				
	Engineers				
5. Help to resolve conflicts arising out of water resource use and abuse.	Local Committee established during CAMP.	Awareness raising material	Meetings/workshops	Mar. 04	on-going
	Experts in conflict resolution				
6. Coordinate with municipality on water related issues and environmental protection.	Local Committee established during CAMP.	Awareness raising material	Meetings/workshops	Mar04	on-going
	Municipality				
	Non-governmental organisations				
	Ministry of Environment				
Strategic objective	**5. SOCIO-ECONOMIC DEVELOPMENT.**				
Output	**5.1 Protection of natural and aesthetic scenery to promote higher land prices, encourage the use of Damour hills as a residential areas of high scenery value, and generate income to invest in agriculture.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Preserve the agricultural plain as productive land and an area that offers aesthetic scenery so near to Beirut, making it an attractive residential area.	Municipality	Land use management plan	Municipal violation ticket	Jan. 2004	on-going

	DGUP	Marketing			
	Farmers		Municipal license		
	Private sector				
2. Limit urban growth from east of highway, and preserve agricultural lands between highway and old road.	Municipality	Land use management plan	Municipal violation ticket	Jan. 2004	On-going
	DGUP				
			Municipal license		
3. Adopt land use management plan that allows for the exchange of tall haphazard buildings for compensation or an alternative piece of municipal land, and ensuring few constructions on the hilltops of Damour (similar to Meshref).	Municipality	Land use management plan	Municipal violation ticket	Jan. 2004	on-going
	DGUP				
			Municipal license		
4. Limit buildings between the sea and highway in Saadiyat to classify it for limited villas to attract big residential investments.	Municipality	Land use management plan	Municipal violation ticket	Jan. 2004	on-going
	DGUP	Marketing			
			Municipal license		
Output	**5.2 Transportation networks and management of beach and River Valley that create economic links between tourists and community of Damour.**				
Activities	**Resources needed**				**Remarks**

	Human	Information/Training	Logistics	Timeline	
1. Municipality to provide access to the beach and Damour River Valley by municipal transportation and to collect entrance fees to potential specially protected areas (beach and Damour River Valley) which it can then use to invest in agricultural activities and link farmers to eco-tourism cycle in Damour.	Municipality	Village map	Signposts	Starting end of 2004	on-going
	Farmers	Land use map	Media coverage		To restrict cars in parking lots close to village, to encourage economic transaction.
	Community members	Marketing leaflets	Information center		
	Private enterprises	Awareness campaigns			
	Tour operators				
Strategic objective	**6. LOCAL PARTICIPATION IN COMMUNITY DEVELOPMENT**				
Output	**6.1 Participation of men, women and youth in community priority setting and initiatives**				
Activities	**Resources needed**				**Remarks**
	Human	**nformation/Training**	**Logistics**	**Timeline**	
1. Involve members of the community in priority setting for community development through local group formations, meetings with NGOs and active members in the coastal area	Municipality	Draft municipal priorities	Community meetings	continuous	Establishment of a Local Agenda
	Farmers	Recommendations of CAMP Project			
	Community members	Awareness campaigns			

	Private enterprises				
	Tour operators				
2. Support local groups and individuals in taking up community initiatives and join activities with municipality and other NGOS	Municipality	Municipal Action Plan		Continuous	Establishment of a local agenda
	Local Community Members	Information on similar initiatives			
	NGOs				
3. Support implementation of project ideas identified by youth group: developing ecotourism beach activities and preparing banana festival in old silk factory	Municipality	Youth group written plan	Resources needed for implementing activities	Continuous	Establishment of a local agenda
	Local community members	Detailed plan of activities, budget and partners	Fundraising		
	NGOs				
	Cultural heritage expert				
	Sustainable tourism expert				
Output	**6.2 Municipal members are supported through training, information sharing and networks**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	

1. Ministries, NGOs and experts to support municipal members in municipal action planning, fundraising, documentation and mobilizing community members for local development.	Municipality	Skill needs identification	Training workshops	On-going	
	Community development experts	Municipal development resources			
2. Municipal members to participate in relevant workshops with other municipalities and to select model projects or activities for implementation locally.	Municipality	Lessons learnt from other municipalities.	Exploration visits	On-going	
	NGOs		Experience sharing meetings		
	Municipality Unions				
Strategic objective	**7. MUNICIPAL SUSTAINABILITY INDICATORS DEVELOPED AND MONITORED.**				
Output	**7.1 Local sustainability indicators developed, monitored and reflected in municipal action plan.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	

1. Municipality to set annual plan to monitor list of indicators.	Municipality	Draft of municipal priorities	Community meetings	on-going	Refer to list of indicators developed by CAMP-Lebanon project
	Thematic experts				
	Laboratories				
	University students				
2. Annual review of indicators and historical data collected.	Municipality University students	List of SPSA indicators	Monitoring tracking file	On-going	Check intervals for monitoring in list
	Thematic experts				
	Related ministries				
3. Municipality to integrate sustainability indicators in its annual municipal action plan and to regularly review indicators in light of new developments.	Municipality	List of CAMP indicators		On-going	
	Thematic experts	Municipal action plan			
	Related ministries	Historical data of indicators			
	Universities				
	Local community				
Output	**2. Advocacy and media plans around sustainability indicators implemented for positive change.**				
Activities	**Resources needed**				**Remarks**
	Human	**Information/Training**	**Logistics**	**Timeline**	
1. Municipality to carry out advocacy plan with related ministries and authorities.	Municipality	Advocacy action plan	Planned meetings and pressure group sessions	On-going	Review dates of plan
	Thematic experts				

	Related ministries				
2. Involve media in shedding light on priority indicators and strategies to promote positive change at local coastal levels.	Municipality	Advocacy action plan	Press releases	On-going	Review dates of plan
	Thematic experts	Current historical data	TV programmes		
	Related ministries				
	Media				