



## **Sectoral and Cross-Sectoral Integration of Biodiversity in Lebanon**

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## 1. Introduction

Lebanon reported<sup>1</sup> that Article 6(b) of the Convention on Biological Diversity (CBD) states that each Contracting Party shall with its particular conditions and capabilities, integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral and cross-sectoral plans, programmes and policies.

The National Biodiversity Strategy and Action Plan (NBSAP) developed by the Ministry of Environment (MoE) in 1998 with the support of UNDP/GEF has included in its Action Agenda many actions aiming at the conservation and sustainable use of biodiversity which are related to different sectors and that fall under the responsibilities of many ministries and institutions such as the Ministries of Agriculture, Energy and Water, Education, Communication, Public works and Transport, Interior and Municipalities, Tourism etc... in addition to research institutions, academic institutions and NGOs thus providing the basis of mainstreaming biodiversity considerations into other relevant sectors such as agriculture, fishery, forestry, urban planning, tourism, industry etc...

Representatives from the concerned mentioned institutions were part of the steering committee that supervised the development of the NBSAP which lasted for one year and involved 12 national experts and two international consultants.

One of the main challenges in its implementation was the involvement of the other different concerned ministries besides the Ministry of Environment, in the implementation of the activities of the NBSAP that fall under their prerogatives thus the integration by these concerned institutions of the conservation of biodiversity and sustainable use into their plans and programmes.

The principle of biodiversity protection was adopted by the law for the Protection of Environment (Law No.444 dated 29/7/2002). The principle stipulates that all activities should avoid causing damages to the different components of the biodiversity.

In addition, the law 444 has dedicated an entire chapter for the management of natural resources and conservation on biological diversity - specifically articles 47 to 49 which call for the protection and sustainable use of biodiversity, the establishment of nature reserves, regulating access to genetic resources and for public participation as well public and private institutions participation in the conservation of biodiversity and the sustainable use of natural resources. Furthermore, the Law for the Law 444 endorsed the EIA principle in its article 4; the law states that this principle should be used as a planning and management tool for preventing pollution and minimizing degradation of natural resources. Impact Assessment was addressed in particular through articles 21, 22 and 23 of the law.

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<sup>1</sup> Lebanon (2009). Fourth National Report of Lebanon to the Convention on Biological Diversity, Ministry of Environment, July 2009, 243 pp.

With regards to other sectors besides the environment, this note provides a description of the extent to which biodiversity has been integrated into relevant sectors and cross-sectoral plans, programmes and policies. The chapter reveals that some programmes have mainstreamed environmental considerations but most of them didn't not tackle specifically biodiversity, some others have addressed biodiversity among other environmental components and some has not integrated even significantly environmental considerations.

## **2. Government Policy Statement: (2008-2009)**

The Government Policy Statement issued on 5/8/2008 has included an entire section related to the environment, this section covered nature resources and green cover but not specifically biodiversity.

The statement affirmed that "The Government of Lebanon is keen at protecting Lebanon's natural resources as it is concerned in providing a good life quality to the Lebanese generations, present and future. That is why the Government shall seek to establish a sustained environmental development through supporting the cooperation between the private and the public sector locally, regionally and internationally, as well as incorporating environmental principles in the policies and programs of all development sectors, and activating the legislation, monitoring and guiding role of the Ministry of Environment".

In addition the Government confirmed in its statement that "On the international level, the Government shall continue implementing and concluding environmental conventions, treaties and protocols". In relation to the green cover and water resources, the Government states that "The Government shall seek to expand Lebanon's green cover through strengthening the management (both prevention and fighting) of fire catastrophes and forestation, land rehabilitation, and protection of Lebanon's water capita as a basic economic resource"

## **National Plans, Policies and Programmes related to main sectors**

### **3. Forestry**

#### **The "National Reforestation Plan"**

The "National Reforestation Plan" (NRP) prepared by the Ministry of Environment in 2001 and executed till then, has referred explicitly to the Convention on Biological diversity and took into considerations its provisions. The NRP has only allowed the use of indigenous forestry species in the reforestation activities prohibiting the use of any alien species and has specified the native species to be used in the reforestation activities in each site according to the ecological criteria and the climate and the soil characteristics in the related ecosystem.

In addition, the NRP prohibited any techniques during the land preparation that may cause any loss or harm to the biodiversity in the site, by stating that "During the land preparation, we must conserve the biological diversity by minimizing as much as possible the extraction of the existing wild plants in the site  
"

It should be noted that the NRP mentioned in its first section related to the current status of degraded lands and forests in Lebanon, the threats that the biodiversity is facing due to the habitats loss, as one of the need for the development and execution of the NRP and it has highlighted the importance of habitats protection to ensure the survival of animal and plant species and their multiplication.

### **The “National Strategy for Forest Fires”**

The “National Strategy for Forest Fires” in Lebanon developed in 2009 by the Ministry of Environment, IUCN, and a local NGO “the Association for Forests, Development and Conservation” (AFDC) has promoted the prevention and combating of forest fires and rehabilitation of degraded lands and the enhancement of synergy and coordination between all concerned institutions responsible for forests and forest fires in Lebanon. Accordingly, the Strategy promoted the conservation of forest biodiversity and ecosystems and the mitigation of the threats to natural forest habitats and species.

The National Strategy was officially endorsed by the Council of Ministers in May 2009 and the future steps will be the implementation of the Strategy through the execution of its various activities.

General Status of forest biodiversity:

Despite the efforts deployed for launching and promoting awareness among local communities on the importance of forest biodiversity being a source of income, there is no real implementation of project aiming at sustainable use of forest resources. Therefore still the resources are over-exploited. Although three conventions have been ratified in this regard (Convention on Biological Diversity, Combating desertification convention and Climate Change convention) still there are constraints related to the enforcement of laws related to forest management and exploitation and the mainstreaming of action plans into implementation of activities. Given the shy initiatives undertaken, more coordination among ministries, scientists in addition to providing needed equipments are needed to promote effective sustainable use of forest biodiversity.

Some studies were undertaken in relation to sustainable use of forest biodiversity for example within the frame of the bio- prospection project at AUB and through the initiatives of some private NGOs.

Overall, there is a strong need to mainstream the efforts into a comprehensive strategy for forest management.

## **4. Hunting**

The Hunting Law

The Hunting Law (Law no. 580 dated 25/2 /2004) has integrated sustainable hunting in Lebanon and has referred explicitly to abide to the biodiversity related Conventions and Agreements and their provisions. The law states that defining hunting season and the permitted time for hunting, shall take into consideration the principle of sustainability of natural heritage stipulated in the international conventions ratified by Lebanon. Furthermore, the law requires that during the identification of animal and bird of prey, animal and bird species for which hunting is totally banned, special ban must be done

for bird & animal species that are useful for the ecological balance or for the purpose of increasing their numbers locally or for the globally threatened species listed in the relevant international conventions ratified by Lebanon and those listed in the IUCN Red list.

The Law states as well that, with the aim of conserving the biological diversity and the ecological balance, decisions shall be taken regarding the establishment of breeding centers for various wild birds and animals on the condition that these species must be native species or migratory species that cross Lebanon during their natural migratory routes specifically the threatened species for the purpose of increasing their numbers and then release them back to the wild.

The Hunting Law also prohibited in any season to snatch nests, or take, destroy, sell, buy, transport, grab, or hurt eggs, chicks, or juveniles' wild animals. Moreover the Law prohibited the export of eggs or the new offspring of any wild bird or animal (except for the wild animals that are bred in farms) as well as the young of furred animals. Moreover, the hunting law banned the export of hunted preys without a special permit from the Ministry of Environment.

The Law allowed only for scientific researchers to capture wild animals or birds for research reasons on the basis to release back these species to the nature alive and unharmed, also scientific researchers are allowed to take eggs for research purposes, these researchers should obtain a special license based on an application submitted to the National Center for Scientific Research.

## **5. Agriculture**

### **Agrobiodiversity**

In relation to the conservation and sustainable use of agricultural biodiversity, Lebanon has proved its ability to elaborate on policies, strategies and national plans however what is lacking is a long term vision with clear setting of priorities; implementation of activities and the adaptation of various components related to a certain sector into the different hierarchical systems of ministries and institutions.

With grant funding from the GEF, Lebanon was part of a regional project (Jordan, Palestine, Lebanon, and Syria) on the "Conservation and Sustainable Use of Dryland Agrobiodiversity in the Near East". This five-year project (1999-2004) was implemented in Lebanon by the Lebanese Agriculture Research Institute (LARI) and UNDP and brought together several international organizations. Implementing partners included several local academic and research institutions and NGOs. Many experts were involved in this project to characterize the floristic richness and study the genetic diversity and potential uses of selected species. The project aimed at promoting the conservation and preservation of important wild relatives and landraces of agricultural species by introducing and testing in-situ and on-farm mechanisms and techniques of conservation and sustainable use of agrobiodiversity in three pilot sites located in mountainous dry areas in Lebanon.

The Agrobiodiversity project prepared a study that proposes the mechanism for the national domestication of international conventions and agreements, through a thorough review of international

conventions and agreements related to the conservation and sustainable use of agrobiodiversity, that have been ratified by the Lebanese government or that are expected to be ratified in the future. It has worked on the establishment of national plant genetic resources (PGR) programme in Lebanon. The objective of this PGR programme is to regulate the conservation and exchange of the national plant genetic resources by setting the scientific, administrative, institutional and legal framework for this sector, in the light of the international and regional relevant agreements and conventions that were ratified by Lebanon. However this PGR programme was not executed yet. On the other hand, the project formulated policy options at the farm-household, community and national levels that promote sustainable agrobiodiversity conservation and sustainable management of natural resources. Those recommendations for policy options were followed up by a scientific committee within LARI, however no real follow up nor implementation of these recommendations were done because of lack of financial and human resources for proper execution.

Aiming to secure sustainability for the agro biodiversity project, a follow up committee was created at LARI, as well as the staff in LARI followed intensive trainings for capacity building, and a special unit concerned with agro-biodiversity was created at LARI, along with an agrobiodiversity awareness unit.

The project has also mainstreamed the use of wild fruit tree species in national reforestation programmes and promoted the introduction of biodiversity in education curriculum, by making available a Curriculum guide that was presented to the CRDP ( National Center for Research and development) which is related directly to the Ministry of Education and is responsible for updating the Lebanese curricula.

The Agro-biodiversity project has also prepared two proposals that were submitted to GEF for funding, on basis of the achievements of the project, one of which is related to “Mainstreaming Biodiversity management considerations into medicinal and aromatic plants production processes” (simply known as Medicinal plant project).

The project "Mainstreaming Biodiversity Management Considerations into Medicinal Plants Production Processes" started in July 2008 for a period of 4 years project and is executed by the LARI and UNDP. The purpose of the project is to create a network of small community based enterprises who would work as a center for collecting and distributing the fresh material collected from the wild, and to introduce a certification system for sustainable harvesting of wild medicinal and aromatic plants, builds on the general rules adopted by IUCN and WWF. The overall objective is to integrate conservation objectives into the gathering, processing and marketing of globally significant Medicinal and Aromatic Plants (MAPs) in Lebanon.

The project will basically follow the ISSC-MAP standard, on order to better ensure the longterm sustainability of MAP in their natural habitats while respecting the traditions, cultures, and livelihoods of all stakeholders. ISSC-MAP serves to provide a framework of principles and criteria that can be applied to the management of MAP species and their ecosystems, and serve as a basis for monitoring and

reporting on these species, and recommend requirements for certification of sustainable wild collection of MAP resources.

The project foresees several actions aiming to mainstream biodiversity considerations into the medicinal plant production processes mainly through for collectors on plant identification and sustainable harvesting techniques.

On the other hand, following the 2006 July conflict in Lebanon, a project on “Promoting Cultivation of Medicinal and Aromatic Plants for Livelihood Recovery in South Lebanon” was launched. This project derives from the south recovery plan targeted areas in which livelihood was negatively affected by the widespread problem of cluster bombs, including those who depend on additional income generation from the collection, primary processing and marketing of Medicinal and Aromatic Plants (MAPs).

MAP cultivation can be an alternative for wild harvesting in affected areas, offering high level of yield with minimum inputs, in particular cultivation of *Origanum syriacum* (Origano) and *Salvia fruticosa* (Sage), two MAPs in Lebanon of significant economic value.

### **National Agriculture Strategy**

Lebanon’s agricultural policy is, as in many other countries, conceived within the overall national economic policy framework. While, agriculture is considered as an important and critical economic sector, no special or specific policies were developed that contradicted or deviated from the general liberal and non-interventionist economic policy stance. Lebanon has pursued a liberal economic policy ever since independence. This policy restricted the government to the development of the required social infrastructure and to maintaining a policy environment favorable to free trade. The public sector invested heavily in building an extensive infrastructure of trade routes, ports, airports, warehouses, and an excellent communication network. Unfortunately, this same policy framework also required the government to restrict its activity in promoting competing commodity producing sectors or regions that could undermine the dominance and the free flow of imports. The accepted liberal policy framework also called for a pro free trade, pro business policy environment with minimal government interference, low or no income taxes, bank secrecy laws and a free foreign exchange market.

In 2004, the Ministry of Agriculture, in the frame of the FAO/LEB 016 project, has published a five years “Strategy for Agricultural Development in Lebanon”. This strategy recognizes the need to account for the impacts (positive and negative) of current agricultural practices on natural resources and on biodiversity. It specifically stresses on the need to develop agriculture in respect with the conservation of both natural resources and biodiversity in line with the carrying capacity of marginalized lands. The Ministry of Agriculture is currently planning to start soon revising and updating its Strategy for Agricultural Development.

Moreover, the LARI, has developed in 2006 a Global Plan for genetic resources, aiming to establish a national information Sharing mechanism on the implementation of the global action plan on plant

genetic resources. The action plan was ready since 2006, but the unstable socio economic events that overruled in Lebanon since 2006, seriously delayed its effective implementation.

### **Examples of other Projects related to Agriculture**

In Lebanon, organic farming is being applied through different projects and initiatives implemented by various academic institutions, international organizations and private initiatives thus promoting agriculture practices with less negative impacts on environment and biodiversity, one example is the three year programme executed by World Vision and the United States Agency for International Development (USAID) and achieved in 2008. This programme helped hundreds of Lebanese farmers grow organic agriculture in Lebanon. The programme - called the Sustainable Agri-Business Initiative for Lebanon - directly helped 800 farmers and over 4500 people in total.

On the other hand, another programme called CEDARSplus funded by USAID and CHF (Cooperative Housing Foundation) in the north and by USAID, CHF and Mercy Corp in the south has an underlying strategy aiming at increasing the quality of olive oil to meet international standards and promote market diversification by targeting high-valued niches.

The programme activities are designed to increase yields and improve processing efficiencies.

The “Export Plus Program ” that was launched by the Lebanese Government through Investment Development Authority of Lebanon (IDAL) in 2001, based on the decree number 6041/2001, aiming at supporting the Lebanese agricultural exports is still in place. Of this program’s aims:

- To supervise the quality of agricultural exports and ensure compliance with international standards, and
- To transfer technology & know-how to farmers and exporters.

The Export-plus Program minimizes detrimental impact on the environment, reduces the use of agrochemicals, promotes organic farming and improves the efficiency of natural resource use.

## **6. Fishery**

The law for fisheries in Lebanon dates back to 1928, and since 2004 the Ministry of Agriculture has worked with the FAO to update it on basis of field data collection. A draft amended law, including list of allowed and banned species, as well as fishing seasons and methods, was prepared and submitted to fishermen and cooperatives of fishermen to seek their comments, but to date, no consensus has been reached related to this draft amended law. Moreover, many constraints are preventing this draft law to move forwards and the statu quo is still the ongoing status of this text.

On the other hand, the MoA has issued many decisions regulating fisheries practices that prohibit the use of trawling nets or putting specific criteria to the trawling nets, prohibit fishing by dynamites and shotguns, defining the type and instruments of fishing, defining specific legal size of fishes and mollusks that are subject to fishing, transport, purchase and import.

These decisions if well enforced contribute to the sustainable fishing of marine species and their conservation.

In relation directly to endangered and rare marine species, the MoA has banned through decision No. 125/1 dated 23/9/1999 the fishing of whales, monk seal and marine turtles in all the Lebanese coast, and the trade of these species or their derivatives.

However, what is needed is the effective enforcement of all the above mentioned ministerial decisions.

On another hand, following the July 2006 oil spill catastrophe that occurred along the Lebanese coasts resulting from 2006 war, an International Assistance Action Plan on Lebanon marine and coastal oil pollution was prepared by the experts working group for Lebanon supervised by REMPEC. The clean-up activities undertaken under this action plan have indirectly benefitted the fisheries sector and biodiversity marine habitats.

The clean up process was not specifically assessed in terms of impact on biodiversity except on Palm Island Nature reserve which was harshly affected by the oil spill. However, precise assessment of the impact of the oil spill and the clean up was not possible since pre and post status were evaluated by different methodologies and approaches which renders comparison almost impossible. Nonetheless, the American University of Beirut in 2007 (through an assessment project co-managed by MoE & IUCN Center for Mediterranean Cooperation and funded by the Italian Government) and a delegation from the Spanish Agency for International Cooperation in October 2008 and February 2009 (through a project executed in partnership with MoE), have assessed the effect of the oil spill on the biophysical environment of the islands and carried out biodiversity survey and monitoring and have reported the state of the ecosystem on Palm Island Reserve to be “in resilient” status.

Furthermore, due to the damages caused by the oil spill to the different fishing equipments and engines of the fishermen, UNDP had allocated 1.1 million USD to help the Fishermen’s Associations in Lebanon by repairing their damaged boats as well as providing them with fishing nets and engines, and rebuilding the fish market in selected areas.

## **7. Urban Planning**

National Master Plan for land Management in Lebanon/ Shema Directeur d’Aménagement du Territoire Libanais (SDATL):

A National Master Plan for land Management was prepared for Lebanon by the Council for Development and Reconstruction in 2004 to reinforce the following objectives:

- Unity of the country
- Balanced development of regions
- Optimal and sustainable exploitation of resources

- Reduction of the State's debts
- Improvement of productivity and economic growth
- A more even foreign trade balance
- Improvement of living conditions
- Protection of the environment
- Preservation of the heritage

These objectives paint the picture of an "ideal" future that is not difficult to imagine: a prosperous and unified Lebanon that respects and emphasizes the importance of its resources and heritage, rationalizing its public expenditure and ensuring high quality public services.

Volume 2 of the SDATL is entirely dedicated to natural resources and environment, and chapter 3 deals with natural ecosystems and presents a detailed description of terrestrial and marine ecosystems with a specific focus on biodiversity aspects and the risks faced by biodiversity conservation. This approach has led to defining sensitive areas in terms of biodiversity which were considered when suggesting the ecological network and the importance of valuing and conserving natural assets by promoting ecotourism and conservation of biological reservoirs.

In 26 February 2009, the Council of Ministers (CoM) approved in its Decision # 1 the adoption of this Master Plan. Based on the CoM decision, the related decree endorsing the Master Plan is in process of issuance.

With reference to decision #1/2009, the execution of the SDATL must be done by the concerned ministries and institutions through decisions issued by the Council of Ministers.

Therefore, the SDATL becomes a reference document for the different concerned administrations as follows:

- The Directorate General for Urban Planning will have to take into consideration the recommendation listed in the SDATL, when suggesting, revising or approving land use maps.
- Concerned ministries (Agriculture, Environment, Public Works and Transport, Water & Energy, Industry, Economy and the Directorate General of Antiquities) will have to refer to the SDATL when taking decisions related to natural environment issues.

## **8. Industry**

At present, no plan for the industrial sector has been developed at national level, but the Ministry of Industry has established "National Industrial Permits Committees" in each Governorate to advise on the issuance of permits for industrial establishments. Each committee is headed by the Ministry of Industry

and includes one representative from each of the following institutions: Ministry of Health, Ministry of Environment and Directorate General of Urban Planning.

After that the permit's applicant got the approval of the related municipality, he submits the permit application to the Ministry of Industry which transfer it to the concerned institutions mentioned above for review and verification of its compliance with the criteria and conditions related to their respective sector. The Ministry of Environment undertakes the review of the application in terms of the location of the concerned industrial establishment, legal documents and the activity of the industrial establishment. Accordingly the MoE either refuses the application due to the potential enormous threats that may occur from the industrial establishment to the environment and that cannot be alleviate by any mitigation measure, or gives its approval after defining the necessary environmental conditions for the construction and operation of the establishment. These conditions aim at the prevention of the threats that may cause the industrial activity on any component of the surrounding environment including natural resources and biodiversity.

The Ministry of Environment along with the other institutions which are members of the "National Industrial Permits Committee" in each Governorate, submits its decision to the head of the committee who send its final decision to the Ministry of Industry. Accordingly, the Minister of Industry issues the permit to the concerned industrial establishment.

It is worth to mention here, that in some cases and according to the extent of the potential threats that may arise from the industrial establishment, the Ministry of Environment requests an EIA or IEE study for the establishment rather than just defining environmental conditions.

## **9. Economy and Trade**

In 2007, ESCWA as member of the Joint Secretariat along with the League of Arab States CAMRE Secretariat (Council of Arab Ministers Responsible for the Environment) and UNEP/ROWA (Regional Office for West Asia), are responsible for coordinating the Regional Program on Trade and Environment Capacity Building in the Arab Region. The program seeks to provide a platform for a variety of technical assistance and training support on trade and environment issues within the context of the global trading system, specifically on four pillars related to market access, competitiveness, dispute resolution the implementation of trade-related multilateral environmental agreements (such as the CBD).

ESCWA (as one of the five Regional Commissions of the UN (ESCWA, ECA, ESCAP, ECLAC and ECE) has signed on 25 October 2007, a Memorandum of Understanding with the CBD Secretariat to promote joint activities aiming to support mainstreaming of biodiversity topics into sustainable development and socio-economic plans and projects.

Under the leadership of the University of Manchester, ESCWA cooperated with other partners to prepare the sustainability impact assessment of the Euro-Mediterranean Free Trade Area (SIA/EMFTA) between 2004 and 2007. The purpose was to assess the potential impacts of the establishment of the EMFTA, which was proposed for implementation by 2010. The SIA examined economic, social and

environmental impacts of the anticipated EMFTA through various scenarios associated with liberalization of trade related to industry, agriculture and services. Biodiversity was one of the aggregate indicators used to assess the potential environmental impacts of the free trade zone on the EU and on Mediterranean Partner Countries (MPCs, e.g., Southern Mediterranean Countries). The other environmental indicators were on environmental quality (e.g., air/water pollution, solid waste and climate change) and natural resources. Indicators were identified through a consultative process with regional stakeholders.

Biodiversity was also proposed as one of the key indicators to be included in a proposed post-assessment monitoring mechanism, based on indicators adopted in the Mediterranean Strategy for Sustainable Development (MSSD). Two specifically were identified, namely MSSD indicator 16 on loss of arable land by desertification and MSSD 26 related to surface protection of coastal and marine areas.

ESCWA, in cooperation with the LAS and UNEP/ROWA, for 2010- 2011, is responsible for regional preparations for CSD cycles (Commission on Sustainable Development), and more specifically CSD-20 and CSD-21 addressing biological diversity and biotechnology topics.

On the other hand, The UNDP supported a project to the Ministry of Economy & Trade (MOET) which started in April 2001 with a dual funding from the World Bank and UNDP. The World Bank funding expired in July/August 2003 and since then the project is co-funded through the Lebanese Government and UNDP budgets (90% & 10% respectively), the project was extended recently till the end of 2010. The project implemented in 2005 the sustainability Impact Assessment with the aim of assessing the social, economic and environmental impact of the Association Agreement with the EU on selected sectors – namely the olive oil sector.

The project provided the draft Law for animal Quarantine that was sent to Council of Ministers in the 4th quarter of 2003 and the Law on Plant Quarantine that was ratified by the Parliament in November 2006. Moreover, the project provides the necessary facilitation to prepare Lebanon to access the WTO, the latter contributes to the protection and preservation of the environment through its objective of trade openness. Thus, once Lebanon will join the WTO it will integrate environmental considerations into the economy and trade sectors. However, at present the MoET/UNDP project is not mainstreaming biodiversity issues.

## **10. Water & Energy**

### **Ten Years Water National Action Plan (2000-2009)**

Lebanon recently initiated a reform process that relies on private sector participation and includes a 10-year national strategy to meet water demand by building a series of dams and lakes to store surplus winter water, the promotion of drinking and irrigation water projects, and confrontation of wastewater and water quality problems (MEW, 1999; Comair, 2005).

However, this official strategy makes no mention of plans to secure legal rights for all Lebanese to access sufficient and clean water. The strategy, which was approved by decision of Council of Ministers in 1999,

mentions the need to conserve cleaner environments in terms of water and waste water but does not refer specifically to natural resources management nor to the conservation of biodiversity.

## **Energy**

At national level, no strategy or action plan relevant to energy was prepared. However, various plans addressing electricity sector were developed successively by the Ministry of Energy and Water (MEW). The Lebanese Center for Energy Conservation (LCEC) supports the MEW and the government with all issues related to energy efficiency and renewable energy (EE and RE). Accordingly, LCEC is in the process of developing a national EE and RE plan that can be included in any overall plan that could be developed later.

## **11. Tourism**

The Ministry of Tourism (MoT) is the main government agency responsible for tourism regulation and development. Guided by the World Tourism Organisation (WTO) and with support from the French Government and the United Nations Development Programme, the Ministry of Tourism has elaborated in 1996 a Master Plan for Reconstruction and Tourism Development in Lebanon. The Plan entitled "Tourism: A Future for Lebanon", amplifies the principles of sustainable development, but did not specifically highlight the relation of tourism to biodiversity.

Even if conservation of biodiversity is not specifically mentioned in the strategy of the MOT, its involvement in supporting ecotourism as well as its partnership with MOE, have benefitted in the conservation of natural resources and biodiversity.

On the other hand, in 2000, the Ministry of Environment (MoE) has developed, in collaboration with UNEP as part of the coordinating unit for the Mediterranean Action Plan, a "National Action Plan and strategy framework for sustainable tourism development in Lebanon". This Action plan accounts for the need to consider the negative impact of mass tourism on natural resources and the potential contribution of sustainable practices in tourism with respect to carrying capacity of natural ecosystems and natural resources.

The Ministry of Environment integrates the issue of ecotourism within its different activities and projects with the civil society and NGOs including its small grant program which aims at providing financial support for local NGOs to implement different environmental projects based on priority areas identified by MoE one of which is ecotourism. This contributes to the implementation of the strategy framework for sustainable tourism prepared by MOE in 2000, which recommended the importance of enhancing the role of civil society in promoting ecotourism and awareness.

Collaboration between the Ministry of Environment and the Ministry of Tourism is being done in relation to ecotourism. On the occasion of the International Year on Ecotourism in 2002, several activities were executed in collaboration between MoT, MoE, UNDP, eco-tour operators and other concerned institutions to promote ecotourism concept in Lebanon. The campaign included a national workshop on ecotourism, exhibitions, field visits for donors and international institutions to natural sites

including ecotourism activities in order to mainstream ecotourism among international donors and projects, as well as other dispersed activities promoting ecotourism.

As a result of the campaign mentioned above, and since no legal status of ecotour operators is available in Lebanon even though many small tour outfitters adopting ecotourism as main area of activity are operating in Lebanon, the MoT started in collaboration of MoE and these tour operators to develop a draft legislation for ecotour operators to grant them legal official status and to regulate environmentally oriented activities including outdoors sporting and ecotourism, but to date, no such legislation is issued. However, the MoT has drafted a law concerned with alternative lodging.

### **Ecotourism/Specialty Tour Operators (Outfitted Trips)**

At level of private sector and NGOs, many small tour outfitters in Lebanon cater to the outdoor adventure and historical/cultural travel market, although, no legal status of ecotour operators is available in Lebanon. Several of these tour operators are embracing the ecotourism ethos. The number of eco-tour operators has increased during the last past years in Lebanon, offering trips that will allow exploring the country's natural beauty and World Heritage Sites on foot, bicycle, and raft while leaving a minimal ecological footprint.

Additionally, by arranging for small groups to stay in ecolodges, as well as hotels and campsites, visitors get the chance to interact with biodiversity and local cultures; and local communities get the opportunity to directly benefit from tourism. Small outfitters offer visitors the chance to custom tailor their trips and activities (from high-intensity trekking and mountain climbing, to low intensity hikes and cycling, to educational homestays with local families). They are also flexible in terms of the length of trips and offering different packages for different budgets. All activities promote nature sites and the biodiversity that it harbors and responsible tourism.

The need to coordinate with the private sector has been listed as prime recommendation of the strategy framework of MoE and accordingly a series of activities were initiated and implemented with objective to promote ecotourism. As examples to such cooperation between the public and private sectors are the eco guide training program implemented by MoE/UNDP through the MedWetCoast project, the diyafa program, the creation of destination Lebanon website and tourism package with SRI, the support of Souk el Tayyeb, the Lebanese Mountain trail, etc...

The Ministry of Environment and UNDP have prepared the environmental guidelines for Hotels and the environmental audit manual for hotels. Although those manuals are not mandatory, the Ministry of tourism has adopted them and is encouraging the hotels to abide by their recommendations.

## **12. Communication**

Coverage of environmental news and issues in the media has increased in recent years. Most environmental and biodiversity issues involve complex scientific arguments and conflicting points of view. However, to make exciting and accessible news stories, the media often presents these issues in simple black-and-white or 'good-versus-bad' terms, involving dramatic statements and images.

Most of Lebanon's leading newspapers introduced each a daily page for environment and heritage issues. However, the subjects are not frequently related to biodiversity and often deal with hot and social topics, preferably with political implications.

The weekly newspapers also address human rights, education and environment issues. A monthly magazine "Environment and Development" that started issuing in March 1997 is concerned with environmental news and sustainable development at the global, regional and local level and is the first of its kind in the Arab world.

One of the most communication powerful sources of information for biodiversity, environment and others in Lebanon is the internet which permeates our media environment.

Information about environment and biodiversity are available on the websites of most of the institutions dealing with environmental issues starting from the Ministry of Environment, academic and research institutions, local NGOs, international organizations working in Lebanon and others. More specifically, the Ministry of Environment has established in 2005 a biodiversity and a biosafety Clearing-House which are specific WebPages related to biodiversity and biosafety under the Ministry's website and which were established based on the requirements of the CBD.

Environmental priorities are progressively taking the lead in several daily issues and politics has also been lately tagged in green by the establishment of the Green Party in 2008. Same observations apply to the economic sector as more and more banks and insurance companies build their promotional campaign on their "green" performance. Nevertheless, biodiversity is still a relatively timid component of this type of communication as shocking topics such as pollution, degradation, and corruption are still taking the lead.

### **13. Education**

The Ministry of Education and the Ministry of Culture and Upper Education are the government institutions responsible for education in Lebanon. The "Centre du Développement et de la Recherche Pédagogique (CDRP)" is the main national body responsible to prepare studies and formulate the educational framework and scholaristic programs. It is directly linked to the Ministry of Education. Non-Government actors include NGOs, CBOs, and others in the private sector. In addition to UNDP, UNICEF, and UNESCO collaborate with bilateral donors and through projects in some cases.

An "Environmental Education Study" in Lebanon has been prepared in 1998 by the Centre du Développement et de la Recherche Pédagogique (CDRP) /Ministry of Education in collaboration with the Ministry of Environment, UNDP, UNICEF, UNESCO and WHO. This study identifies ways of integrating environment at the different levels of education (primary, intermediate and secondary). The study stresses the incorporation of environmental issues into all courses, rather than teaching separate environment courses. It mainly aims at helping each citizen acquire values related to the respect of natural resources of Lebanon and its natural environment. Based on this study, the environmental

concepts were integrated in the schools' curriculum through the notification No. 73/98 dated 23/11/1998 issued by the Minister of Education.

Such a reform of the educational programme in Lebanon, shifting from including ecology in sciences courses according to the curricula issued in 1964 to effective mainstreaming of environmental education within the school curricula into the various disciplines, have resulted in the increase of extra curricular activities within environmental clubs, especially in public schools for example.

The Ministry of Education, Ministry of Environment, UNESCO, UNDP and NGOs are coordinating efforts to encourage extra curricular activities oriented to environmental priorities, such as contests, trainings sessions, etc.

Moreover, education programmes are being carried out in Lebanon also through different initiatives executed by several non-profit, non-governmental organizations NGOs dealing with environmental education and nature conservation. They execute several activities in schools, related to environmental issues including the establishment of Environment Information Centers and the opening of Environmental Clubs in Lebanese schools. Some of these activities were executed with financial support from MoE.

## **Other National Plans, Policies and Programmes related to main sectors**

### **14. Impact Assessments**

#### **Environmental Impact Assessment (EIA)**

The EIA concept was endorsed through the Law for the Protection of the Environment (no 444/02) which set in article 4 many environmental principles one of which is the EIA principle; the law states that this principle should be used as a planning and management tool for preventing pollution and minimizing degradation of natural resources. Impact Assessment was addressed in particular through articles 21, 22 and 23 of the law:

The law stipulates that concerned institutions, both in public and private sectors should carry out Initial Environment Evaluation (IEE) or EIA studies to projects likely to threaten the environment due to their extent, nature, impact or activities which cover all projects dealing with construction or other infrastructure, all activities affecting the natural environment through extraction or dumping of natural resources, or any proposed program, study, investment, or management that might affect a whole Lebanese area or a certain sector. The projects that need EIA also include any change, addition, expansion, rehabilitation or closure of any activities mentioned above. The MoE undertakes the review of studies and consequently provides its approval after verification of their compliance with environmental safety conditions and sustainability of natural resources.

Based on the law 444, a draft EIA decree was prepared by the Ministry of Environment and submitted to the Council of Ministers for endorsement. The draft EIA decree includes details related to various steps of EIA system (screening, scoping, review and monitoring). The draft decree states that all major

development, infrastructure and industrial projects will have to undergo an EIA study to evaluate their impacts, in order to promote conservation activities and sustainability of natural resources before receiving approval. The EIA draft decree has listed in its annexes - related to the content of impact assessments studies- biodiversity as one of the component to be addressed in the EIA study.

Despite that the decree was not endorsed yet, EIA studies are being already requested for main projects prior to their execution based on law 444 and submitted to MoE. These studies identify potential impacts of relevant projects on the various environmental components including their effects on biodiversity. The MoE reviews the EIAs studies and provides its approval on the related projects after verification of their compliance with environmental standards.

### **Strategic Environment Assessment (SEA)**

Over the period 2002- 2005, the Ministry of Environment started the implementation of the SEA project funded by EC-life third countries and managed by UNDP; aiming at mainstreaming environmental considerations into sectoral plans and programmes. Based on the law for the protection of Environment (law 444/02) the project prepared a draft decree for the implementation of SEA at national level and submitted it to the Council of Ministers for approval. The annexes of the draft SEA decree specified the content of the SEAs studies that have to be carried out, and have listed biodiversity as one of the component to be addressed in the SEA studies.

SEA being a tool to mainstream environmental sustainability in public planning and decision making, the implementation of the related draft decree, once issued, would de facto lead to the mainstreaming of biodiversity considerations into plans, programmes and policies thus leading to the minimization of their adverse impacts on biodiversity including habitats loss and land use change and promoting accordingly the conservation and sustainable use of biodiversity.

Moreover, based on the need for integrating biodiversity components into impact assessment processes, the MoE developed in 2005 practical guidelines, in the form of a manual, for the integration of biodiversity considerations into SEA and EIA.

It is worth here to mention, that despite that the SEA decree is not endorsed yet, the Ministry of Environment started since 2005 to request officially SEA studies for plans and programmes. Through these SEA studies, impacts of related plans and programmes on all environment components including biodiversity are addressed which lead to the minimizing of negative impacts on biodiversity from unsustainable consumption of natural resources.

### **15. Action Plans to Combat Desertification**

Lebanon developed its National Action Plan (NAP) for the UNCCD in february 2003 during a participatory process including all relevant and active stakeholders representing all sectors, public, private, civil society and academia. The NAP was developed through a project executed by the Ministry of Agriculture and supported by the German Technical Cooperation (GTZ) and the Drylands Development Centre of the United Nations Development Programme.

The NAP has established the current state of desertification and land degradation in Lebanon, and has formulated mitigation measures, and has identified gaps in legislation.

Throughout the process, the conservation of biodiversity has been one of the major axis for the development of the action plan. The need to respect the carrying capacity of natural ecosystems is clearly accounted for in chapter 5 of the NAP in terms of natural resources with special focus on the pressure resulting from over exploitation and the consequences in terms of land degradation and desertification; chapter 6 of the NAP recognizes the role of vegetation cover and vegetation type in combating desertification and chapter 7 places the importance of conserving biodiversity as one of the main lines of action leading to reducing desertification; finally appendix IV is dedicated to listing previous, ongoing and planned activities aiming at conservation of natural resources in Lebanon as follows:

- National Biodiversity Strategy and Action Plan (NBSAP) (1998)
- Strengthening of National Capacity and Grassroots In Situ for Sustainable Biodiversity Protection (Protected Areas) (1996)
- Conservation of Wetlands and Coastal zones in the Mediterranean (2002)
- National Biodiversity Country Study (1997)
- Biodiversity Enabling Activity (Phase I) (1998)
- Biodiversity Enabling Activity (Phase II) (2003)
- Med Wet Coast (2002)
- Biodiversity Top – Up Enabling Activity Project (2002)

Within the framework of the NAP, four Local Action Programmes (LAPs) were elaborated in four different areas of Lebanon that were previously considered as homogeneous areas with respect to a combination of criteria such as the topography, the agricultural aspect, the communication means between the population zones, the marketing and human transaction, the zone dimension and the development master plan of the zones. The aim of the LAPs is to measure the human resources needs, to determine the desertification causes thus defining the necessary interventions to be later developed as bankable proposals.

However, the LAPs as developed to date, did not focus on biodiversity issues nor on the conservation of natural resources.

In 2006, the National Action Plan for combating desertification was ready to be submitted to Council of Ministers for governmental endorsement, it has been translated to Arabic but the overall prevailing socio economic situation in the country since then, has delayed this procedure and the NAP is not yet submitted to Council of Ministers.

## **16. National Master Plan for Quarries**

A National Master Plan for Quarries was issued in 2009 as part of the decree No.1753 dated 23/4/2009 (latest amendments of the decree No.8803 dated 4/10/2002 related to the organization of the operations of quarries & crushers in Lebanon). The decree states that each application for quarries license must include –among other documents- a preliminary study that identifies the impact of the quarry on the surrounding environment but did not specifies the biodiversity component, in addition the study must includes the measures that will be taken for the rehabilitation of the site progressively during the extraction works and after their end.

The decree also states that rehabilitation must be done to the site after the extraction works which include remediation of the extraction sites and soil preparation for agriculture and forestry purposes.

In Lebanon, A National Council for Quarries is established to decide on granting the licenses for the operations of the quarries. The National Council for Quarries is headed by the Minister of Environment and includes representatives from eight other concerned government institutions.

The MoE/National Council for Quarries undertake the review of the license applications and its related documents and studies required by the decree No.1753 dated 23/4/2009 mentioned above and verify its compliance with the environmental standards and criteria, and propose accordingly to the Minister of Environment either the approval or rejection of the application's license. Finally, the Minister of Environment takes the final decision and sends it to the Governor who is the authority responsible for issuing the quarries license.

## **17. National Action Plan for Solid Waste Management in Lebanon**

The National Action Plan for Municipal Solid Waste Management in Lebanon was prepared by the Council of Development and Reconstruction (CDR) in cooperation with the Ministry of Environment (MoE) and approved by the Council of Ministers through its decision No.1 dated 28/6/2006. The Action Plan specifies the suitable locations for the establishment of solid waste management facilities (sorting, composting and landfilling). According to the official request of the Ministry of Environment about the necessity to conduct EIAs and SEAs studies for the suggested sites and proposed technologies prior to the execution, these sites were subject to environmental impact assessments studies in 2008 to evaluate their impact on the different environment components including their effects on the biodiversity. The MoE has reviewed these studies and accordingly provided its comments and recommendations to ensure that the projects will comply with environmental standards and sustainability of nature resources.

## **18. Millennium Development Goals**

Since 2007, the Ministry of Environment and UNDP have worked on finalizing a draft report on environmental sustainability in Lebanon (MDG goal 7). Nevertheless, to date, this report has not been processed through official channels and no national plan or strategy related to the MDG has been adopted for Lebanon.

The draft report states that since the previous report published in 2003, and despite the serious challenges facing Lebanon, progress in environmental sustainability aspects has been observed over the last few years. In early 2006, Lebanon ranked 36 out of 133 countries and came in first within the Arab region on the Environmental Performance Index (EPI). Moreover, the Ministry of Environment has continued to push the environmental agenda to the forefront of the government's programme to ensure that Lebanon's environmental resources are maintained and remain in line with international conventions that Lebanon continues to ratify and meet. However, the July/August 2006 Israeli war on Lebanon resulted in a heavy environmental degradation equivalent to an average cost of 729 million dollars, which is equal to 3.6% of GDP.

The draft report (MDG 7) has highlighted the specific challenges faced by biodiversity in Lebanon especially those related to habitat fragmentation, forest fires, pollution and oil spill (July 2006), lack of environmental monitoring and baseline data in specific sectors (such as marine and fresh water biodiversity), lack of comprehensive environmental strategy to be mainstreamed across different ministries and sectors, overlapping mandates of public institutions, limited public budget, lack of environmental law enforcement and lack of integrated water resource management approach.

Accordingly, the report has listed a series of recommendations and has suggested some key indicators to be adopted for future monitoring of biodiversity priorities. Those indicators include:

- Total forest coverage
- Total area under protection (protected area network)
- Number of threatened species

## **19. Other Conventions besides the CBD**

### **1- United Nations Framework to Combat Climate Change:**

Lebanon ratified the UNFCCC in 1994 (Law 359 dated 1/8/94) and committed itself to develop and regularly update GHG Inventory and to formulate, implement and regularly update national and regional programs containing measures to mitigate Climate Change.

Article 12-5 of the UNFCCC stipulates that all parties to prepare their national communications on climate change, which includes the assessment of the vulnerability of the country to the adverse effects of climate change and to propose adaptation measures to the most vulnerable sectors (Decision 17/CP.8, Part IV), Lebanon, has already prepared in 1999 its Initial National communication where the vulnerability of terrestrial ecosystems, natural habitat, wildlife and coastal systems were studied and relevant adaptation measures proposed. Mitigation measures were also proposed for the conservation of forests, as they are the main carbon stock/sink of national GHG emissions. Through this process, biodiversity issues were indirectly linked to climate change impacts, specifically when forests and marine and terrestrial ecosystems were taken into account in the report.

No national plan or strategy was established in relation to climate change in Lebanon, however independent projects were launched at the MoE and other public and governmental institutions that tackle different vulnerable sectors to climate change taking as baseline the findings of the initial national communication..

The project “Enabling Activities for the Preparation of the Second National Communication (SNC) to the United Nations Framework Convention on Climate Change (UNFCCC)” executed by MoE and implemented by UNDP through GEF funds since 2007 till 2010, aims at assisting Lebanon with the enabling activities necessary to undertake the Second National Greenhouse Gas Inventory and to prepare and report the Second National Communication to the Conference of Parties in accordance with guidance of the UN Framework Convention on Climate Change (UNFCCC). In addition, this project will help strengthen Lebanon’s capacity to fulfill its commitments to the UNFCCC on a continuing basis. The structure of this project is based on the country’s previous experience and studies already identified under a stocktaking exercise. The main components of the project are: (a) an inventory of greenhouse gases for the year 2000 and time series 1994-2000; (b) an update of analysis of potential measures to mitigate the increase in greenhouse gas emissions in Lebanon; (c) an assessment of potential impacts of climate change in Lebanon and adaptation measures; (d) preparation of the Second National Communication of Lebanon and submission to the COP.

In addition, public awareness activities and stakeholder consultations will be cross-cutting along the overall course of this project. Therefore, the preparation of the Second National Communication is expected to enhance general awareness and knowledge on climate change-related issues in Lebanon, and to help into highly taking them into account in the process of national planning and policy.

At a later stage, Kyoto protocol introduced the CDM (Clean Development Mechanism) process, where afforestation and reforestation were considered as a mean to reduce GHG emissions. However, due to the weakness of the related methodologies, the issue was presented in Montreal COP 11 in 2005 where the parties established a 2-year process to explore how deforestation in developing countries could be integrated into the climate process and was later discussed in Bali COP 13 in 2007 where parties agreed to include sustainable management of forests, forest degradation and deforestation in post-2012 climate agreements and further develop the mechanism for Reducing Emissions from Deforestation and Degradation (REDD).

The Ministry of Environment in Lebanon has been designated as the National authority entitled to revise and accept projects related to Clean Development Mechanism (CDM).

Clean Development Mechanism projects include carbon sequestration projects, where two types of carbon sequestration projects are eligible under CDM: afforestation and reforestation projects. In Lebanon, the eligibility of a site for A&R projects, depends on the existing tree cover and is applicable if: (1) tree crown cover is less than 0.5 ha, or if tree height at maturity is less than 2.5 m, and tree density on is at minimum tree at 15 %; or (2) Both, the tree crown cover and the tree height at maturity are less

than the adopted threshold values. Lebanon is in process of considering potential reforestation and afforestation projects under the CDM that comply with the above mentioned criteria.

On the other hand, a report was recently finalized in April 2009 about the “National Overview on Vulnerability and Impacts of Climate change on Marine and Coastal Biodiversity in Lebanon” prepared under MAP/RAC-SPA. The report highlighted the expected impact of climate change on marine biodiversity based on the assessment of available information about climate change impacts in Lebanon and has proposed a series of priority actions to be developed, one of which is an “Oceanographic Observations– Climate Change” action.

## 2- United Nations Convention to Combat Desertification:

Since the ratification of UNCCD by the Lebanese Parliament, The Ministry of Agriculture in its capacity as the focal institution has prepared three national reports (2000, 2002 and 2006) on the progress in the implementation of the Convention.

Main achievements in Lebanon to fulfill the requirements of the UNCCD are the desertification National Action Plan (NAP) and the four Local Action Plans (LAP) mentioned in the section III-2 above, which were developed through a project executed by the Ministry of Agriculture and supported by the German Technical Cooperation (GTZ) and the Drylands Development Centre of the United Nations Development Programme.

The MOA as focal point for the UNCCD in Lebanon has developed in 2007 a financing strategy to implement the NAP. Starting November 2008, the MOA has initiated the implementation of this financing strategy by identifying various funding means either internal (from its own budget) or external (fund raising and project development) or innovative (debt swap, CDM, carbon trade etc...).

On the other hand, the MoA has executed since 2006 two projects on flood control and management (the first one in 2006 in collaboration with GTZ and ACSAD and the second one in 2008 in collaboration with UNDP and funds from the Spanish government through the Lebanese Recovery Fund) in order to reduce the damages of flood on downstream villages in North Bekaa area which is an area threatened by heavy floods following torrential rains in the Anti-Lebanon mountains. These flash floods lead to severe soil erosion in addition to substantial agricultural damage and destruction of several aqua farms and their contributing causes are: absence of proper land management, uncontrolled grazing practices, and high land degradation. These factors are, not only contributing to the problem of flash floods, but also leading to a high risk of rapid desertification in the area.

The GTZ project handled in Al’Qaa region a watershed area of 18 km<sup>2</sup> and established check dams, contour bunds and stone walls in addition to 3 collection lakes ranging between 20,000-40,000 cu. meters in volume. The UNDP project on “Flood Risks Management” aims at supporting early recovery efforts in Baalback-Hermel region through the implementation of a flood risk management plan. The plan is based on the construction of stone walls, check dams and water collection reservoirs to prevent runoff water from reaching villages and farms and through the restoration of land cover to reduce soil

erosion. The project includes two phases, the first phase initiated in 2008 targets a watershed of 94 km<sup>2</sup> that affects primarily the villages of Aarsal and Fakha and a second phase launched in 2009 for a 200 km<sup>2</sup> watershed that affects the village of Ras Baalback.

All the above mentioned projects aiming at reducing the damages of the flood on the mentioned targeted downstream villages will help also to reduce soil erosion, increase water infiltration towards ground water aquifers, increase soil humidity and regeneration of vegetation cover. In addition the phase I of the UNDP project will initiate in October 2009 in collaboration with local communities the plantation of 25 000 plants of wild native plants including wild pear, wild almond and wild plum as well as Juniperus and Cratageus.

In Lebanon, the combat desertification approach has been adopted in various projects and development programmes to guarantee the sustainability of the actions of the NAP.

The country profile is very crucial in the assessment of progress made in the improvement of natural resources management and runs a risk of not capturing important development taking place at local levels. That could be a major constraint. However, the country still needs capacity building on data reporting and storage as well as the necessary tools and instruments for data collection, analysis and reporting.

As drylands are priority habitats in Lebanon, efforts are being exerted to address the issue of the degradation of dry and sub humid lands through the United Nations Convention to Combat Desertification (UNCCD) and Climate Change and to mainstream prevention of land degradation into development processes.

### 3- World Heritage Convention:

Lebanon ratified the World Heritage Convention (WHC) on February 3, 1983 and has since then 5 sites were inscribed on the World Heritage List: four cultural sites (Anjar, Baalbek, Byblos, and Tyre) and one site classified as cultural landscape, which actually include two sites under one nomination: Qadisha Valley (the Holy Valley) and the Forest of the Cedars of God (Horsh Arz el Rab).

The conservation and sustainable management of the latter two sites cover de facto the conservation and sustainable use of terrestrial and forest biodiversity since they have natural properties and harbor important plant species: Qadisha Valley is known for its floral richness and variety and the Cedars of God site harbor the famous Cedars of Lebanon Cedar Libani .

The Directorate General of Antiquities/Ministry of Culture is the focal point of the WHC regarding the Cultural sites and the Ministry of Environment regarding the Natural sites. Regarding the sites classified under the WHC as "Cultural Landscape", both Ministries collaborate together in the issues related to this type of nomination.

### 4- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Lebanon is not a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) which aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Through its three appendices, the Convention accords varying degrees of protection to more than 30,000 plant and animal species.

Nevertheless, and even though Lebanon is non party yet to the CITES, the Ministry of Agriculture/Directorate of Animal Resources which is the authority responsible of the supervision of the veterinarian health of the animals exported and imported in Lebanon, is also granting permits for the export/import of animal species listed in Annex1 of CITES, these permits known as “CITES permits” are given after consultation with a scientific committee. However, the CITES regulations are not fully enforced while issuing the CITES permits.

#### 5- RAMSAR Convention

Lebanon has ratified Ramsar Convention on August 1999 and actually hosts four RAMSAR sites: Palm Islands Nature Reserve, Ammiq Wetland, Tyre Beach nature Reserve and Ras el Cheqa’a.

Since the RAMSAR sites harbor significant biodiversity species specially migratory birds species, the management of these sites as per RAMSAR Convention requirements will lead de facto to the conservation and sustainable use of biodiversity, specially that two of these sites are nature reserves managed according to CBD in-situ conservation provisions and have specific management plans, in addition Ammiq wetlands is a private property managed by an NGO but was managed in collaboration with the Ministry of Environment and its management plan was developed in full partnership and collaboration with the Ministry within the context of the “MedWET Coast project”.

#### The Ecosystem approach:

The Ecosystem Approach is considered as one of the most important principles of sustainable environmental management. The Fifth Conference of the Parties to the Convention on Biological Diversity defined the Ecosystem Approach in Decision V/6, Annex A, section 1 as ‘a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way’. Essentially it requires taking into consideration the effects of actions on every element of an ecosystem, based on the recognition that all elements of an ecosystem are linked. As described by the Conference of the Parties, the ecosystem approach is the primary framework for action under the Convention. The Conference of the Parties, at its Fifth Meeting, endorsed the description of the ecosystem approach and operational guidance and recommended the application of the principles and other guidance on the Ecosystem Approach (decision V/6). The seventh meeting of the Conference of the Parties agreed that the priority at this time should be on facilitating implementation of the ecosystem approach and welcomed additional guidelines to this effect (decision VII/11).

In Lebanon, the ecosystem approach was adopted in Nature Reserve management especially in 2007 at Tyre Beach Nature Reserve and in 2008 at Palm Islands Nature Reserve where the two reserves developed each an ecological monitoring manual focusing on a holistic ecosystem approach based on

the interaction between different species and their habitat in terms of biological and physical parameters.

In 2009, another manual using the principle of ecosystem approach is currently under development at the Shouf Biosphere reserve. Similarly, the recent management plan developed for Tannourine Cedar Forest Nature Reserve in 2008, adopted in its implementation plan the principles of ecosystem approach by recommending actions and activities accounting for all the elements of the ecosystem simultaneously. Comparable initiatives related to grazing management have been attempted in the Shouf Biosphere reserve.

At research level, although the ecosystem approach is prone for and recommended, it is seldom practical to effectively put in into practice since it requires a good level of interdisciplinarity and coordination among scientists and experts from the various fields.

Therefore, examples of implementation and adoption of the ecosystem approach are restricted to nature reserve management or experimental scientific projects as the multidisciplinary team is already part of the approach.

## **20. Conclusion**

The overview provided by this chapter about biodiversity mainstreaming into relevant sectoral and cross-sectoral plans, programmes and policies besides the environment, indicates that some have addressed directly biodiversity considerations such as the “National Reforestation Plan”, the “Hunting Law”, the “Strategy for Agricultural Development in Lebanon”, the “National Master Plan for land Management in Lebanon (SDATTL)” and the “Desertification National Action Plan” and in these cases the major challenge remains the proper enforcement of the requirements of these policies and plans.

In the majority of the cases, environmental considerations were integrated in the main sectors or into their related plans and strategies but without referring specifically and directly to biodiversity components such as the “National Master Plan for Quarries” and the “National Strategy for Forest Fires” and the following sectors: Tourism, Education, Communication, Economy and Trade, Fisheries and Industry.

Some sectors didn't address even considerably the environment component such as the Water and Energy sectors and the “National Action Plan for Solid Waste Management in Lebanon” however the locations defined in the latter for the establishment of solid waste management facilities were subject to impact assessment studies before their establishment thus covering biodiversity components among other environmental components.

On the other hand, mainstreaming biodiversity considerations is achieved within the context of some projects such as on "Mainstreaming Biodiversity Management Considerations into Medicinal and Aromatic Plants Production Processes" and the “Agrobiodiversity project”.

The findings reveal that there is a major progress in Lebanon in mainstreaming environment into other sectoral plans and programmes but the biodiversity component is not tackled in particular, therefore biodiversity considerations need to be integrated more directly and specifically into the relevant related sectors and the sectoral and cross-sectoral plans, policies and strategies. Nevertheless some of the plans have addressed the biodiversity components, and others which have integrated environmental considerations and not specifically biodiversity, cover though natural resources and biodiversity among other environmental components thus contributing indirectly to biodiversity mainstreaming. In the cases of the closely related plans, strategies and programmes, even if it did not refer in particular to biodiversity considerations such as “The Forest Fires National Strategy” or did not integrate explicitly the CBD provisions such as the biodiversity related Conventions and Agreements, their implementation contribute definitely to the conservation of biodiversity and their sustainable use.