

MODERATION OF THE NATIONAL WORKSHOP IN THE STATE OF PALESTINE

Deliverable on activity 1.1.1.1 : " Identify existing CV&C monitoring program and available data in each participating country, as well as options for data sharing in view of developing a multicountry Information sharing portal".

Project title

“Integration of climatic variability and change into national strategies to implement the ICZM protocol in the Mediterranean”

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Hosted by the State of Palestine, Ramallah, May 28 & 29, 2013.

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Introduction

1. On November 29, 2012, the State of Palestine became a non-member observer to the United Nations. This does not mean that the country is a signatory of any UN related Conventions, such as the Barcelona Convention and its 2008 Integrated Coastal Zones Management (ICZM) Protocol, or the United Nations Framework Convention on Climate Change (UNFCCC). For the latest, Palestine is an Observer State for instance.
2. Still, Palestine is one of the eight countries involved in the MedICIP project (Mediterranean Integrated Climate Information Platform). This project is part of a larger project of the UNEP MAP (Mediterranean Action Plan) and the Plan Bleu project towards a regional adaptation framework for climate change in the Mediterranean.
3. The purpose of MedICIP is to “develop knowledge, data acquisition and exchange of information on climate variability and change in the Mediterranean region, on the expected impacts (on society, the economy and natural resources), on vulnerability and on adaptation measures, and document good practices of integrated climate risk management and climate adaptation in support to the Integrated Coastal Zone Management (ICZM) in the Mediterranean Basin, to facilitate the information exchange and to enable scientists, the civil society and policy makers to access these data”.
4. According to the 2010 “Climate Change Adaptation Strategy and Programme of Action for the Palestinian Authority”, the most significant environmental effects of climate change in Palestine, over the course of this century, are projected to be a decrease in precipitation (with significant seasonal variation) and significant warming. Climate change forecasts for the eastern Mediterranean from high-resolution regional climate models give clear scientific backing to the Intergovernmental Panel on Climate Change (IPCC) projections for the region. For Palestine, warming over the 21st century will be larger than global annual mean warming, between 2,2 to 5,1°C. Annual precipitation rates are likely to fall decreasing 10% by 2020 and 20% by 2050 with an increased risk of summer drought.
5. The national workshop held in Rammallah, May 28 and 29, 2013 enabled to review and validate the existing documents, mainly the country report, and to identify data sources, indicators, and the institutional framework for such data collection.

Objectives and expectations of the workshop

6. The objectives of the workshop are taken from the document that was circulated to the participants with the agenda, and splitted into three specific objectives
7. Objective I. Review of the existing and missing data with the national report as a starting point
 - Present the main points of the national report prepared during the inception phase.
 - Discuss about the compilation of the existing monitoring programmes on CVC.
 - Select the available data that can be shared in order to feed the MedICIP portal.
 - Identify gaps.
 - Define modalities of data extraction and sharing options.
8. Objective II. Present the MedICIP Portal (content, objectives, modalities, users' needs)
 - Present and discuss contents of the portal (MedICIP).
 - Analysis of users' needs and metadata: form (table, graph, and links towards reports...) and topic/sector (water, agriculture, tourism,).
9. Objective III. Start selecting relevant indicators
 - Review the first selection of indicators.
 - Suggest a core set needed for the country.
 - Discuss indicators and data: which methodology for the selection?
10. The expectations were also clearly presented in the documentation and at the beginning of the workshop.
 - Production of a working factsheet for the analysis of user's needs which will be taken into account in the MedICIP portal items.
 - National report completed with the concerned institutions.
 - Validation, by the participants, of data and gaps highlighted in the report.
 - A draft of a first core set of indicators.
11. The agenda of the workshop is presented in Annex I. A total of 16 experts participated to the workshop, knowing that the initial video conference with other experts based in the Gaza Strip had to be cancelled at the last minute. The workshop was co-chaired by Mr. Ahmad Abu Thaher, Head of the Department of Environmental Protection, Ministry of Environmental Affairs and by Alexandre Borde, from Plan Bleu.

Palestine data available and gaps

13. The working session enabled to review in details the national report and its summary (also called Fact Sheet). Furthermore, some relevant CV&C indicators were discussed.
14. It was mentioned that there is a national Committee for Climate Change in Palestine, led by the Ministry of Environmental Affairs. This committee gathers many others ministries around the table for climate change related issues.
15. In Palestine, data gaps are related to the political situation. The data from 1948 to 1967 for the Gaza strip are not available. Much more recently, the events in 2006 and 2007 did not allow any data collection in Gaza during that period.
16. To the opposite, various projects enabled to gather data on climate vulnerability. This is the case with the CLIMB project funded by the 7th Framework Program of the EU (<http://www.climb-fp7.eu/home/home.php>).
17. Based on the national report and the review of the existing projects, the seminar resulted in the identification of indicators, presented in the table below.

Proposed indicators
<p>Topic/sector 1 (Coastal zone) – this section should be completed by persons from the Gaza Strip</p> <ul style="list-style-type: none"> • Suggested indicators • Form (table, graph, ...) • Reports available on this topic/sector
<p>Topic/sector 2 (Climate)</p> <ul style="list-style-type: none"> • Suggested indicators: GHG emissions, Evolution of the temperature, rainfall, shift in the rainy season, number of rainy days, number of climate related extreme events, number of days with heat waves, number of days with frost, humidity • Form: table and graph • Reports available on this topic/sector: Ministry of Agriculture (water indicators), Palestinian Central Bureau of Statistics (PCBS), PMD (Palestinian Meteorological Department)
<p>Topic/sector 3 (Land use)</p> <ul style="list-style-type: none"> • Suggested indicators: Change detection in Land Use Land cover • Form: maps, tables, graphs • Reports available on this topic/sector: land suitability map, spatial planning study • Institutions that host/manage the related data: Ministry of Agriculture, Ministry of Planning Administrative Development, other sources in academia and research centres and NGOs, UN OCHA, PCBS
<p>Topic/sector 4 (Energy and Transportation)</p> <ul style="list-style-type: none"> • Suggested indicators: GHG emissions of these sectors (for instance grid emissions factor), renewable energy percentage, energy consumption per capita, % of hybrid cars, % of persons using public transports • Form: Tables and graphs • Institutions that host/manage the related data: PCBS, Palestinian Energy Authority, Ministry of Transportation
<p>Topic/sector 5 (Health)</p>

- Suggested indicators: Number of climate related diseases (incidents) {epidemics, allergies, ...}, number of deaths due to high temperature and heat waves, distribution of climate related insects (mosquitoes,...)
- Form: Tables, graphs
- Reports available on this topic/sector: some data are available from MOH
- Institutions that host/manage the related data: MOH

Topic/sector 6 (Ecosystems)

- Suggested indicators: Forest fires, surface rare of protected areas and nature reserves, rangelands, number of threatened species, land degradation indicators
- Form: Table, graph
- Reports available on this topic/sector: limited
- Institutions that host/manage the related data: MENA, PCBS, MOA, ARIJ

Topic/sector 7 (Welfare/Socio-economic)

- Suggested indicators: Diversity in the source of incomes, level of awareness (in relation to the content in the academic programs), Mainstreaming CC in the national policies implementation, poverty related indicators
- Form: tables, graphs, qualitative information
- Reports available on this topic/sector: limited
- Institutions that host/manage the related data: Ministry of Labour, Ministry of Women Affairs, PCBS, Ministry of Social Affairs, Ministry of National Economy

18. In addition, the table below presents the relevant institutions interested by the MedCIP.

Institutions	Website
Palestinian Central Bureau of Statistics (PCBS)	www.pcbs.gov.ps
Palestinian Energy Authority (PEA)	www.pea.gov.ps
Ministry of Agriculture (MOA)	www.moa.gov.ps
Ministry of Environmental Affairs (MENA)	www.mena.gov.ps
Ministry of Transportation (MOT)	www.mot.gov.ps
Ministry of Labor (MOL)	www.mol.gov.ps
Ministry of Women Affairs (MOWA)	www.mowa.gov.ps
Palestinian Meteorological Department (PMD)	www.pmd.ps/ar/english.htm
Ministry of Planning Administrative Development	www.mopad.pna.ps
Applied Research Institute - Jerusalem (ARIJ) / Society	www.arij.org
Birzeit University	www.birzeit.edu
Islamic University Of Gaza	www.iugaza.edu.psa
Palestinian Hydrology Group (PHG)	www.phg.org
Ministry of Health (MOH)	www.moh.ps
Ministry of Education (MOE)	www.mohe.gov.ps
Ministry of National Economy (MNE)	www.mne.gov.ps

Outputs and recommendations

19. The participants agreed about the updates to be made to the factsheet and to the national report. There was a strong requirement that these updates should be included in the document by samir Afifi, given its knowledge of the specificities of the Gaza Strip.
20. This led to an overall discussion about the definition of a coastal zone, and the geographical limitation so far to the Gaza Strip. All the participants are considering that the West Bank should also be covered by the project, especially for the Mediterranean water catchment areas in the West Bank.
21. The overall result of the workshop is very positive, in terms of willingness to contribute to MedICIP. Some recommendations, specific to the content of the platform, are presented below:
 - The procedures to be able not only to provide some inputs to the platform, but also to maintain it with new or updated informations, should be communicated when these procedues will be known,
 - There should be a sub-section for a “roster of experts”,
 - There should also be a sub-section of training modules,
 - Still about the content, it should be possible to upload concept papers to be made accessible for potential donors.
22. It is suggested to concider links with the Climate Induced Changes on the Hydrology of Mediterranean Basins (CLIMB).
23. One significant drawback for the State of Palestine is not to be a signatory of the Barcelona Convention nor the ICZM Protocol. The participation of the State of Palestine, especially given its recent recognition as a non-mamber obserber State to the UN, should enable to move one step forward towards the full participation to the Convention.
24. The seminar benefited from a media coverage in the newspaper Al Hayat (see Annex III).

Annexes

Annex I. Program of the workshop

May 28, 2013	
9:00-9:30	Introduction for opening of the workshop and roundtable (<i>Ahmed Abu Thaher, Director General For Projects and International Relations, Ministry of Environment Affairs and Alexandre Borde, consultant from Plan Bleu</i>)
9:30-10:15	<ol style="list-style-type: none"> 1. Presentation of the scope and objectives (<i>Alexandre Borde, consultant, Plan Bleu</i>) <ul style="list-style-type: none"> ➤ Reminder of the objectives of the project and those of the national workshop ➤ Agreement on the objectives of the workshop
10:15-11:15	<ol style="list-style-type: none"> 2. Presentation by the expert, author of the national report about « Climatic variability and change into national strategies to implement ICZM Protocol » (<i>Prof. Dr. Samir Afffi, author of country report</i>) <ul style="list-style-type: none"> ➤ Introduction of the main part of the national report. ➤ Presentation of the CLIMB project. ➤ Presentation of the available data that can be shared and identification of gaps.
11:15-11:30	Coffee break
11:30-12:15	<ol style="list-style-type: none"> 2. Presentation of the possible content of the MedICIP portal and the indicators (<i>Alexandre Borde, consultant, Plan Bleu</i>) <ul style="list-style-type: none"> ➤ Presentation of the functionalities and contents of MedICIP. ➤ Presentation of the first possible set of indicators and discussion about the methodology for their selection.
12:15-12:30	Discussion
12:30-15:30	<ol style="list-style-type: none"> 3. Analysis of users' need (<i>Nedal Katbeh, Climate Change Focal Point & Alexandre Borde, consultant, Plan Bleu</i>) <ul style="list-style-type: none"> ➤ Updating of the national report and the fact sheet ➤ Working session on data availability, data gaps, sources of raw data ➤ Identification of the main institutions involved in information related to adaptation to climate change: <ul style="list-style-type: none"> - What kind of data will be available and could be exchanged? - What are the data networks in the country? - How do they work? - Data sharing options.
15:30-16:30	Lunch time
May 29, 2013	
9:30-10:30	Results of the working session and conclusions (<i>Nedal Katbeh, Climate Change Focal Point and Samer Kalbouneh, Ministry of Environment Affairs</i>)
10:30-12:00	Next steps (<i>Alexandre Borde, consultant, Plan Bleu</i>)

Annex II. List of participants

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Annex III. Media coverage of the seminar in the newspaper Al Hayat, May 29, 2013, n°6312, p. 23.

أشؤون البيئة) تعقد ورشة عمل بالبيرة حول التغير المناخي في المناطق الساحلية

تواجه منطقة القطاع- نافذة فلسطين على البحر المتوسط وخاصة تلوث الحوض الجوفي بالمياه العادمة والكيماويات الزراعية وتسرب مياه البحر اليه. وتحدث (برود) المستشار الفني في مؤسسة plan Bleu عن التغيرات المناخية في العالم وبين ان هذه التغيرات تمثل تهديدا كبيرا للكثرة الارضية وأنها تصاف الى قائمة الاخطار التي تهدد الحضارة البشرية. وأشار رئيس قسم البيئة وعاسوم الارض بالجامعة الاسلامية سمير العفيفي بغزة الى التغيرات المناخية في قطاع غزة وأثار هذه التغيرات على المناطق الساحلية والنشاطات وقال في حديث على الفيبينوكونفرنس: ان تغير المناخ هو من اكبر التحديات البيئية التي تواجه العالم اليوم، وان ارتفاع درجات الحرارة العالمية سيجلب تغيرات في الانماط المناخية، مع ارتفاع لمنسوب مياه البحار وسيشعر الناس بأثر التغير المناخي بالشرق الاوسط.

البيرة - الحيلة الجديدة - ملكي سليمان - عقدت وزارة شؤون البيئة ورشة عمل في البيرة امس حول التغير المناخي في المناطق الساحلية وذلك ضمن مشروع ينفذه برنامج الامم المتحدة للبيئة- خطة عمل البحر المتوسط بالتعاون مع مؤسسة plan Bleu وتمويل من مرغق البيئة العالمي، ويخدم هنا المشروع الاقليمي ثماني دول هي المغرب، تونس، الجزائر، اليونان، الجبل الأسود، مصر وفلسطين، ويهدف المشروع الى بناء القدرات الوطنية في مجال التغير المناخي وخاصة في مجال الرقابة على التغيرات وتأثيراتها وزيادة الوعي لدى الجمهور وأصحاب القرار. وتحدث المهندس احمد ابو ظاهر مدير عام المشاريع والعلاقات الدولية عن ضرورة العمل على التكيف مع التغير المناخي والحد من اثره الجتبية وإدماجه في السياسات والاستراتيجيات الوطنية لتنفيذ بروتوكول الادارة المتكاملة في المناطق الساحلية، كما تطرق م. ابو ظاهر الى اهم التحديات التي

Annex IV. List of presentations and other documents made available during the workshop

- **Climate Induced Changes on the Hydrology of Mediterranean Basin, Reducing Uncertainty and Quantifying Risk through an Integrated Monitoring and Modelling System, Samir Afifi.**
- **Climate Change Adaptation Strategy and Programme of Action for the Palestinian Authority, United Nations Development Programme, Programme of Assistance to the Palestinian People, 2010.**
- **GLOWA Jordan River (GLOWA JR)** is an interdisciplinary and international research project providing scientific support for sustainable water management in the Jordan River region.

Towards final reports phases I and II: <http://www.glowa-jordan-river.de/>

Home page: <http://www.glowa-jordan-river.de/>

Annex V. Palestine Factsheet

Palestine

5.1.1 Context

In trying to govern a society facing the many major challenges that come with life under occupation, dealing with the seemingly nebulous concept of climate change is not the Palestinian National Authority's (PNA) number one priority. Nonetheless it is becoming increasingly clear to many at the government level that climate change poses some serious threats to an already tense Palestinian existence.

The concept of climate change has emerged in the most recent Palestinian Reform and Development Plan (PRDP), which outlines the government's key budgetary priorities for the 2008-2010 timeframe and Environmental sector strategy 2011-2013.

5.1.2 Operation

The National Committee for Climate Change is the appropriate Palestinian strategic body to take lead responsibility for developing policies and measures relating to drought minimization and management. This body needs to be actively supported by a technical committee comprising relevant Palestinian institutions (especially the Palestinian Water Authority, the Ministry of Agriculture, and the Environment Quality Authority (EQA))

5.1.3 Data available

- The Palestinian Ministry of Transportation had twelve partially functioning metrological stations in Gaza which had data on daily-base on temperature, rainfall precipitation, and humidity and wind speed. The data are available from 1973 to 2010 and was collected from the Ministry of transportation.
- Financial PNA's administrative and Financial capacities.

- Spatial variation of annual rainfall over the twelve climatic stations in Gaza Strip (1980-2010).
- Precipitation rates 1980-2010.
- The Mean Monthly Areal Rainfall (MMAR) time series, (Thiessen Method) from (1980 - 2010).
- Average rainy days in Gaza strip (1980-2010)

5.1.4 Data gaps / Other lack / Needs

- Due to the limitations of the PNA's administrative capabilities, the implementation of climate change adaptation strategy is difficult.
- No data available on sea level rise.
- None of the models (see scenario part below) takes into account socio-economic impacts particular to the oPt, which suggests the need for a regional downscaling model tailored to address Palestinian adaptation priorities in the face of future climate risks.
- Strengthening the national institution specialized in climate variability and change especially in monitoring, research and modeling and also strengthening the capacity for climate change monitoring in terms of legislation, institutions, and facilities
- Also there is a need to strengthening the capacity, for monitoring climate change impacts in terms of legislation, institutions and facilities. In addition to technical assistance is needed for modeling (running scenarios/models) of climate change impacts is also required.
- Technical assistant in developing the legislation concerning mainstreaming climate variability and change adaptation into national policies, plans, regulations and programs.
- Establishing of a regional data bank on climate variability and change, and impacts within UNEP. It is worth to establish a "clearinghouse" mechanism for the exchange information on adaptation to climate change.

5.1.5 Strengths

- The cabinet is formed national committee on climate change led by EQA also the Environment Quality Authority (EQA) appoint also "Advisor for Climate change" for EQA chairman.
- The Environment Quality Authority participated in the Council of Arab Ministers Responsible for the Environment in its 19th session at the headquarters of the Secretariat of the League of the Arab States on December 2007. The council has adopted the Arab Ministerial Declaration on climate change, which constitutes the base for future action and reflects the Arab position in dealing with climate change issues.
- As a public-private initiative, Climate SMART addresses mitigation and adaptation opportunities from a cost-benefit perspective, with special consideration given to the long-term sustainability of the measures to be implemented. The plan encompasses all of HRM's corporate and community assets and activities, and includes a series of tools that are used to incorporate climate change information into its municipal decision-making processes. Climate SMART was formally launched in March, 2004 and includes several key deliverables.
- The Palestinian Environment Quality Authority (EQA) is in the process of generating an action plan for the national climate change adaptation strategy.
- COMET (Community, Energy, and Technology in the Middle East) are already poised to help assist in the more widespread use of solar panels and wind turbines.

- The Palestinian Energy Authority (PEA), in conjunction with Palestinian Energy and Environment Research Center (PEC), has formulated a 5-year national master plan for developing renewable energy resources and increasing energy efficiency in Palestine.
- A drought early-warning system for the oPt (occupied Palestinian Territory) is already under development, supported by Italian Development Cooperation. This will improve data collection on rainfall and soil moisture, providing a more scientific basis for minimizing the risk of drought and desertification (UNDP/PAPP, 2009).

5.1.6 Monitoring program / national plans and programs for monitoring

- The Palestinian Ministry of Environmental Affairs, now EQA, had prepared the “Gaza Coastal and Marine Environmental Protection and Management Plan” in 2001.
- The Palestinian Environmental sector strategy 2011-2013, National strategy to combat desertification.
- A coastal and marine action plan :
 - The development of a coastal and marine protection committee, which includes representatives of the key stakeholders in the coastal and marine zone.
 - The preparation of a balanced set of coastal and marine protection measures that are in line with the Palestinian Environmental Strategy (MENA, 2001).
- In 2009, the Environment Quality Authority (EQA), is spearheading (fer de lance) the effort to generate a climate change risk and vulnerability assessment report/adaptation strategy for Palestine, entitled “Climate Change Adaptation Strategy for the Occupied Palestinian Territory” and funded by the United Nations Development Program’s (UNDP) Program of Assistance to the Palestinian People (PAPP).
- New project under preparation: signed May 2013 “Enhancing the Capacities of the PA in Mainstreaming Environment and Climate Change in oPt”. The objectives of the project are:
 - i. To support the PA preparedness, especially MEnA, and the Ministry of Foreign Affairs to engage in the International Environmental Conventions, including United Nations Framework Convention for Climate Change (UNFCCC) and Rio Convention in preparation for the state building;
 - ii. Mainstream Climate Change into national plans and strategies as integral component for sustainable development and green economy;
 - iii. Assess and strengthen the capacities of the related PA ministries and authorities in CC mainstreaming, adaptation and mitigation according to the priorities identified;
 - iv. Implement selected Pilot projects (from the PAPA) in the most affected areas in oPt including water resources and food security, efficient and sustainable use of energy and sea level rise;
 - v. Enable the PA to access environmental financing with focus on the GEF/SGP.
- Many Palestinian NGOs had benefited from the GEF-SGP funds in order to implement small-scale projects at the local and national levels in the fields of climates changes adaptations aiming at effective management of groundwater, wastewater, storm water, solid waste, air quality, land use, energy and seawater.

5.1.7 Network / transboundary / regional networks and structures

Multilateral Projects

- In 2010 the Islamic University in Gaza is one of the partners and one of the selected study sites in the multilateral project called “Climate Induced Changes on the Hydrology of Mediterranean Basins (CLIMB) – Reducing Uncertainty and Quantifying Risk through an Integrated Monitoring and Modeling System” (www.climb-fp7.eu/). This project (January 2010 - end of 2013) funded by the European Commission through the Seventh Framework Program. The main objective of this project is to analysis the climate change impacts on available water resources.
- The Climate change, hydro-conflicts and human security (CLICO) project (<http://www.clico.org>) is a collaborative project funded under the EU Framework 7 Program which will explore the ways in which different hydro-climatic, climate change, water conflict and human security as well as climate change and its social dimensions.
- The Arab Climate Resilience Initiative (ACRI) is a UNDP program that aims to address the challenges of climate change by connecting stakeholders in the Arab States to innovative knowledge, partnerships and solutions. (www.arabclimateinitiative.org)
- Clima South project that funded by EU.

5.1.8 List of institutions

- Ministry of Agriculture,
- Palestinian Water Authority,
- Municipal Coastal Water Utility,
- Ministry of Health and Environment Quality Authority had frequent monitoring to the drinking water quality and sea water quality.
- All institutions who are members of the National climate change committee.
- **More: p 28 of the report.**

5.1.9 Vulnerable zones

- Three of the most vulnerable areas of Palestinian society: the Bedouin communities around Hebron, Jordan Valley villages and residents of the Gaza Strip.

5.1.10 Vulnerable sector

- The potential impact on already scarce and politicized water resources of CC.
- Relationship between climate change and water scarcity and the consequent impacts on agriculture.
- The annual decrease in precipitation has led to less freshwater availability and agricultural land (Increases in seasonal temperature variability, storminess and frequency of temperature extremes may endanger cold- and heat-sensitive crops. (Also drought and floods).
- Impacts on trade: A delayed growing season would cause Palestinian agricultural sector to lose its advantage over countries in colder climates as an early exporter of flowers, fruits and vegetables (Palestinian Ministry of Agriculture 2008).

5.1.11 Impact

- Water
 - Increased water shortages from lower rainfall and higher evaporation
 - Increased storm water flooding from greater rainfall variability
 - Insufficient rain to recharge aquifers.
 - Deterioration of surface and groundwater quality.
 - Shift of rainy season

- Agriculture
 - More frequent droughts and increased desertification.
 - Changes in economic viability of crops (e.g. shorter growing seasons)
 - Increased crop water requirements
 - Decline in grazing ranges and stocks.
 - Higher food prices.
 - Shift of rainy season
 - Decrease in % of marketable crops
 - Reduction of production percentage per area
 - Increase of agricultural pests

- Energy
 - Increased energy and fuel demands to cope with more temperature extremes

- Public health
 - Increase in public health ailments related to the lack of water such as
 - diarrhoea, cholera and dehydration.
 - Increased heat stress from high temperature extreme events.
 - Spatial and temporal alteration of disease vectors, including malaria,
 - Leishmaniasis, and tick-borne diseases.

- Coastal management
 - Salt water intrusion into the Coastal Aquifer.
 - Land use impacts from sea-level rise and coastal erosion.
 - Soil degradation.
 - Loss of biodiversity

5.1.12 Scenario

- The climate projections derived from high-resolution climate models applied to the eastern Mediterranean region also differ in some key respects from the lower resolution IPCC forecasts.
- **The Japanese Meteorological Agency Atmosphere General Circulation Model (JMA-AGCM)** with 20km grid squares. This climate model was run for the eastern Mediterranean according to three time-slices – present climate (1982-1993) and then two future runs (2080-2099) with moderate and high climate sensitivity. The future climate change scenarios were based on IPCC emissions scenario A1B.

- **The GLOWA-Jordan River RCM**, which uses an American nonhydrostatic meteorological model. The meteorological fields generated have also been coupled with a hydrological model **WaSiM** to provide the first estimates of hydrological responses of the Upper Jordan River to forecasted climate change.
- **The Sea Atmosphere Mediterranean Model (SAMM)**, which combines the French AGCM ARPEGE-Climate Model of 50 km² resolution with a regional Ocean General Circulation Model (OGCM) with 10km grid squares. Climate simulations for the Mediterranean were run from 1960-2100 using observed values up to 2000.

5.1.13 For MEDICIP: link towards all the literature

National documents

- Climate Change Adaptation Strategy for the occupied Palestinian territory prepared by EQA and UNDP on 2009.
 - Palestinian Climate Change Policy prepared by Friend of the Earth on 2010.
 - Climate Change Impacts in the Arab Region.
 - Gaza Coastal and Marine Environmental Protection and Management Action Plan prepared by Palestinian Ministry of Environment on 2001.
- **More: p 29 of the report**

Annex VI. Indicators and Palestine's needs