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**ISSAM FARES INSTITUTE FOR PUBLIC POLICY AND INTERNATIONAL AFFAIRS
RESEARCH AND POLICY FORUM ON CLIMATE CHANGE AND ENVIRONMENT IN THE
ARAB WORLD**

AMERICAN UNIVERSITY OF BEIRUT

Knowledge Mapping of Climate Change Issues and Stakeholders in Lebanon

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1. Introduction

Rising concern over greenhouse gas emissions and their impact on the climate of the earth led to the international environmental treaty produced at the United Nations Conference on Environment and Development (UNCED) at the Earth Summit in Rio de Janeiro in 1992. This treaty, the United Nations Framework Convention on Climate Change (UNFCCC) was legally non-binding in that it did not set mandatory limits on greenhouse gas emissions for individual nations and contained no enforcement provisions; however, it did contain provisions for updates – called protocols – that would set limits on emissions. The main update adopted at the end of 1997 is the Kyoto Protocol which aimed at stabilizing greenhouse gas emissions to a level that would prevent interference with the Earth's climate. By January 2009 183 parties had ratified the Kyoto Protocols. In this Protocol the countries of the world were divided into three main groups:

- Annex I countries (industrialized countries)
- Annex II countries (developed countries which pay for costs of developing countries)
- Developing countries.

The Protocol committed the Annex I and Annex II countries that ratified it to a legal binding commitment to reduce the emission of four greenhouse gases (carbon dioxide, methane, nitrous oxide, sulfur hexafluoride) and two groups of gases (hydrofluorocarbons and perfluorocarbons). To meet these commitments the signatories had to develop national measures and also they were offered three market-based mechanisms whose implementation is overseen by the UNFCCC:

- Emissions trading – known as “the carbon market”
- Clean development mechanism (CDM)
- Joint implementation (JI).

The first commitment period for the Kyoto Protocol ends in 2012 after which a new agreement has to be negotiated and ratified with more stringent emissions reductions in order to avoid the projected warming temperatures and subsequent impacts reported in

United Nations' Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (FAR).

In building up to the 2012 date and to resolve some hanging issues within the Kyoto Protocol a total of 14 meetings called Conference of Parties (COPs) were held all over the world. At the 15th meeting to be held in Copenhagen, Denmark, a successor to the Kyoto Protocol is expected to be adopted.

1.1. Regional and Local Context

Human activities have now been proven to be the main cause for changes in the Earth's climate. Climate change has become the central issue of global concern; no country, large or small, rich or poor, will be immune from its ramifications. According to the United Nations' Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (FAR) published in 2007 projects that the temperature in the Middle East will increase 1-2°C by 2030-2050. In a more focused study of the effects of climate change on water resources, the IPCC expects substantial decreases of up to 20% to occur in the Mediterranean (IPCC 2008). The resultant impacts of these changes are expected to be far reaching effecting ecological systems in semi-arid much more than the arid parts of the region; woodlands and agro-ecosystems would be stressed and water resources in a region labeled as the most water-stressed in the world will be further debilitated.

To date only the Palestinian Authority and the Iraqi Government have not signed and ratified the Kyoto Protocols. Lebanon ratified the UNFCCC treaty in 1994 and then the Kyoto Protocol in November 2006. Lebanon has also been actively engaged in most of the COPs through the Ministry of Environment. As a result of this several activities undertaken by a variety of stakeholders and supported by several donors have taken place in Lebanon.

2. Stakeholders

Lebanon's liberal political system has allowed the establishment of a wide spectrum of stakeholders involved and interested in climate change and its local, regional, and global impact. These range from Governmental Institutions and Organizations to the Civil Society made up of Non-governmental Organizations, the private sector, academia, etc. The sections below list the main actors within the categories of identified stakeholders.

2.1. Governmental Institutions

Several line ministries and governmental institutions have been involved in climate change activities. The most prominent are the following:

- **Ministry of Agriculture:** Involved in implementing the national Action Plan within the UN Convention on Combating Desertification. It has also been involved in reforestation, biodiversity management, water conservation, etc.
- **Ministry of Energy and Water:** The ministry has been active in water resources management and more importantly in setting energy regulations and power generation alternatives.
- **Ministry of Environment:** The most active governmental institution in climate change issues and is the focal point for all official activities related to the Kyoto Protocol and Post-Kyoto negotiations. It is also the Designated National Authority (DNA) responsible for implementing and overseeing the market-based mechanisms (CDM and Carbon Trading) allowed under the Kyoto Protocol. It is also active in reforestation and the implementation of regulations related to the environment and climate change (emissions standards, effluent discharges, waste disposal, etc.)
- **Ministry of Industry:** Responsible for industrial permitting and oversight of adherence to industrial regulations and standards.

- **Ministry of Interior and Municipalities:** Represents the teeth for many environmental regulations. It is also responsible in its oversight of municipalities for regulating power generation (community generators commonly used in Lebanon) and waste management at the municipal level.
- **Ministry of Public Works and Transportation:** This ministry is active through transport and traffic management. It is also the line ministry responsible for Department of Meteorological Services which is deploys and maintains the network of weather stations used for aviation safety and local weather forecasts.
- **Council for Development and Reconstruction:** Responsible for major development projects throughout the country and has been mainly involved in solid waste landfill projects.

2.2. Non-governmental Organizations

There are over a hundred environmental non-governmental organizations (NGOs) registered in Lebanon. Some are constantly active others have seasonal activities or when certain issues arise. There following are NGOs that have been most active in the climate change field:

- **The League of Independent Activists (IndyACT):** This is the only local NGO dedicated to climate change issues. It was founded in 2006 as a consequence of the Israeli July War and the bombing of the Jiyeh power plant. They aim to raising concern on climate change by:
 - Conducting events on the ground, or conducting media campaigns (mass media and online new media)
 - Producing research on climate impacts and highlighting them in the media
 - Producing policy papers for the current climate change negotiations
 - Coordinating with the Ministry of Environment to strengthen their position in the negotiations

- Organizing workshops on climate policy for various stakeholders (journalists, academic sector, governments, etc.)
- **Association for Forests, Development and Conservation (AFDC):** Founded in 1993, this NGO has been extensively active in reforestation and forest recovery efforts. They aim to achieve sustainable conservation of natural resources, raise awareness and build capacities to contribute to the national efforts for better environmental management. Their efforts have had been indirectly linked to climate change issues (reforestation, forest and biodiversity conservation).
- **The Lebanese Association for Energy Saving & for Environment (ALMEE):** Founded in the early 1990s, this NGO has dedicated its activities to energy saving technologies. Its stated mission is to develop, increase and promote all the scientific and technical methods and means that allow a better management of energy with special focus on the following:
 - Renewable energies: solar, wind, biomass, hydraulic, wood, etc...
 - Generation and exploitation of the electrical energy
 - Buildings: insulation, glazing, heating, air conditioning, etc...
 - Industrial processing, "cogeneration", etc...
- **The Society for Protection of Nature in Lebanon (SPNL):** Founded in 1984, this NGO endeavors to fight against environmental degradation in Lebanon through scientific research, local community involvement, valuation of biodiversity, advocating for sounder policies, awareness, outreach and environmental education.

2.3. Academic and Research Institutions

Lebanon is very rich in its private and public academic and research institutions. It has the two oldest universities in the Arab World. There are seven major accredited

universities in addition to tens that have limited attendance and accreditation. Of the seven major universities the following have been and are engaged through faculties and/or centers and institutes in research on issues directly or indirectly related to climate change:

- i. *American University of Beirut (AUB):* There are no academic programs tied to climate change directly; however, faculties do offer programs indirectly related to climate change in addition there is an interfaculty graduate environmental science program that offers graduate degrees in related fields. In addition several faculties and institutes and centers are engaged in research related to climate change. The following is a listing of the faculties and some of the academic programs:
 - *Faculty of Agricultural and Food Sciences:*
 - *Faculty of Arts and Sciences:*
 - *Faculty of Engineering and Architecture:*
 - *Faculty of Health Sciences*
 - *IBSAR - Center for Nature Conservation and Sustainable Futures:*
 - *Issam Fares Institute for Public Policy and International Affairs:*
 - *Water Resources Center*

- ii. *Lebanese American University (LAU):* As with AUB there are no academic programs tied to climate change directly; however, schools do offer programs indirectly related to climate change. In addition several schools and institutes are engaged in research related to climate change. The following is a listing of the schools and some of the institutes:
 - *School of Engineering and Architecture:*
 - *Institute for Water Resources & Environmental Technologies:*
 - *Urban Planning Institute*

- iii. *Saint Joseph University (USJ):* As with AUB there are no academic programs tied to climate change directly; however, schools do offer programs indirectly related to climate change. In addition several faculties, institutes, and centers are engaged

in research related to climate change. The following is a listing of the faculties and some of the institutes and centers:

- Faculty of Engineering
- Faculty of Sciences
- Higher Institute for Engineering in Beirut
- Higher Institute for Agricultural Engineering for Mediterranean Countries
- Regional Center for Water and Environment

iv. University of Balamand: The University offers courses in undergraduate programs that are environment based and indirectly related to climate change. The following is a listing of the faculties and some of the institutes and centers:

- Faculty of Engineering
- Center for Engineering and Environmental Studies
- Institute of Environment

v. Notre Dame University: The University offers courses in undergraduate programs that are environment based and indirectly related to climate change. The following is a listing of the faculties and centers:

- Faculty of Engineering
- Water Energy and Environment Research Center (WEERC)

vi. Lebanese University: The only public University offers courses in undergraduate and graduate programs that are environment based and indirectly related to climate change. The following is a listing of these faculties:

- Faculty of Engineering
- Faculty of Sciences
- Ecole Doctorale des Sciences et de Technologie

In addition to the academic research institutes there are some research centers that are sponsored by the Lebanese government. Several of these do conduct climate change related research:

- i. National Council for Scientific Research (CNRS): The Council defines the country's research priorities and sponsors researchers from all accredited universities in Lebanon within these areas some of which are directly related to climate change while others are indirectly related. The Council has also established "associated Research Units" within designated universities to better integrate the research efforts. It also supports several centers for specific research, the two relevant ones are:
 - a. National Centre for Marine Sciences: conducts research on the marine environment along the Lebanese coast and forms part of a Mediterranean network
 - b. The National Centre for Remote Sensing: secures databases and satellite imagery of land use, land cover and others to keep track of development and environmental parameters.
- ii. Lebanese Agricultural Research Institute: The institute conducts applied and basic scientific research for the development and advancement of the agricultural sector in Lebanon.
- iii. Industrial Research Institute: It is an institution for studies, industrial research and scientific testing and analysis. It has been involved in the Clean Development Mechanism.

2.4. Private Sector

The private sector in Lebanon has always been vibrant and attentive to potentially profitable developments. As such several firms have been keen to be involved in climate change related activities. Some for publicity and an improved image others to make

profit. The following are the most prominent private sector establishments to have been involved:

- i. *EcoSecurities in association with Sustainable Environmental Solutions:* Carbon reduction strategies are developed for local industries and companies. There have been two published cases:
 - a. *AbboudCo:* EcoSecurities helped AbboudCo a workwear manufacturing company become carbon neutral.
 - b. *Rymco:* EcoSecurities was appointed to audit and offset the Company's direct and indirect emissions of greenhouse gases.

- ii. *Banks:*
 - a. *HSBC Bank:* The bank gave out loans on solar water heaters as part of an environmental campaign.
 - b. *Bank Med:* The bank launched the "Happy Planet" campaign and declared the year 2009 as the year in which it will introduce environmentally friendly initiatives both internally, within their offices, and to the mass population that contribute towards a greener planet

- iii. *Consultants:* Many consulting firms, large and small, based in Lebanon are actively and heavily engaged in climate change related activities. Some are engaged by local and regional governments as well as donors to conduct studies on climate change and related issues. Others are involved in the design of infrastructure and developments in which climate change is an important component that is directly addressed in the final design.

- iv. *Media (written, audio, visual):* Lebanese press corps (newspapers, radio, television) has extensively covered climate change on global, regional and national levels.

2.5. Donors

Donors for projects related to climate change abound in Lebanon. Nearly all conceivable donor agencies and countries are or have been involved. The following is a sample list of the major donor agencies:

- i. US Agency for International Development (USAID)
- ii. International Development Research Centre (IDRC)
- iii. European Union
- iv. Pontifical Mission
- v. United Nations Environment Programme (UNEP)
- vi. United Nations Development Programme (UNDP)
- vii. United Nations Industrial Development Organization (UNIDO)
- viii. Economic and Social Commission for Western Asia (ESCWA)
- ix. German Technical Cooperation (GTZ)
- x. Others.

3. Relevant Laws and Regulations

No climate change specific laws or regulations have been enacted in Lebanon. However, Lebanon did sign the UNFCCC treaty in 1994 (Law 359 dated 1/8/94) and followed that with signing and ratifying the Kyoto Protocol. Prior to these Lebanon had signed several treaties related to climate change; these are listed in Table 1. There are several regulations that limit activities that may lead to increased greenhouse gas emissions.

Examples of these are:

- Setting buildings thermal standards
- Setting emissions standards
- Setting effluent discharge standards
- Regulations on solid waste disposal
- Establishing the Lebanese Center for Cleaner Production

Table 1. Treaties and agreements signed by Lebanon (source Ministry of Environment, 2009)

2001	Stockholm Convention on Persistent Organic pollutants for adoption by the conference of plenipotentiaries. Signature:22/5/2001
1999	Convention on Wetlands of International Importance especially as Waterfowl Habitat.-Ramsar. Accession:1/3/1999 by the law number 23
1994	United Nations Convention to Combat Desertification.-Paris. Ratification:21/12/1994 by the law number 469
1992	United Nations Framework Convention on Climate Change.-Rio de Janeiro. Ratification:11/8/1994 by the law number 359
1992	Convention on Biological Diversity.-Rio de Janeiro. Ratification:11/8/1994 by the law number 360
1992	Amendment to the Montreal Protocol on Substances that deplete the Ozone Layer.-Copenhagen. Accession:3/11/1999 by the law number 120
1990	Amendment to the Montreal Protocol on Substances that deplete the Ozone Layer.-London. Accession:31/3/1993 by the law number 253
1987	Montreal Protocol on Substances that deplete the Ozone Layer.-Montreal. Accession:31/3/1993 by the law number 253
1985	Vienna Convention for the Protection of the Ozone Layer.-Vienna. Accession:30/3/1993 by the law number 253

4. Country Climate Change Issues

Through the production of Lebanon's first national communication to the UNFCCC on greenhouse gas emissions and vulnerability mitigation assessments and in the preparation of the second national communication, 12 sectors were identified as vulnerable to climate change. It is not within the scope of this study to analyze these findings but will suffice to list them:

- i.** Agriculture
- ii.** Energy sector
- iii.** Industry
- iv.** Terrestrial ecosystem
- v.** Water resources

- vi. Coastal resources and marine and estuarine ecosystems
- vii. Waste and wastewater:
- viii. Public health:
- ix. Tourism
- x. Gender
- xi. Human settlements/urbanization/infrastructure
- xii. Food security

5. Activities

Public interest in climate change and presence of donor funding has encouraged activities related to climate change. The activities range from research to advocacy activism to financial investments. Examples of these activities are listed below:

i. Governmental

a. Ministry of environment

- Second national communication - report on greenhouse gas emissions in Lebanon and climate change vulnerability, adaptation and mitigation assessment
- National Economic, Environmental and Development Studies - financial assessments carried out in support of the second national communication
- Project Name: NATIONAL OZONE UNIT
<http://www.moe.gov.lb/Projects/Ongoing/OZONE+Office.htm>
- Project Name: GEF Climate Change Enabling Activity Project
<http://www.moe.gov.lb/Projects/Accomplished/Climate+Change.htm>
- National Reforestation Plan
<http://www.moe.gov.lb/Reforestation/National+Reforestation+Plan.htm>
- Enabling Activities for the Preparation of the Second National Communication (SNC) to the United Nations Framework Convention on Climate Change (UNFCCC)
<http://www.undp.org.lb/ProjectFactSheet/projectDetail.cfm?projectId=25>

- National Phase Out Management Plan for CFCs in Lebanon
<http://www.undp.org.lb/ProjectFactSheet/projectDetail.cfm?projectId=63>
- Institutional Strengthening Project for the Implementation of Montreal Protocol (Phase V)
<http://www.undp.org.lb/ProjectFactSheet/projectDetail.cfm?projectId=126>

b. Ministry of Energy and Water

- The United Nations Development Programme (UNDP) and the Lebanese Center for Energy Conservation Project (LCECP), launched the Energy Efficiency School Promotion campaign on the 5th of February 2008.
<http://www.undp.org.lb/Communication/News/newsDetail.cfm?newsId=61>
- Lebanon-Cross-Sectoral Energy Efficiency and Removal of Barriers to ESCO Operation
<http://www.undp.org.lb/ProjectFactSheet/projectDetail.cfm?projectId=6>
- Sustainable Energy Strategy for Lebanon
<http://www.undp.org.lb/ProjectFactSheet/projectDetail.cfm?projectId=91>

ii. NGOs

- UNDP/GEF Small Grants Programme
<http://www.undp.org.lb/ProjectFactSheet/projectDetail.cfm?projectId=18>
- IndyAct
Regional Two-Day Workshop: Arab World Policy for Post-2012 Climate Negotiations
http://www.indyact.org/news_details.php?news_id=MjE=
- Activists in Lebanon Create Human Chain to Protect Iconic Cedars from Catastrophic Climate Change
<http://greenprophet.com/2009/05/13/8939/lebanese-climate-cedar-activists/>
- Arab Climate Campaign
http://www.indyact.org/IndyAct_CC_position_paper.pdf
- IndyACT: Climate change will make Lebanon's snow disappear
<http://www.iloubnan.info/en/article/id/32544>
- AFDC

AFDC is launching a campaign entitled: "Ma Tshaweh Tabeatak ما تشوه طبيعتك"

- Society for the protection of Nature in Lebanon **SPNL**
Effect of climate change on biodiversity in Lebanon
<http://www.spnlb.org/publications.php>

iii. Governmental Research Institutes

CNRS

- Environmental changes in Lebanon during the Holocene: Man vs. climate impacts.
<http://www.cnrs.edu.lb/research/rsactivities.html>
- Remote Sensing Centre
Using Satellite Images to Monitoring Snow Cover Dynamics on the Lebanese Mountains. CNRS

LARI

- Climate Change and Variability in Lebanon: Impact on Land Use and Sustainable Agriculture Development
http://www.fao.org/sd/climagrimes/pdf/ws01_24.pdf

iv. Private Academic and Research Institutes

Many scientists from all accredited universities in Lebanon engaged in research and publications related to climate change; however, the most active institution has been the American University of Beirut which has in excess of 26 professors and researchers working on issues directly or indirectly related to climate change. The Issam Fares Institute for Public Policy and International Affairs at AUB set up the Research and Policy Forum on Climate Change and Environment in the Arab World to act as an umbrella institute bringing together these researchers with policy makers. Several activities were conducted within this framework mostly in the form of workshops and seminars that brought together scientist, decision makers (local and regional), NGOs, and international organizations together to discuss issues related to climate change.

6. Analysis

Even though Lebanon seems to have been keeping abreast with developments in climate change, signing agreements and treaties, there is not a concerted effort at the government level to address the issue as an entity. Most activities in this field seem to be donor-driven without the necessary focus and direction that should be provided by a governmental strategy to face up to the concerns raised by climate change and its impacts on a wide variety of the Lebanese economic and social sectors. The Second National Communication is a clear example in which the vulnerable sectors were determined not through in-country research carried out after the first national communication, but through desktop studies carried out by the donor.

Research is conducted at the academic and institutional level without direction, driven by the availability of funds. Coordination between scientists and institutions is limited and interdisciplinary research is limited. Duplication of effort and outputs thus is rife.

Most NGOs are preoccupied with issues other than climate change and their activities are also controlled by donor funding. Press coverage reflects the activities of the governmental institutions and the NGOs and thus public awareness is not properly formed on sound scientific basis.

As a recommendation and a starting point for future work, it would be well worth Lebanon's while to coordinate the activities of all the stakeholders. The government should tap the country's scientists to develop local climate change scenarios and then identify vulnerable sectors and adaptation and mitigation measures that are based on these locally generated data. The government would then be able to develop more realistic and internally driven programs to help vulnerable sectors and communities adapt to climate change. The media would be able to rely on local scientists to better cover the topic and thus public awareness will be better anchored in science. Thus NGOs will have a more aware and knowledgeable following that will enable them to better present their projects and argue advocate their cause.

References

Bates, B.C., Z.W. Kundzewicz, S. Wu and J.P. Palutikof, Eds., 2008: Climate Change and Water. Technical Paper of the Intergovernmental Panel on Climate Change, IPCC Secretariat, Geneva, 210 pp.

Intergovernmental Panel on Climate Change (IPCC) 2007. Climate Change 2007: Impacts, Adaptation and Vulnerability. Working Group II Contribution to the Fourth Assessment Report of the IPCC. Cambridge University Press, UK.