

## Climate Change and Tourism in Lebanon

By **Manja Riebe**

*Worldwide, the inexorable growth of the tourism sector with its high demand for land and other resources has reignited the debate about the environmental impact of tourism. In this debate, the subject of climate change stands front and center. Given the huge number of natural attractions in Lebanon on the one hand and the fact that its tourism development is only beginning anew on the other hand, offers a rare opportunity to sufficiently consider, at least in theory, the interrelations of climate change and tourism from the onset. Hence, it should be possible to initiate a path of sustainable development in which the protection of natural resources will constitute the basis for the prosperity of the tourism sector in the long-term. The crucial question, therefore, is if and to what extent the necessary awareness, political will and the according strategies for such an enterprise are present in Lebanon?*



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For many, Lebanon is still associated with footage of armed militiamen patrolling the streets of Beirut and news coverage of the hostage-takings which were broadcast around the world in the 1970s and 80s which explains why the country has to struggle with a bad image up to the very day. Further acts of violence, occurring on its soil in the post-civil war phase only added to this perception. However, we can likewise witness a current comeback of images and impressions predating the Civil War, when Beirut was still considered the "Paris of the Middle East" and Lebanon had mainly been perceived as an oasis of peace and freedom within a region marked by turbulence of different kinds. In fact, it is not an exaggeration to speak of a revival in this regard: Lebanon is back on the world tourism map, and Beirut is currently traded as the "hottest city on the Mediterranean."<sup>1</sup> In the meantime the tourism industry has become one of the thriving sectors of the country.

Worldwide, the inexorable growth of the tourism sector with its high demand for land and other resources has reignited the debate about the environmental impact of tourism. In this debate, the subject of climate change stands front and center. Who or what is mainly responsible for its coming into existence and its increase? Whom or what will be the most affected by it? Tourism - that much is certain - is perpetrator and victim alike.

Given the huge number of natural attractions in Lebanon on the one hand and the fact that its tourism development is only beginning anew on the other hand, offers a rare opportunity, as at least in theory, the interrelations of climate change and tourism may thus be considered sufficiently from the onset. Hence, it should

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<sup>1</sup> See: [http://www.abenteuer-reisen.de/reiseziel/libanon/reportage/beirut\\_die\\_heisseste\\_stadt\\_am\\_mittelmeer](http://www.abenteuer-reisen.de/reiseziel/libanon/reportage/beirut_die_heisseste_stadt_am_mittelmeer).

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## **Background**

### *Tourist Attractions*

At the junction of three continents, Lebanon over the centuries has been homeland to many civilizations, the traces of which can be encountered to this very day. The country is encircled by two major mountain ranges, the Lebanon and the Anti Lebanon, running parallel to the Mediterranean coast. These have given the country its name. "Lubnan" is an old word for "white" and refers to the snow-capped mountains, symbolized in the white middle stripe of the Lebanese flag.

Several remnants of the ancient Phoenician civilization are situated along the Lebanese coast. In cities such as Byblos, Tyre, Sidon and Tripoli, archaic sites await to enchant culturally-aware visitors with their age-old history. Here, one will not only come upon antique castles and small, winding souks, but also has the possibility of snorkeling or taking part in diving excursions to the underwater ruins of the ancient Phoenician city states.

The capital Beirut, with its infamous nightlife, well-equipped shopping malls and countless cultural events continuously draws a huge amount of travelers. From Saudi Arabian millionaires to low-budget backpackers - there is something for everyone here! In 2009, the New York Times branded the city as number one of



Water castle from the Crusaders period in Sidon.  
Photo: Manja Riebe

"The 44 Places to Go."<sup>2</sup> Moreover, Beirut is also a favored destination for medical tourists from all over the world. The offers range from cosmetic surgery to organ transplantation. The combination of different factors such as well-trained doctors, moderate prices, anonymity and comparatively liberal laws especially attract foreign customers.<sup>3</sup>

The downside, however, is represented by sex tourism. The demand is as high as the supply. When compared to many of its surrounding countries, Lebanon sticks out of the mass in terms of its high degree of tolerance, which often seems to encourage many tourists to lower their inhibitions regarding existing taboos.

Few people might think of Lebanon when planning their winter holidays. However, the country offers impressive snow-covered mountain slopes and looks back upon a long tradition of alpine skiing, the latter dating back to the 1930s, when French officers established the first ski school here.<sup>4</sup> Meanwhile, there are numerous ski resorts and entire villages which economically depend on the winter

tourism season. Athletes as well as non-athletes aspiring for party amusement will not be disappointed. All of the major ski resorts conduct nightly après- ski entertainment for which they are famous far beyond the borders of Lebanon.

Friends of hiking can visit historical sites and learn about the local life along the 440 km long "Lebanon Mountain Trail," which leads against the backdrop of a magnificent landscape from the north to the south of the country. Bed and breakfast accommodations, a campsite and eco-lodges are available for overnight visitors as well as several small, privately-operated restaurants where travelers can refuel. The Lebanon Mountain Trail has been created as part of an internationally funded project and contributes to the sustainable environmental, social and economic development of rural areas.

Along the entire coast, visitors can choose between numerous beach resorts. While some have direct access to the sea, others compensate by offering swimming pools. Surrounded by shady palm trees on spacious meadows, visitors can indulge in a relaxing sun bath. Food and drinks are available and can be ordered at any time from the service staff. Most of the beach clubs charge an admission fee amounting to between 5 and 30 US\$ per day.<sup>5</sup>

The Mediterranean Sea is almost everywhere in sight which allows for the combination of different types of trips (city tours, educational travel, eco-tourism, etc.) with beach holidays. The Ministry of Tourism states on its website that in Lebanon, one has the unique "opportunity to ski in the morning and take a relaxing swim in the Mediterranean in the afternoon,"<sup>6</sup> and, in fact, this assertion is not without justification. The underlying motto

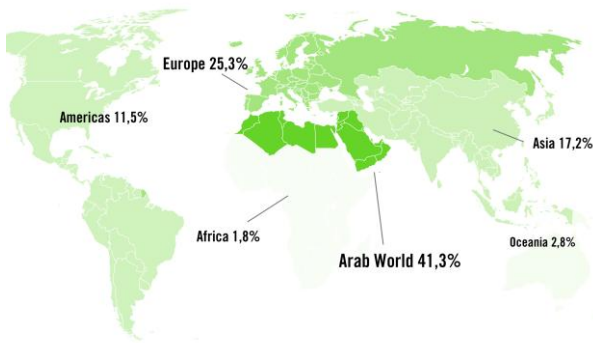
<sup>2</sup> [http://www.nytimes.com/interactive/2009/01/11/travel/20090111\\_DESTINATIONS.html](http://www.nytimes.com/interactive/2009/01/11/travel/20090111_DESTINATIONS.html).

<sup>3</sup> Lebanon Executive Magazine, No.122. Online: <http://www.executive-magazine.com/getarticle.php?article=12218>.

<sup>4</sup> Atrache/ Brenner-Elias, 1999. P 45 ff.

<sup>5</sup> Although the coast, by law, belongs to the public, more and more sections are in private hands. See: Frommherz-Hassib, 2010.

<sup>6</sup> <http://www.lebanon-tourism.gov.lb/FourSeasons/Winter.aspx>.



**Arrivals by region in the year 2010**

Source: Author's design, based on MoT Department of Statistics, 2011

is simple: Even during the shortest holiday, anything is possible.

*Economic importance*

Lebanon's tourism industry is booming. Internationally, the Middle East has the strongest tourism growth in the world, even though the leading destinations Egypt and Saudi Arabia are struggling with declines in their international arrivals.<sup>7</sup> The new driving markets are Lebanon, Qatar and Syria.<sup>8</sup> The Lebanese sector has reported an increase in arrivals of 17.12 %<sup>9</sup> in 2010. However, as the statistics appear to include all border crossings indiscriminately, the entries of Iraqi refugees or Syrian workers for instance, are equally counted as "touristic arrivals." Meanwhile, the tourism industry has become one of the most important economic sectors of the country, solely making up 10.2 % of the Lebanese GDP<sup>10</sup>. Furthermore, a share of 38 %<sup>11</sup> of jobs in Lebanon are created directly or indirectly by the tourism industry.

While most tourists in Lebanon still come from the Arab world, current figures provide evidence that an increasing number of European tourists have discovered

Lebanon as a destination as well.<sup>12</sup> The most popular destination is Beirut.<sup>13</sup> Major travel suppliers have meanwhile reacted to this trend. For example, the FTI Touristik GmbH – one of the leading tour operators in Germany – has brought out a separate catalogue for Lebanon. Besides city and cultural tours, the most important forms of tourism are constituted by summer and winter sports tourism.

In addition to it being a major source of foreign exchange, the tourism industry also offers an alternative or supplement to decreasing foreign exchange earnings from raw materials, agricultural or industrial export products. In particular, countries like Lebanon, whose energy and natural resources are limited, nowadays depend on the economic driving force of this sector. Tourism is an essential, if not *the most* essential, source of income for many destination countries. Well-planned and managed, it can generate jobs and related income. Sectors such as agriculture and transport can benefit through multiplier effects (i.e. by a multiplication of both the original income and the amount of jobs) and contribute to an economic and social balance between economic centers and peripheral regions.

Tourism, with its service character, its economic dependence, and its capital intensity, is characterized by a high degree of seasonality. The industry is therefore particularly sensitive to political

**The term tourism is according to the World Tourism Organization (UNWTO) defined as follows:**

„Tourism is defined as the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited.“

<sup>7</sup> UNWTO: Tourism Highlights 2010.

<sup>8</sup> UNWTO: Tourism Highlights 2010.

<sup>9</sup> Ministry of Tourism. Department of Statistics. Figures for 2010.

<sup>10</sup> [http://www.wttc.org/eng/Tourism\\_Research/Economic\\_Research/Country\\_Reports/Lebanon/](http://www.wttc.org/eng/Tourism_Research/Economic_Research/Country_Reports/Lebanon/).

<sup>11</sup> [http://www.wttc.org/eng/Tourism\\_Research/Economic\\_Research/Country\\_Reports/Lebanon/](http://www.wttc.org/eng/Tourism_Research/Economic_Research/Country_Reports/Lebanon/).

<sup>12</sup> Ministry of Tourism. Department of Statistics. Figures for 2010.

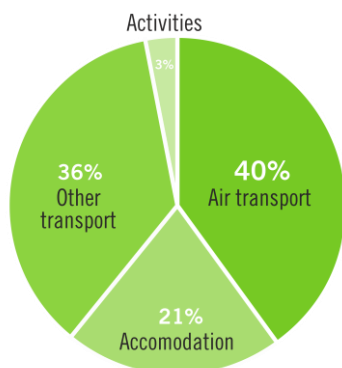
<sup>13</sup> About 77% of all tourists spend their holidays in the capital. See: Lebanon Executive Magazin, No.137, p.105.

instability, economic fluctuations and environmental and health problems such as natural disasters and epidemics.<sup>14</sup> Such factors combined with the strong competition among destinations and their increasing interchangeability for travelers can easily lead to a sudden collapse of demand for a travel destination. This has been the case for Lebanon during the 2006 war, for example.

### *Weather dependent sector*

Many tourist attractions and activities are dependent on climate conditions. What is a summer without sun, a winter holiday without snow? Nature stands at the heart of tourism. The climate is a fundamental feature of tourism destinations. It is a strong factor influencing the motivations and satisfaction of tourists. In the decision of where to travel, subjective opinions play a significant role. The perception of what "good" weather is depends on many factors, such as the nature of the intended activity or the traveler's age.

Climate change cannot be reduced solely to changes in the atmosphere. It is rather a complex interaction between individual spheres. Thus, for instance, the vegetation (biosphere) substantially controls the levels of carbon dioxide (CO<sub>2</sub>) in the atmosphere and consequently the green-



**CO<sub>2</sub>-emissions of the tourism sector**

Source: Author's design based on UNWTO, 2008<sup>15</sup>

<sup>14</sup> Petermann/ Revermann/ Scherz, 2006. p.117 ff.

house effect. At the same time it is highly dependent on properties of the atmosphere, such as temperature and water vapor content. In short, any influence on one of these subsystems ultimately impacts on the whole climate. Hardest hit are therefore those sectors that are directly dependent on the climate. Tourism is thereby both victim and perpetrator of climate change at the same time.

Tourism is fundamentally linked to mobility. Whether the destination is nearby or farther away, it is usually reached by means of transport such as car, train or plane. This in turn leads to an increase in climate change greenhouse gas (GHG) emissions and consumes resources in the form of fossil fuels and land for infrastructure.

The accommodations of tourists entail high energy consumption and substantial emissions, which are generated by heating, air conditioning, hot water, lighting, and by budgetary and technical equipment. Furthermore, there are significant land and water requirements. Food and beverages contribute to the GHGs. If the products offered don't derive from local but international markets, goods have to be imported which in turn causes emissions through transport. Emissions further result from the preparation of meals and the related use of energy.

Leisure and holiday activities, especially those connected with mobility and traffic, are conducive to emissions of pollutants into the atmosphere and further accelerate the transformation of the climate. It makes no difference if the activities are conducted on land (e.g. Motorcycle tours through the wilderness), in the air (e.g. helicopter flights) or in the water (e.g. jet-skiing) - they pollute the air and damage the utilized natural space.

<sup>15</sup> See UNWTO, 2008. P. 133.



Garbage beside a restaurant in front of the sea in Sidon.  
Photo: Manja Riebe

### *The costs of climate change*

Although by international comparison, Lebanon is a small player among the emitters of CO<sub>2</sub> – the western industrial countries are the true heavyweights in this regard – it nonetheless contributes to climate change. At the same time, the small Levantine country with its 10.452 sqm suffers a steady depletion of its natural resources. Whether through the excessive use of land for new luxury apartments and tourism resorts, through garbage dumps built so close to the water that every little wave washes part of the waste into the sea or through the wasteful use of water and the incredible demand of energy from fossil resources, the country seems to significantly overstrain its natural environment, with no end in sight.

Different regions are affected by climate change more or less severely and in different respects. Lebanon as a whole will be faced with increasing temperatures, rising sea levels, declining rainfall and an accumulation of extreme events such as storms and floods. These changes will have catastrophic effects, such as the erosion and degradation of beaches, soil and coastal strips, desertification, heat stress, reduction of water availability, an

increasing risk of fire, drought and degradation of air quality, increased health hazards and the loss of ecological habitats.<sup>16</sup> All these changes will directly or indirectly affect the tourism sector.

Climatic changes have already shown their effects in Lebanon. Rising temperatures cause mild winters and unbearably hot summers. We could get an idea of this last year, when temperatures occasionally exceeded 40 ° C, which is usually rather typical for the Gulf States. Winter sport destinations suffer from the warming too; without snow there can be no winter sports. This became especially evident in early 2010 when the ski season started much too late and ended much too soon. The financial losses<sup>17</sup> were felt by everyone involved. The region Mzaar Kfardebian assumed losses of up to 20 million dollars for the operators of various commercial enterprises. It may have been an "exceptional year", however, long-term forecasts point to a further decrease in rainfall and rising temperatures.

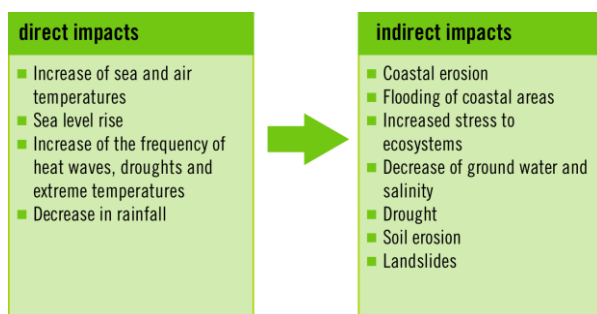
An increase in the sea level will make low-lying beach areas and islands disappear, thus diminishing the attraction for beach lovers. Yet for many visitors from the Gulf States, Lebanon is a popular destination for summer beach or mountain holidays. The mild, Mediterranean climate attracts hundreds of thousands of visitors to Beirut and to the mountains to enjoy the relatively chilly air. Rising temperatures and extreme heat waves will reduce the attraction of this summer destination by exceeding the limits of a comfortable climate. The tourist flows will change in space and time. The drought caused by the heat will also lead to a higher risk of forest fires. Protected areas such as those in the Chouf will be affected, including the already endangered cedar - the emblem of Lebanon,

<sup>16</sup> UNDP, 2010.

<sup>17</sup> Lebanon Executive-Magazin, No.137, p.6.

standing for "peace, holiness, and eternity".<sup>18</sup> Extreme temperatures will also make people susceptible to cardiovascular disorders as well as amplify the need for drinking and industrial water. City tours, which are generally considered as a more weather and climate-independent form of tourism, could also be affected by higher temperatures and extreme weather events which would cause according losses.

Heavy winds and rains can inflict immense damage to infrastructure, whether on the coast, in the mountains or in the city. In December 2010, for example, a severe storm swept across the country with 100 km/h, leaving behind fallen trees and damaged beach bars scattering huge billboards along the highway and bringing with it 5 foot waves that flooded coastal roads. Storms and rains of such dimensions bring the economy to a standstill and require large



**Impacts of climate change**  
Source: Author's design based on UNDP 2010

investments to rebuild. According to statements of the environmental department of the World Bank, in the future the cost of climate change for Lebanon could amount to 500 million dollars a year.<sup>19</sup> In addition to the cost of damaged and destroyed infrastructure, this calculation includes the estimated expenses for adaptation and mitigation measures and



After a fire in the nature reserve of Tyre.  
Photo: Manja Riebe

compensatory investments that need to be applied due to economic losses.

## Challenges

### *Adaptation and Mitigation - What to do?*

The basic problem has been recognized by the relevant stakeholders<sup>20</sup> - even if some do not want to consider climate change as a long-term trend. Climate change impacts on tourism and vice versa. It is therefore necessary to implement relevant measures. On the one hand, the sector must adapt to new climatic conditions (adaptation). On the other hand, harmful emissions should be avoided or at least reduced (mitigation) wherever possible. It is already well known that the developed countries are mainly responsible for the climate dilemma and thus have the most need for change. Lebanon produces only 0.07% of global CO<sub>2</sub> emissions, ranking it in the 76th place.<sup>21</sup> Nevertheless, individual countries need to take measures to deal with the consequences of climate change

<sup>18</sup> <http://www.hauenstein-rafz.ch/de/pflanzenwelt/sammelsurium/Die-Symbolik-der-Pflanzen.php?navid=21>.

<sup>19</sup> <http://www.moe.gov.lb/Reports/Documents/27636d4be6fd47289d11ff715e057d2eCostEnvDegLebanonTunisiaJune04EDP97.pdf>.

<sup>20</sup> The stakeholders include all providers of tourist services, such as tour operators and hotels, as well as government ministries, tourists and the local population. See also Figure on page 13.

<sup>21</sup> <http://www.ebw-international.org/pdf/EWB-Lebanon%20-%20Nader%20Hajj%20Shehadeh.pdf>.

and take some important steps to adapt and mitigate its effects.

Thus, what steps are required to ensure a long-term survival of the Lebanese tourism sector?

Land under water - Coastal zones and sea level rise:

The coast of Lebanon will be affected by the rise in the level of the Mediterranean Sea. Scientists expect an increase of about 88 cm between 1990 and 2100.<sup>22</sup> That would mean that large coastal strips will erode or even disappear completely into the sea. In Lebanon, a 70% majority of the approximately 4 million inhabitants live in this area. Several industrial facilities and numerous tourist facilities including hotels and beach resorts are located there as well. It is therefore both to protect the resident population and the economic infrastructure that immediate measures must be taken. Possible technical measures to be applied in this area might include the installation of tetrapods or groynes<sup>23</sup>, the heaping up of sand or the construction of dykes. At the same time, additional measures could be implemented, which would counteract the effect of surface sealing by new buildings and the consequent pollution of the water and the coastal strip of land. This could be achieved through an Integrated Coastal Zone Management (ICZM) or by controlled urban and regional planning.

There is already an ICZM plan and pilot projects have been launched in the north and the south of the country. The plan was created from 2002 to 2003 under the United Nations Environment Programme's Mediterranean Action Plan (UNEP / MAP), in cooperation with the

<sup>22</sup> IPCC, 2007.

<sup>23</sup> "Groynes are dams that were built at right angles to the coastline. They are to prevent the erosion of the islands and beaches and to boost the addition of sea sand." See: <http://www.ecomare.nl/de/ecomare-encyclopedie/mensch-und-umwelt/kuestenschutz-wasserbau/kuestenschutz/buhnen/>.

Ministry of Environment (MoE). Among other things, it calls for promoting sustainable tourism. However, so far it has been barely implemented nationwide. It is precisely the development of alternatives which offers a great opportunity for the tourism industry. In this way, not only could a higher seasonal adjustment be achieved, but also new audiences and markets could be opened up.



**Tetrapods off the coast of Tyre.**  
Photo: Manja Riebe

Thirsty times - increase in temperature and water shortage:

The increase in the average temperature will have varied effects and will occur differently by region. Experts predict an increase in average temperature by the year 2040 of about 1 ° C on the coast and 2 ° C inland.<sup>24</sup> Heat waves will equally have an impact on human health as on the demand for water. There is a higher risk for human health and simultaneously a nutrient medium for the development of new viruses and microbes is generated. Beside the daily need of the people for drinking water, agriculture requires more water to ensure food supply during times of climate change. Tourism needs a lot of water: whether for the preparation of meals, daily cleaning of hotel rooms,

<sup>24</sup> [http://cyi.academia.edu/PanosHadjinicolaou/Talks/31200/Climate\\_change\\_projections\\_for\\_Lebanon\\_with\\_the\\_PRECIS\\_regional\\_climate\\_model](http://cyi.academia.edu/PanosHadjinicolaou/Talks/31200/Climate_change_projections_for_Lebanon_with_the_PRECIS_regional_climate_model).

swimming pools or for the watering of gardens, which makes the hotel even nicer. Water that is used for tourism infrastructure is diverted from nature thereby contributing directly to its degradation. In view of the pressure on the already scarce water resources of Lebanon, the further development of tourism might lead to conflicts. This is particularly the case, when water is removed from other sectors such as agriculture to divert it for tourist activities which are usually very profitable for tour operators and large companies but ignore the needs of the local population. The increasing scarcity of water through climatic and human impact makes a sustainable long-term development strategy essential.

In addition, the problem is exacerbated by the expected decrease in precipitation by about 20% by 2040.<sup>25</sup> First, given a further removal of water, the water table will not fill up completely anymore. The consequences of which are soil erosion, degradation of agricultural land, the erosion of the foundations of buildings with corresponding damage to property, etc. Secondly, the winter tourism will be directly affected. Who benefits from the most beautiful and most modern winter resort, if no more snow falls or remains? In early 2010, the industry had to contend with a severe financial slump. Many small restaurants, souvenir shops, ski stations and ski-lift operators were empty in face of the spring-like temperatures. Hundreds of employees, who need to earn much of their livelihood during this period, justifiably feared for their very existence. One of the most frequently applied measures for escaping such a situation is the use of artificial snow. Meanwhile, however, it should be well known that such systems only further increase the pressure on nature. They not only consume an enormous amount of water and pollute the air

with emissions, but also affect plants and the territory of wildlife though the noise emanating from the required machines. In response, species leave their habitat or even die out completely. Plants will perform a delayed growth below the artificial snow cover and their overall diversity will decrease.<sup>26</sup> Another popular choice of strategy is the move to higher altitudes. For the winter season 2010/2011 new lifts have already been installed above 2000 meters.<sup>27</sup> Certainly this will at least bring the day and weekend tourists back to the mountain. The problem, however, will hence only be tackled in the short term. On the one hand, it does not alter the long-term prognosis saying that temperatures are rising and that thus sooner or later there will be less rainfall and subsequently less snow at either altitude. On the other hand, the shift ultimately exacerbates the problem as the new tourist infrastructure demands for and infringes upon new areas. New slopes and ski lifts must be created as well as new facilities that cater for the physical well-being of guests.

What is required are adaptation measures aimed at the diversification of what is offered throughout the whole year,<sup>28</sup> as much as possible without stressing the nature. In the region around Mzaar-Kfardebian, in the mountains, a project is already in progress to extend the tourism offer to all four seasons. In addition to the usual winter sports activities, new offers during the remaining time of year range from donkey rides, clay pigeon shooting, mini golf and sun bathing at outdoor pools to less environmentally friendly motorized opportunities.<sup>29</sup> This facilitates a higher independency from the seasons and

<sup>25</sup> [http://cyi.academia.edu/PanosHadjinicolaou/Talks/31200/Climate\\_change\\_projections\\_for\\_Lebanon\\_with\\_the\\_PRECIS\\_regional\\_climate\\_model](http://cyi.academia.edu/PanosHadjinicolaou/Talks/31200/Climate_change_projections_for_Lebanon_with_the_PRECIS_regional_climate_model).

<sup>26</sup> This is only an excerpt of the impact on animal and plant life. So far, no long-term studies exist. In addition, significant construction projects are needed for snow-making systems that affect the natural environment. See: [www.cipra.org/pdfs/454\\_de/at\\_download/file](http://www.cipra.org/pdfs/454_de/at_download/file).

<sup>27</sup> <http://www.reuters.com/article/idUSTRE6AD1BY20101114?pageNumber=2>.

<sup>28</sup> Schmude/Namberger, 2010. p. 130 ff.

<sup>29</sup> <http://www.skimzaar.com/faraya-mzaar/ski-resort/four-seasons.asp>.

simultaneously attracts new target groups. One caveat must be mentioned, however, in that it is mostly outdoor activities which have been added, which are likewise dependent on the weather. With regard to the protection of nature and the avoidance of harmful emissions, it is obvious that ATV tours through the surrounding forests or helicopter tours can by no means be considered adequate alternatives. Whereas, for example, the establishment of thematic walking tours or biking on fixed routes would be perfectly acceptable.

Besides summer and winter tourism, also rural- and eco-tourism<sup>30</sup> are affected by climate change. Both are heavily depended on a healthy nature and would therefore be substantially impaired by the described effects of climate change. Pascal Abdallah, owner and manager of Responsible Mobilities, a tour operator for sustainable travel in Lebanon has estimated that „[...] we will perhaps see the rural exodus accentuated because of the change in climate that will impact the agriculture and the local water sources, on which the farmers and rural dwellers lay on.“<sup>31</sup>

#### Storms and flash floods - Extreme Events:

A particular challenge will arise more frequently: extreme weather events. Such events curtail the use of the affected habitat. While financial losses are inevitable, in areas where the space for settlements and other usage areas overlaps with hazard zones, extreme weather events can lead to immense damage to persons or property. For example, the Baalbeck-Hermel region is

regularly hit by major flash floods, which tear down whole streets. Besides the obvious direct damage, such natural events also lead to indirect adverse effects. The tourism sector, in this respect, has to calculate for an expectable loss of revenue as a result of changed conditions (e.g. because of non-viability of winter sports and beach facilities, the absence of guests because of impassable roads, etc.).

Weather events on this scale are very difficult to predict. The development of appropriate adaptation strategies proves comparatively challenging. Moreover, such protective measures require huge investments. Conceivable possibilities include engineering measures for coastal protection such as the already existing tetrapods, which at least have a weakening effect against meter-high waves; the development of operational early warning and crisis management systems; adaptation of building standards for buildings and roads; the inclusion of extreme events in development plans and awareness raising among the population.<sup>32</sup>

The tourism economy should avoid additional construction of tourist infrastructure in vulnerable areas. Beyond that, however, there is little it can do. The main responsibility here rather resides with the state. Accordingly, such projects should normally be financed by the latter, although Public-Private-Partnership (PPP) projects may be equally taken into consideration, given the common interest. While local development plans are available, it seems there is a lack of implementation so far. The ties between politics and business are closely linked and the financial interest in short-term profits seems to clearly play a more prominent role. For example, special

<sup>30</sup> There are no clear definitions of both terms. By rural tourism, I mean activities which take place in rural areas. These are not only "farm holidays," but could also be the experience of rural culture or nature itself. Ecotourism is often used synonymously with sustainable tourism. Ecotourism lays particular emphasis on the protection of nature and the needs of the local population.

<sup>31</sup> Abdallah, 2010.

<sup>32</sup> [www.ufz.de/data/Thesenpapier\\_AG8\\_0809049171.doc](http://www.ufz.de/data/Thesenpapier_AG8_0809049171.doc).

rules for the construction of buildings are virtually non-existent.<sup>33</sup>

#### Thick air – Emissions:

Beirut already dwells under a brown-gray dome of smog, which can in fact be seen when approaching the international airport. The poor air quality, especially in the capital, has been an issue for several years: a problem that Beirut shares with many cities in the world. About 25% of the emissions responsible for this result from transport.<sup>34</sup> To the chagrin of the residents of Beirut, the streets are so full of cars that daily traffic jams last for hours. The remaining emissions derive from industrial plants and households.<sup>35</sup> Large sections of the population obtain their power from gasoline-powered generators in times when they are not supply through the public network. On top of that there are the countless air conditioners which in the face of increasing temperatures are even more in demand.

To avoid or decrease GHG emissions in the tourism industry, especially in the areas of transportation and accommodation, there are several different approaches: Technical innovation can help to improve energy efficiency and simultaneously attribute to the reduction of energy consumption. Hotel owners might equip for example the rooms with systems that exclude unintended continuous operation of light and air conditioning systems. The switch to renewable or carbon-neutral energy sources (photovoltaic, solar thermal, geothermal, etc.), as well as the possibility of energy recovery from waste – of which there is plenty in Lebanon - not only preserve the non-renewable resources, but also helps to mitigate emissions. In the context of

catering food, emissions would be reduced already if more local products would be used instead of imported goods.<sup>36</sup> Moreover, this would have a positive impact on the local economy. The establishment and promotion of public transport could resolve the chaotic traffic situation as well as improve the air quality in major cities. The tourist office has published a plan of the existent bus routes, however, there are no fixed departure times. Furthermore, one has to know the city well to get through, as street names won't take you anywhere. In particular, tourists are generally not well-grounded in such knowledge of the place.

Approaches such as the collection of parking fees might encourage leaving one's car at home, especially as it is anyway a lengthy undertaking to find free parking space in Beirut. According to Wael Hmaidan, founder of the environmental organization IndyACT, road construction operations, like laying higher sidewalks might diminish the chaotic parking in pedestrian zones. This in turn would increase the attractiveness of walking for amblers.<sup>37</sup>

#### *Stakeholders and actions*

Without a doubt, the introduction of the necessary measures in view of the interdisciplinary nature of tourism poses a major challenge. This makes a targeted strategic development which engages all relevant political and economic stakeholders even the more important.

On one hand, private companies, such as hotel and restaurant owners, tour operators and operators of leisure facilities are in high demand. On them lies the responsibility to implement concrete measures while creating awareness of environ-

<sup>33</sup> Frommherz-Hassib, 2010.

<sup>34</sup> Greenline: Impact of car dependency. Online: [http://www.greenline.org.lb/sustainable\\_transport/STwebsite%20pdf/fsheet.pdf](http://www.greenline.org.lb/sustainable_transport/STwebsite%20pdf/fsheet.pdf).

<sup>35</sup> [http://www.aub.edu.lb/ifi/public\\_policy/climate\\_change/Document/s/publications/20091208ifi\\_cc\\_NEEDS\\_CountryBrief\\_Lebanon.pdf](http://www.aub.edu.lb/ifi/public_policy/climate_change/Document/s/publications/20091208ifi_cc_NEEDS_CountryBrief_Lebanon.pdf).

<sup>36</sup> About 70% of the needs of food and products for the manufacture are covered by imports. The share of food in total imports is 13%. See: <http://www.ats.agr.gc.ca/afr/4629-eng.htm>.

<sup>37</sup> Hmaidan, 2010.

mental issues. On the other hand, it is inevitable that the tourism polity is taking steps to maintain and promote the sector. It is necessary to adopt and implement accordant legislation and mechanisms to control compliance with the latter such as the establishment of credible certification systems. Also, the publication of action programs and the implementation of awareness-raising activities for stakeholders and tourists should be applied.

But what is the reality? Adaptation, avoidance, ignorance? The Ministry of Tourism (MoT), as one should think, is responsible for the overall governance of the sector. Obviously, however, the biggest obstacle here is a far too small budget. Apparently this budget is not even sufficient for guaranteeing updating the website of the Ministry. Action plans for the adaptation of winter (sport) tourism as well as relevant education brochures gather dust in the digital drawer. The interest of individual employees is great, but this seems not to be the case for decision makers. Nevertheless, one or another measure has been introduced that positively influences a sustainable, climate-friendly development of tourism. For example, the hotel classification system has been expanded to include the environmental aspect. This means that environmentally friendly measures in a hotel subjected to this system will be counted and hence influences its star rating. Official guidelines for eco-lodges are before Parliament, meanwhile, waiting for their blessing. Given the steady long stagnation in the political process and the paralysis of state institutions, this however, can be expected to still take some time.

If private companies are planning tourism projects, they must first obtain a permit from the Ministry. In this context, each project is conducted under the logo of the Tourism Ministry. Major events like the

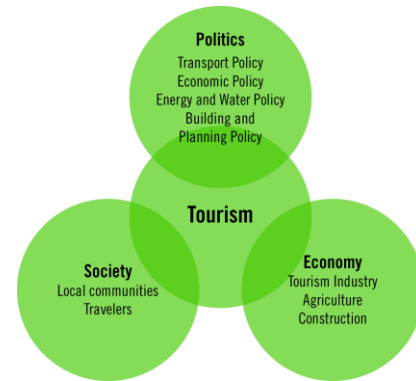
"International Mountain Day" or the "World Responsible Tourism Day" also take place under the auspices of the Ministry. The tourist information office hands out brochures that inform about projects. In essence, therefore, the tasks of the MoT, according to its own statements, include the cooperation with private companies and NGOs as well as raising awareness. The responsibility to combat climate change in an active way, as they see it, rests primarily with the private sector. In addition to its small budget, the Ministry is faced with yet another problem, which prevents it from taking action; the recurring political uncertainty in the country. For them, this is a key issue, which seems logical as nothing scares "ordinary" travelers more than the risk of getting caught in a political conflict. Finally, it can be said that the issue of climate change and its negative influence on the Lebanese tourism industry is indeed understood in theory, but it has not yet found its place on the political agenda. Currently, it does not look like this will change in the near future.

Another influential player is the Ministry of Environment (MoE). Many of the measures taken by it affect tourism directly or indirectly. For example, the establishment of nature reserves or protected areas which serve as attractions plays a major role. Similarly, the enactment of adaption laws and strategies for protecting the environment affect the tourism industry. The ministry recently issued a manual on environmental assessment to be used by hotels – however, whether it is being applied in practice is questionable. The work plan of the MoE for the years 2010 to 2012, aims to support eco-tourism through the promotion of protected areas in cooperation with the MoT and within the framework of the latter's political strategy. In addition, a number of laws and legislative proposals aiming at the protection of the environ-

ment are intended to be adopted. In cooperation with the Ministry of Public Works and Transport (MoPWT), the promotion and improvement of public transport is high on the agenda.<sup>38</sup> In a pilot project, for example, the fleet of a taxi company would be substituted with hybrid cars. The MoE is working with various international organizations, such as UNDP, in the context of the thematic area of climate change. Oftentimes, however, ideas remain in the pilot phase and once the international players have finished their work and end their financial support, there is no further progress.

Privately-owned companies play a prominent role in that they are directly affected by climatic changes. As I have explained above, a decline in the number of visitors in the time of the high-season affects every individual player in the value chain. Thus, they all should have a vested interest in securing their income. This, in turn, is only possible through a strategy that addresses the essential questions: Which products, attractions or activities can be offered to attract customers? How can a year-round touristic offer be realized? Which groups should be targeted and how can at the same time the entire natural environment be protected as the basis for tourism?

In this context, there is now a whole range of environmentally friendly accommodations. They obtain their power from alternative energy, recycle their water and offer local products. Most of these are small, privately run boarding houses. These places are making a significant contribution to raising awareness, protecting their natural environment and promoting the local economy. The mass of tourists, however, usually stays in the big hotels in the cities where many international chains, such as InterContinental



#### Stakeholders in Tourism

Source: Author's design based on Kahlenborn/ Kraack/ Carius 1998

Hotels Group (IHG), have facilities. Most of them have enshrined environmental and climate-friendly measures in their corporate strategy or as part of corporate philosophy. IHG for example has the program "Green Aware" for sustainable tourism, drawing on four fields of activity: water, waste, community and energy. Measures in these areas shall serve the protection of resources and the reduction of CO<sub>2</sub> and should have a sustainable impact in relation to the local community. In the actual implementation, this means the use of water-efficient showerheads and toilets and energy-efficient products (or simply: energy saving lamps) and the increased use of sustainable energy sources (solar, wind, biofuels<sup>39</sup>). In addition, the reuse and recycling of materials is envisaged, according to the website "... wherever it is possible."<sup>40</sup> It remains questionable, however, to what extent those measures have a real positive effect. The use of energy saving products in fact does save energy, as the name implies, but especially saves the costs borne by the operator of the accommodation. Water-efficient sanitary facilities are quite reasonable. But their effect is likely to be reduced considerably if, for

<sup>38</sup> [http://www.moe.gov.lb/.../MoE%20PoW%202010-2012%20\(English%20Draft\).pdf](http://www.moe.gov.lb/.../MoE%20PoW%202010-2012%20(English%20Draft).pdf).

<sup>39</sup> The promotion of biofuels is problematic, because most of the utilized plants, the starch and / or fibers containing oil are also used for food production. Therefore, this creates a competition in usage, which not least in view of the world food problem, raises immense ethical concerns.

<sup>40</sup> Quote from the website of the IHG, translated by the author. See: <http://www.ihgplc.com/innovation/index.asp?pageid=44>.

example, the exterior decoration of a hotel includes a huge waterfall. By taking recourse to an appropriate marketing strategy, the application of simple measures that meanwhile make up a standard in many households can easily be sold as something far bigger thereby lending the actor in question a green image on little costs.

There are probably a number of hotels in this chain that have implemented environmentally-friendly measures - but not in Lebanon. Upon further questioning, I was told that some of these hotels are just about to edit the program and that they will then take appropriate action. It remains to be seen what perceptible actions will be taken.

Tour operators offer everything from excursions to ancient sites to sightseeing flights to karting. These are not always particularly climate-friendly activities. They are fully attuned to the experience that is demanded by the customer. Thus, this field develops according to the motto "higher, faster, further." Nevertheless, some organizers have specialized in ecotourism. With a closer look, however, it will be clear that not all eco-providers are taking things that seriously. Pascal Abdallah is one of the few "men of convictions" that try to take care of everything: Drinks and food are bought at local stores and not in advance in international supermarkets. Attractions are the nature, the interaction with the locals and historic sites. The particular destination is reached by public transport <sup>41</sup> – not by half-full, air-conditioned bus - which, for some, in itself already renders the trip an adventure holiday. Pascal's target group is not just tourists. Regular school classes also book trips with his company, Responsible Mobilities. He wants to raise awareness, especially among the youth

on the importance of the environment for their future. This, however, is definitely not the way to make big money. Pascal draws his salary mainly from his faculty job at the university. But here he is dedicated to the same subject<sup>42</sup> and he trains future tourism managers.

Of the many NGOs that are active in Lebanon, few deal with the issue of climate change. One of them is IndyACT. Their work consists of the launching of environmental, social and cultural campaigns.<sup>43</sup> Tourism has so far not been the subject of a separate campaign. However, tourism as a topic is referred to as part of campaigns that raise awareness on the issue of climate change. It lends itself as a reference especially because of Lebanon's dependence on this sector. Cooperation with the relevant stakeholders within the framework of their campaigns ranges from the relevant ministries to political parties to private companies. In terms of climatic changes and their impact on the tourism sector, Wael Hmaidan sees the biggest challenge facing Lebanon in the successful conclusion of an international agreement. Therefore, according to Hmaidan, IndyACT is primarily engaged in this task. In his opinion, the government's assuming its responsibilities in this regard is crucial; without honoring international commitment, not much can be achieved.

Other organizations such as Greenline – a partner of the Heinrich Boell Foundation call attention to the issue of climate change with individual, targeted projects on various issues that affect the tourism sector. Thus, for example, a slogan in the campaign for sustainable transport is "On the move without your car." From 2002 to 2004 they conducted a project that included a two-day "train-the-trainer" workshop, various publications and the

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<sup>41</sup> Project „Clean Mobility“ (2008-2011), staged by Responsible Mobilities.

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<sup>42</sup> Abdallah, 2010.

<sup>43</sup> <http://www.indyact.org/>.

establishment of an expert team on ecotourism.<sup>44</sup> In the framework of its campaign "Access to rights... Right to resources" Greenline wants to fight the aggressive privatization of public resources and raise awareness among citizens about their right to sustainable development. In this respect, they published a series of fact sheets on various topics such as "Renewable Energies", "The beach belongs to us" and "Green spaces - a right for all."

## Conclusion

The tourism industry is, as demonstrated, highly dependent on the natural environment. Lebanon is sensitive to the variability and the direct and indirect changes in climate which will become more visible in coming years. Destinations will be influenced by the expected alterations. Tourist flows will shift and this will have an enormous economic impact, especially on the local level. Hence, there are plenty of reasons to act. Environmental awareness among politicians, tour operators and the general population is growing; tourists should at least be expected to reflect increased awareness as well. The demand for environmentally friendly services is rising.

On the topic of climate change and tourism in Lebanon there is, so far, little publicly available information and studies are equally almost non-existent. Only few academics are actively pursue concrete research on this issue. To develop an adequate strategy for action and measures for their implementation it is necessary that a comprehensive scientific analysis is conducted and that an appropriate monitoring system is introduced so that data becomes available. Responsible politicians have done little until now.

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<sup>44</sup> <http://www.greenline.org.lb/campaigns/education-a-awareness/87--campaign>.

Despite the signing and ratification of the Kyoto Protocol and many other international agreements, neither a national strategy nor a tourism specific strategy to combat the effects of climate change exists. Some private operators are committed to drawing more attention to the subject. This, however, has only had a small impact so far.

Adaptation and mitigation measures are not necessarily linked to an international agreement. Of course, states can act on own initiative as well. This, however, requires a strategy that contains both hard (e.g. laws) and soft measures (such as programs of action). At the same time, all relevant actors need to be clear about who is responsible for what. It is certainly not helpful when the politicians put the responsibility almost exclusively on the private sector, while other organizations believe that without an international agreement it is hardly possible to change anything. It is also not helpful when the private sector implements, with a few exceptions, only measures that promise short-term profit, such as reduction measures. Adaptation requires a long-term investment and takes a long-term view of profit - which is not commonly in line with the perceived interest of economic actors.

Serious efforts should be made to identify alternative sustainable tourism products that have as little adverse climatic effects and that are as independent of climate related factors as possible. This presupposes, however, that all stakeholders pull together. The inter-linking of business, politics and public services is fundamental, and an integrated and inclusive planning process is essential for successful sustainable development. After all, the initiator and key player in this must be the government, because only the latter has the appropriate means at its disposal to enforce the implementation of a strategy if necessary.

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