



**The European Union's Regional Programmes Neighbourhood South**

# **Algeria Country Report**

May 20<sup>th</sup> – 24<sup>th</sup> 2013

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**ENPI CLIMA-SOUTH**

**Support to Climate Change Mitigation and  
Adaptation in the ENPI South Region**



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## List of Acronyms

ANME	National Agency for Energy Control
CC	Climate Change
CCU	Climate Change Unit
CDM	Clean Development Mechanism
P-CDM	Programmatic CDM (Program of activities)
ENPI	European Neighbourhood Policy Instrument
ERs	Emission reductions
FI	Financial Institutions
INC	Initial National Communication
GIZ	German Agency for International Cooperation
LEDS	Low Emission Development Strategy
MoE	Ministry of Energy
MoEnv	Ministry of Environment
NMM	New Market Mechanism
PNAEDD	National Action Plan on Environment and Sustainable Development
PM	Policy Makers
PS	Private Sector
SHE	Safety, Health, and Environment
NAMAs	Nationally Appropriate Mitigation Actions
SNC	Second National Communication
SWH	Solar Water Heater
TNA	Technological Needs Assessment
TNC	Third national communication
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

## 1. Introduction

**Project name:** ENPI Clima south support to climate change mitigation and adaptation in south Mediterranean countries

**Location:** within the 10 south Mediterranean countries; Morocco, Algeria, Tunisia, Libya, Egypt, Palestine, Israel, Jordan and Syria

**Duration:** 48 months

**Status of the project:** The project is at the inception phase. This mission is the Sixth one of the series of missions during this phase. It aimed at updating the country mission of Algeria through conducting consultations with key CC stakeholders in Algeria. The GHG baseline situation and the adaptation issues were described in the following updated table taken from the proposed methodology below (Table 2).

Table (2): GHG and mitigation status in Algeria

<b>GHG emissions (net):</b>	1994: 104.79 MtCO <sub>2</sub> eq 2000:117.31 MtCO <sub>2</sub> eq	<b>GHG emission growth rate</b> SNC	<b>1.7 % (1994-2000)</b>
<b>Main GHG emitting sectors:</b>	Energy (74.7%), Agriculture (5.6%) industrial processes (4.7%), Waste (9.7%), LULUCF (5.4%). All data are for 2000. Percentages are based on total net emissions. Energy industry is the biggest GHG emitter with 32% of total emissions in 2000. Transport is a major sub-sector contributing to GHG emissions from fuel combustion, with a share of 15%.		
<b>Special national circumstances:</b>	Algeria has a total area of 2,381,741 square km and an estimated population of 35.7 million (2010).The narrow fertile coastal strip area supports the bulk of population Climate of Northern Algeria is similar to that of other Mediterranean countries. The coastal region has a pleasant climate, with winter temperatures averaging from 10° to 12°C and average summer temperatures ranging from 24° to 26°C. Rainfall in this region is abundant—38 to 69 cm per year and up to 100 cm in the eastern part—except in the area around Oran (Ouahrán). In the Sahara Desert, temperatures range from -10° to 34° C, with extreme highs of 49° C. Rainfall is irregular and unevenly distributed.		
<b>Mitigation:</b>	Algeria ratified Kyoto protocol in January 2004. It has a very important role in the negotiation because of its position as head of the African group. Algeria is also a member of and is highly influenced by the positions of OPEC and OAPEC. Mitigation as a political priority comes after adaptation. Algeria has no registered CDM projects due to its lengthy and complex process, also lack of expertise. However, Algeria has adopted an ambitious policy for renewable energy and energy efficiency development which will have the co-benefits of GHG reduction. The Algerian government seems more interested in adaptation as priority to satisfy the need of the Algerian people		
<b>Main adaptation challenges:</b>	<ul style="list-style-type: none"> <li>• Desertification</li> <li>• Water availability</li> <li>• Agricultural productivity</li> </ul>		

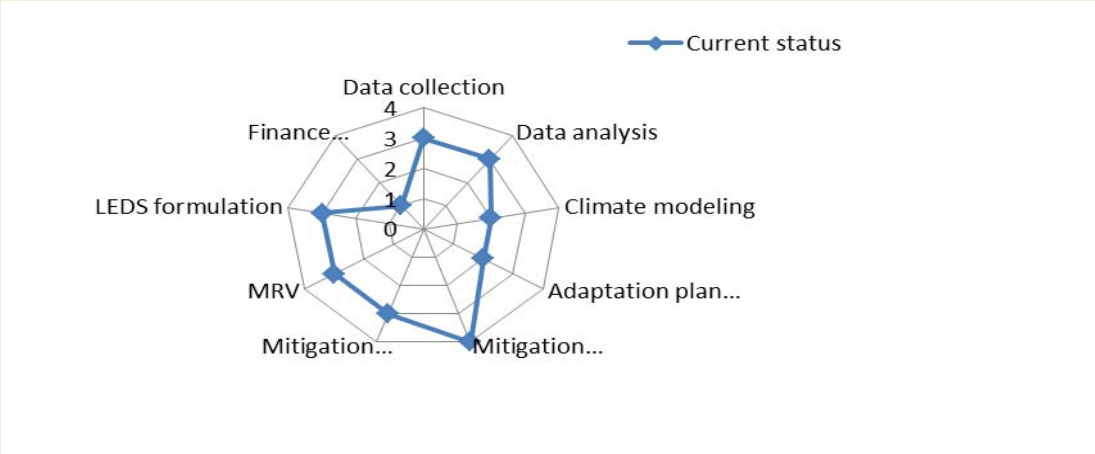
The team of Key Experts has updated and expanded the ENPI CLIMA-South country profiles during this inception phase on the basis of the most recent documents and reports in consultation with stakeholders interviewed during fact finding missions. This work is used to provide a starting point for the identification tool as described page 6-7.

**BOX 1: CC CAPACITY ASSESSEMENT & ACTIVITIES IDENTIFICATION TOOL**

The ENPI CLIMA-South is implemented in a dynamic region, with rapidly changing social and political environments. At the same time, climate change is at a critical stage of the international negotiations in which new developments may be expected ( a new universal legally binding agreement ( protocol) to be adopted by 2015 and start implementation by 2020 replacing Kyoto Protocol.). Flexibility is therefore of the utmost importance and an approach is needed that can be rapidly adapted on the basis of the changing needs and moving opportunities. This situation was taken into account with the development of a simple, flexible and participatory tool allowing the visualization of issues to agree on means and ways to address them.

The assessment tool used for this project is based on Key Experts’ analysis of the situation described in climate change relevant documentation and the results obtained during interviews and discussions using a set of questionnaires prepared on mitigation, adaptation and communication related issues (see column 1 of each Table). The current situation of a country is assessed and scored from 1 to 5<sup>1</sup>, indicating that the country’s situation with respect to that particular intervention area is completely satisfactory (where capacities equal needs).

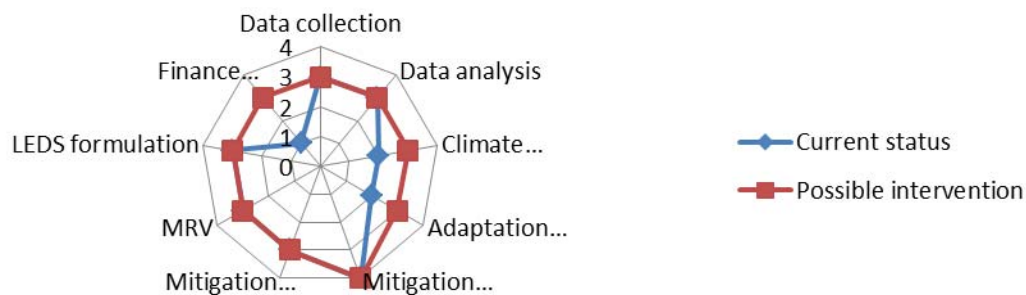
The results obtained are converted in a visual representation of ‘spider chart’; several possible intervention areas are charted on the spokes of the diagram. The number of spokes can be increased and more intervention areas can be added according to questions asked. The Key Expert Adaptation for example has developed a specific one with more adaptation parameters. This method can be best illustrated using an example of the application of the tool as in the figure 1 below.



**Figure 1: Example of a current status assessment of climate change capacities versus needs**

In this example, the country is doing very well on mitigation option identification but poor on climate modeling and adaptation plan formulation and very poor on carbon finance mechanisms. This suggests a direction for priority interventions. The idea is to ‘stretch the web’, in order to smoothen out the indentures in the graph through possible interventions as in the figure 2 page 7.

<sup>1</sup> A qualitative assessment is carried out by assigning a level to each analysis element state as follow: [1] Very low [2] Low [3] Average [4] Good [5] Very Good



Schematically, this process involves the following steps:

**Pre-condition:**

The national counterpart is clearly identified to discuss it

**Assessment of needs should be based on:**

Views of national government stakeholders  
 Views of expert community and other related community stockholders  
 Objective indicators (when possible)

**The assessment of the current status should be based on the same sources of information**

Views of national government stakeholders  
 Views of expert community and other related community stockholders  
 Objective indicators (when possible)

**Other donor interventions are important to consider/Important aspects to be reflected in the analysis**

To what extent can other donors' efforts bridge the gap between needs & current status  
 Timeline – how long will it take to achieve these gap-eliminations?  
 How can we monitor progress?

**Discussion with national counterparts**

Initial outcome of the analysis of needs vs. status vs. ongoing donor efforts: suggested priority gaps to be addressed  
 Feedback and agreement on priority needs.

This process will be repeated from time to time to measure progress. The tool can also be applied several times to zoom in on various topics. Interventions are formulated against needs as assessed. Eliminating the indentures in the form then means eliminating the worst gaps between the current situation and the needs of the country (or region). Major donors' interventions on climate change can be placed to identify which areas may already be covered, or where coordination of efforts would be needed. This analysis, and the 'webs' created is an excellent tool to support dialogue and communication with other donors and coordination of efforts. While the tool and its use is intuitively clear, constructive dialogue is necessary to make it perform well.

## 2. GHG policy Assessment in Algeria

### 2.1 The low carbon development issues

As stated in the methodology, *“The ENP South countries differ in their readiness and willingness to take actions on mitigation/low carbon development. This may be clear from the statistics on registered CDM projects and whether or not they have proposed NAMAs included in the UNFCCC Secretariat’s Compilation of information on nationally appropriate mitigation actions to be implemented by Parties not included in Annex I to the Convention. The Table below shows Israel, Egypt and Morocco as the more active, and Jordan and Tunisia as ‘in between’ and Algeria, Libya, Palestine, Lebanon and Syria as the relatively least active. In fact the situation of the recently visited countries like Lebanon, Jordan and Morocco is changing towards better position.*

**Table (1) CDM projects and submitted NAMAs in ENPI South countries**

Country	No. registered CDM projects	NAMA submission	Country	No. registered CDM projects	NAMA submission
Algeria	0	Yes, not concrete	Libya	1	No
Egypt	17	Yes, not concrete	Morocco	8	Yes, specific
Israel	25	Yes, specific	Palestine	0	No
Jordan	4	Yes, specific	Syria	3	No
Lebanon	6	No	Tunisia	2	Yes, specific

This section includes the reporting on the current status of GHG emissions inventory and low carbon emissions development policies and activities in the country, the institutional setup of CC in the country, the financial mechanisms including number of CDM projects, the number of NAMAs, LEDS and MRVs in addition to the national needs to build capacity to strengthen its efforts to address the Climate Change impacts and make transition towards Low Carbon Development. This section emphasizes on the assessment of the results coming from the interviews and consultations with different stakeholders in Algeria relevant to Climate Change and low carbon emissions activities taking into account the other relevant references such as Algeria Second National Communication (SNC-2010), the EU report on the Climate Change Risk Assessment in the Arab countries (Country profile of Algeria), the EU recommendations report for ENPI countries, and other relevant documents and the updated information on CDM & NAMAs on the UNFCCC website. A review of those relevant documents and reports to climate change was carried out in parallel to the consultation meetings.

### 2.2 GHG stakeholders consultations and findings

The key Expert for Low Carbon Development conducted interviews and consultations with various climate change stakeholders, as well as specific low carbon development experts (See Annex 1). The Ministry of foreign affairs is the focal point of UNFCCC in Algeria; it also mastered the consultation meetings with different stakeholders during the mission. There was not



possible to interview people from the Ministry of environment during this part of the mission because a new management team was recently appointed. The Multi Stakeholders planned meeting could not take place of problem of timing (travel difficulties). The CLIMA South Focal point organised a series of interviews through consultative meetings with sectors representatives/staff of key stakeholder.

### ***Governmental institutions***

- At the Ministry of Foreign Affairs, the UNFCCC focal point, Adviser to the Foreign Affairs & Under-secretary for sustainable development: he affirmed that Algeria, as a developing country, considers adaptation as its first priority; therefore the project should focus on it since Algeria carrying out many mitigation activities voluntarily. He also mentioned that the Clima South project budget is relatively small to implement real adaptation project on the ground, which is the reason why only a few (9) stakeholders were selected for this to visit to avoid lack of focus or raise false expectations but to concentrate on specific and targeted capacity building activities.
- At the Ministry of Water Resources with manager of department of planning of water resources who mentioned that there is a strategy and action plan for WR sector and there is a need to establish an Early Warning System to address flooding. Also there is a need to have a Vulnerability Map for water resources at the local level.
- At the Ministry of Energy and Mineral Resources, staff stated that there is a national strategy for energy sector focusing on fuel switching to natural gas, Renewable Energy and Energy Efficiency. A RE program is in place since 2011; part of it is already implemented, it aims at achieving 40% of generated electricity by RE by 2030. Many small scale solar projects have been implemented in many places. There is a very large project for CO<sub>2</sub> Capture and Storage in south of Algeria (CCS). Regarding CB and other needs, suggestion will be sent to the Clima South project through the Ministry of Foreign Affairs.
- At the Department of Forestry: the UNCDD and CLIMA South focal point describe the strategy (including the CC) for the Agriculture and Forestry Sector. The main priorities in the agricultural sector are;
  - Development of vulnerability mapping in agriculture
  - Mainstreaming CC into Agriculture national program
  - Adaptation of the Agriculture Calendar for CC
  - Selection of seed varieties suitable to CC threats
  - Early warning and advisory climate services for Agriculture and forestry,Regarding the Forestry, the priorities are:
  - Contribution to ecosystem resilience
  - Development of vulnerability of steppe ecosystems
  - Early warning and advisory climate services to protect against forest fires
  - Development of Long Term Strategy for recovery of degraded lands

They confirmed that the common interest in the Mediterranean region is to minimize the risk from forest fires since most countries present similar circumstances such as Portugal, Spain, France and Italy. An urgent need to establish a CC Observatory for the forestry sector<sup>2</sup> seems to be clear.

- At the Ministry of Transport with officers from Land Transportation, Civil aviation, Maritime Transport and Authority of the Meteorological services: many activities are implemented with the aim to reduce air pollution (consequently GHG emissions) including emission control stations with mass and public transport, expanding the train network, electrification of 8,000km train network, increasing the use of trams, expanding the use of natural gas for cars and vehicles with incentives. With respect to the Civil Aviation, there are measures under implementation from an economic point of view (even leading to pollution reduction and GHG emissions), with the modernization of airplane fleet with new efficient engines. Until now there is no real system to measure GHG emissions from the Civil Aviation so it is recommended to benefit from the Clima South project to have **CB and training particularly in MRVs including meteorological services, also through Twinning with similar advanced institutions in Europe**. Moreover, for Maritime Algerian Transport measures for pollution reduction are acknowledged worldwide through using desulfurized fuels, increasing the marine coastal protection from transit shipping to 40km from the coasts, also establishing a new marine port that will be as an Environment friendly Harbour taking into account the CC concerns.
- Final meeting at the Ministry of Foreign Affairs with the UNFCCC focal point, his team and the EU delegation for debriefing. The ENPI CLIMA South Programme Team leader debriefed the meeting with the results of the mission including interviews with stakeholders, highlighting the **need for a national system for reliable climatic information including meteorological information and early warning system for forest fires, organizing as a regional forum for exchanging climate information and good practices among countries in addition to CB and training of trainers particularly in GHG inventory and MRVs; adaptation is the first priority** for Algeria; a balance between mitigation and adaptation could be made, **highlighting the needs for CB and training particularly for MRVs**.

### Technical and financial partners

- At the EU Delegation Algeria: The International Cooperation Section “Sustainable development and Employment”, the Principal expert for the Project “Promoting the RE in the Mediterranean Cities of (CES-MED): after debriefing the EU delegation about the meeting with Mo FA; confirmed the importance of carefully listening to stakeholders and finding a way for coordination between on-going projects (national and regional);

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<sup>2</sup> Cf. Europe Forest Fire Information System of JRC-ISPRA (EFFIS) (<http://effis.jrc.ec.europa.eu>).

the Project “Promoting the RE in the Mediterranean Cities of (CES-MED)” a 3 year project (with budget with 2M EUR targeting the same 10 ENPI CLIMA South countries) was presented. It just started after 1 month inception phase, and focuses on capacity building, training and raising awareness in main cities with to use Renewable Energy (3 cities in each country). There is high similarity between the ENPI Low carbon development and this project, so it is recommended to look for coordination between them through the EU delegation in the case of Algeria at a minimum. Action was immediately taken regarding this coordination: the Team Leaders of two projects interacted during the week and agreed to stay in contact and share respective project inception reports when available. In addition, the CES Med Regional Office might be implemented in the city of Beirut which will facilitate this coordination. An appointment was also arranged with the EU Delegation Energy and Transition Economy officer, who briefed the project team on the Energy Efficiency Programme with the APRUE-MEM (*Agence Nationale pour la Promotion et la Rationalisation de l’Utilisation de l’Energie*) and possible next steps.

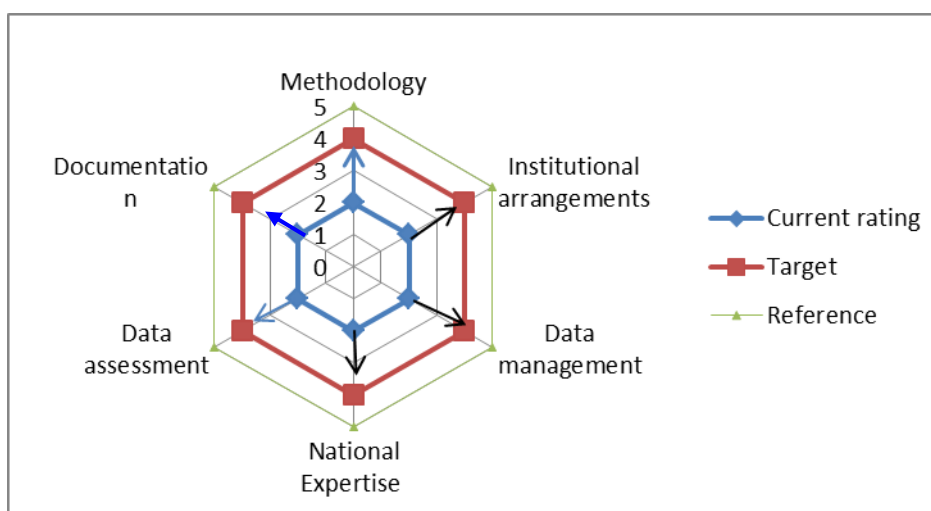
### ***2.3 GHG Inventory performance to date and progress needed***

The assessment through stakeholder consultations was conducted using the Spider Web Diagram in the abovementioned strategy. The results of the interviews, consultations and other references are summarised in the tables and illustrated in the figures below: Table 2 and Figure 3 illustrate the outcomes of the assessment on the GHG assessment preparation process. The consultations with the UNFCCC focal point, other experts in the Ministry of Foreign Affairs, Ministry of Energy and Mineral Resources, Ministry of Transport, GIZ, and studying the relevant available documents (particularly the 2ndNC) lead to the conclusion that the overall evaluation of the current status is from low for national expertise, data management, institutional arrangements, data assessment and documentation (GHG records) to low/medium for methodology (in energy and industrial sectors only but low in other sectors) concluding the need to involve Algeria in a GHG inventory workshops both on the regional or sub-regional levels, also there is a need to establish an institutional structure for NAMAs development and governance within the Ministry of Environment. On the national level support establishing the National Inventory System (NIS) for GHG as a part of CC data base as an institutional upgrading of the current CC framework.

**Table (3) Assessment of current GHG inventory preparation process versus needs in Algeria**

	Current rating	Proposed Target	Status	Comment	Capacity Needs
<b>Methodology</b>	2	4	used Tier 1 for 2 <sup>nd</sup> NC	need to upgrade to higher tiers	Capacity building on GHG data collection
<b>Institutional arrangements</b>	2	4	Data collected by experts	No NIS in place, weak institutional Arrangements	Capacity building on GHG national systems
<b>GHG Data management</b>	2	4	Low level of QA/QC	need to upgrade level of using QA/QC	Capacity building / GHG data management
<b>National Expertise</b>	2	4	Lack of national experts	<b>Low level of institutional &amp; individual expertise</b>	Capacity building on GHG assessment
<b>GHG Data assessment</b>	2	4	Lack of use modelling	Data assessment needs upgrading	Capacity development on GHG assessment
<b>GHG Records (Documentation)</b>	2	4	Weak archiving capabilities	Need to have a documentation system	Capacity building on GHG data archiving
<b>Average evaluation</b>					<b>CB for GHG inventory preparation</b>

Table (3) and spider web diagram, Figure (3) illustrate the proposed activities for GHG inventory process.

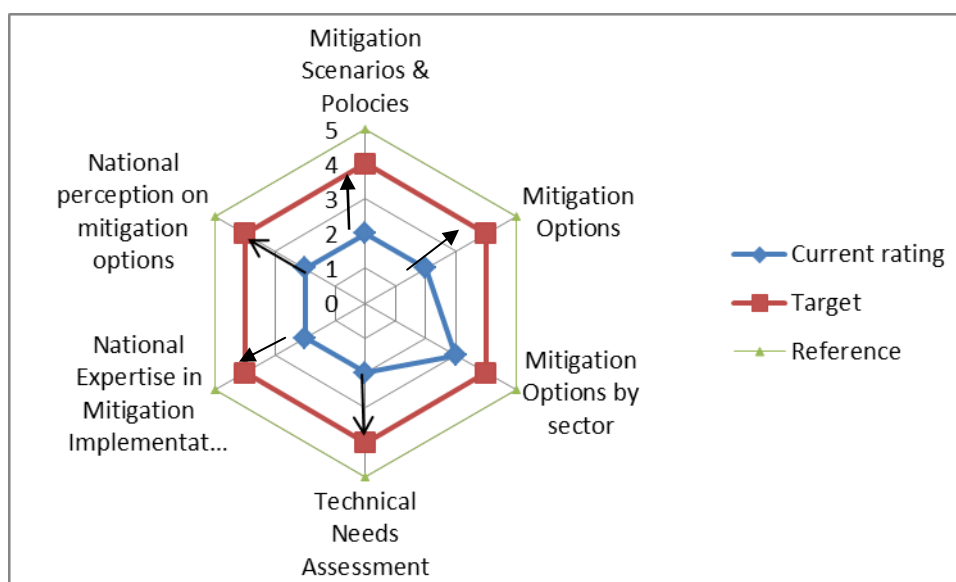
**Figure (3) Current GHG inventory preparation process assessment vs. needs in Algeria**

## 2.4 Mitigation assessment and mitigation options

The consultations with the UNFCCC focal point, other experts in the MoEnergy, GIZ and studying relevant paragraphs in the available documents, concluded that the overall evaluation of the current status is from low for public awareness, and Technical Needs Assessment, mitigation options by sector respectively to medium for mitigation options nationally mitigation scenarios & policies and national expertise respectively. It is concluded that there is a need for Algeria to participate in national and regional/sub-regional workshops in mitigation scenarios & policies, options accompanied by an awareness campaign with a communication package to enhance Public Perception (illustrated clearly in Table 4 & Fig.4).

**Table (4) Current mitigation assessment versus needs for mitigation scenarios development**

Mitigation Assessment	Current rating	Target	Status	Comment
<b>Mitigation Scenarios &amp; Policies</b>	2	4	low level	needs for CB
<b>Mitigation Options</b>	2	4	low level on national level	needs for CB
<b>Mitigation Options by sector</b>	3	4	Yes in energy, no In other sectors	progress in technologies needs assessment
<b>Technical Needs Assessment</b>	2	4	Not conducted	needs to conduct TNA
<b>National Expertise in Mitigation</b>	2	4	Not reported in National reports	needs to enhance nat. expertise, reporting on it
<b>National perception on mitigation options</b>	2	4	Low awareness	increase public awareness



**Figure (4) Current mitigation assessment versus needs for mitigation scenarios development**

## 2.5 Financial Mechanisms

The consultations with the aforementioned stakeholders concluded that the overall evaluation of the current status is from very low in CDM & NMM, and MRVs to low in perception of private sector (PS) & financial institutional (FI) & insurance (Ins), CO2 estimation and costing, NAMAs, LEDS formulation. ***There is a high need to provide regional/sub-regional training workshops on these topics to build the capacity of the target groups such as private sector (PS), national experts, policy makers (PM), financial institutions (FI) and Insurance Companies.*** This is illustrated in Table 5& Fig 5.

Table (5) Assessment of Current Status vs. needs for of Financial Mechanisms

Activity/Assessment	Current rating	Target	Ref.	Comment
Estimation of CO2 ERs	2	4	5	Low experience, need to WS
Costing of CO2 ERs	2	3	5	low experience, need to WS
Perception PS, FI& Ins	2	4	5	Need WS for PA and CB for PS, PM &Insurance
CDM & P-CDM	1	4	5	Low experience in CDM &p-CDM
NAMAs	2	4	5	Low to medium experience on NAMAs (only identified)
LEDS formulation	2	4	5	Low experience on LEDS
NMMs	1	3	5	Very low experience on NMM
MRV	1	3	5	Very low experience on MRVs

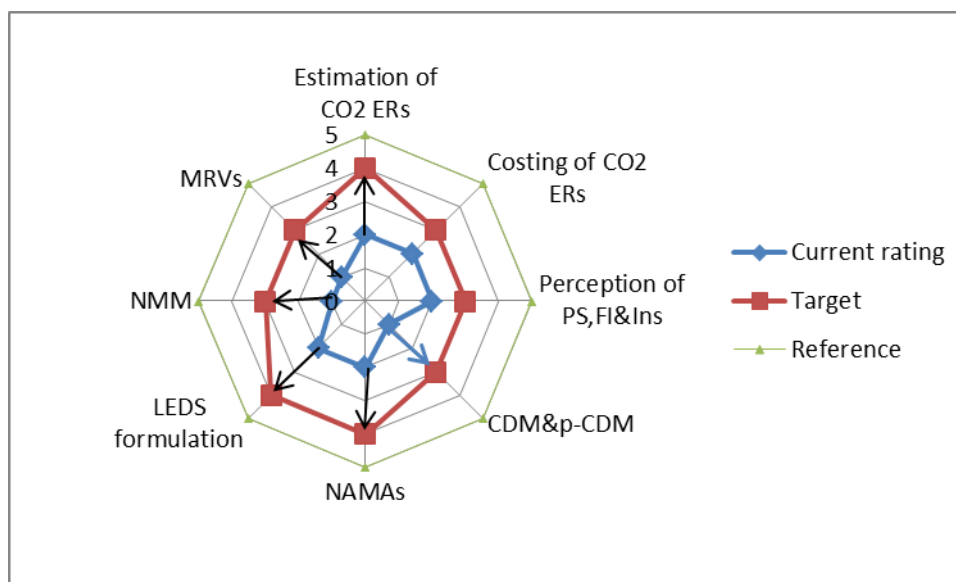


Figure (5) Assessment of Current Status vs. needs for of Financial Mechanisms

## 2.6 Specific Recommendations on Low Carbon development

The diagnostic assessment of the CC situation in Algeria based on the documentation analysis and the recent consultations with the national stakeholders in the different sectors has allowed pointing some priorities in terms of assistance needs, as following:

- **Capacity building in GHG inventories development.** This will be an absolute need to set up reliable MRV system at national level but also to fulfil the new requirements towards the UNFCCC of developing the Biennial Updated Report BUR. This activity should have 3 main objectives; developing a sustainable GHG reporting system in all concerned sectors, Enhancing the local expertise (public and private) to be able to conduct easily the GHG inventories according to IPCC tools, and moving up to deeper inventories methodologies.
- **Mitigation action planning and prioritization within low carbon development strategies (LEDS).** This will include the development of planning tools helping the country to build and analyse GHG emission scenarios, define mitigation objective, identify and prioritize mitigation options, and develop GHG reduction scenarios. This will imply capacity building in this field and develop methodological guide to implement these new approaches.
- **Capacity building in NAMAs and new carbon market mechanism.** In fact, Algeria has not benefitted from CDM, mainly because of political commitment to consider adaptation as the priority meanwhile not reporting on in mitigation efforts done in Algeria even there could be many implemented mitigation measures in addition to lack of capacities in public and private sector, meanwhile. Algeria is trying to go through NAMA, preparing itself early for the new mechanisms currently under discussions, although they are still at concept stage. This will include NAMAs identification, formulation including cost assessment and funding source definition (unilateral, supported) and implementation.
- **Capacity building in MRV both on macro level and on sector & activity levels** since MRV issue is closely linked to NAMAs, where it enables following up and reporting the impact of these NAMAs on GHG emission reduction. The first level of MRV will be simply covered by the GHG inventories while it will be necessary to develop MRV at sector and activity levels (such as Oil & Gas). One of the major sectors to be subject of MRV will be the energy sector, waste and agriculture & forestry since those sectors cover the most important potential of mitigation.
- **Public awareness raising, information campaigns** should target in priority the decision makers and politicians in the case of Algeria, both at national and local levels (parliamentarians, local collectively elected officials, etc.), as well as the private sector, investors and bankers.

- It is highly recommended to make good coordination with Project **“Promoting the RE in the Mediterranean Cities of (CES-MED) funded by EU.**
- Enhance the **role and capacities of the meteorological, Hydrological & Climate services**

## 2.7 Possible targets

Based on consultations with the mentioned stakeholders in Algeria, the overall Low Carbon Development assessment concluded to the following needs:

- More efforts are needed to **strengthen the institutional capacity for data collection & management for CC mitigation;**
- Capacity Building is needed to **increase national experience in modelling in mitigation scenarios & policies;**
- A medium experience in mitigation options identification on some sectors but not on the national level, very low experience in financial mechanisms (CDM) ; and low awareness and experience in NAMAs, LEDS, MRVs identification and formulation, also low access to carbon markets, this will lead us to the conclusion that **there is always a need to include participants from Algeria in regional training workshops on data collection, mitigation options costing, NAMAs identification & LEDS formulation, MRVs and financial mechanisms.**

**Table (6) Current Status Assessment of Climate Change Mitigation versus Needs**

Focus	Current rating	Target	Comments	Needs
<b>GHG Data collection</b>	2	4	Lack of ins. capacity for data collection.& management for CC mitigation	Organizing regional and/or national WS on GHG inventory
<b>GHG Data analysis</b>	2	4	Medium experience in data Assessment on sectoral level	
<b>GHG Mitigation modelling</b>	2	4	medium experience in modelling in Energy ,low in Transport, SW, Industrial & Agricultural sectors	Organizing regional/ national WS on mitigation Assessment,
<b>Mitigation options &amp; NAMAs identification</b>	3	4	Sectoral identified mitigation options , not national (medium)	Organizing regional/ national WS on NAMAs identification
<b>Mitigation option costing</b>	2	3	low experience in mitigation costing	Organize regional/ national WS on CO2 costing,
<b>MRV</b>	1	3	Lack of MRVs and national and international standards	MRVs, LEDS formulation
<b>LEDS formulation</b>	2	4	low experience in LEDS formulation	



Focus	Current rating	Target	Comments	Needs
Finance mechanisms	1	4	medium contribution to carbon finance mechanisms	Organize regional/national WS on finance mechanisms

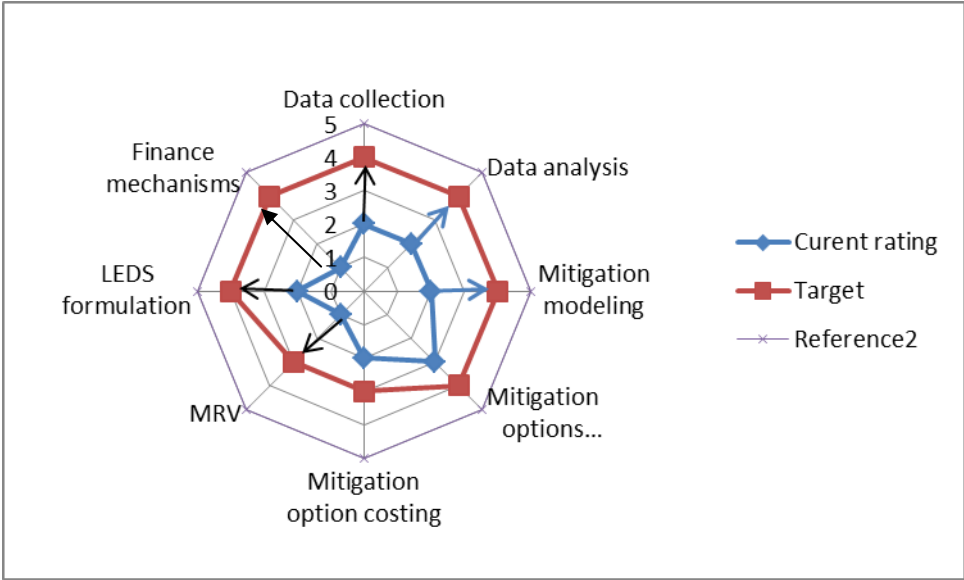


Figure (6) Current status Assessment of climate Change Mitigation versus Needs in Algeria

### 3. Resilience to climate change in Algeria

A short mission in Algeria (May 20 – May 23, 2013) initiated discussions with selected partners as described in section 2. The present report emphasizes on the assessment of the results coming from those consultations and complemented with a literature review of key documents related to CC and adaptation to CC in Algeria such as:

- The Second National Communication of Algeria on CC at the UNFCCC (2010)
- The Integrated Management of Environment Program (2001 – 2011)
- Draft Climate National Plan of Algeria (draft PNC Algeria, developed in 2012, currently under review by stakeholders for publication by September 2013)

Based on the various meetings and collected information, a qualitative assessment was carried out (see further Table 1) by assigning a level to each analysis element state as follow:

[1] Very low [2] Low [3] Average [4] Good [5] Very good

#### ***3.1 Consultation with stakeholders***

A series of interviews was organized simultaneously for the Low Carbon Development and Resilience to climate change issues through consultative meetings with stakeholders listed under Annex 1 (see page 9 et 10 for interviews).

#### ***3.2 Climate data management/modeling & sharing***

##### ***Climate data observation and their management***

The National Office of Meteorology (ONM) is in charge of the acquisition, processing, exploitation and dissemination of national and international meteorological data. It is composed of a weather observations network including 79 synoptic stations, 397 climate stations (175 automated and 222 conventional) and 3 special stations for research and observation. In terms of density, the network is conforming to the World Meteorological Organization (WMO) standards. The ONM uses well developed and efficient tools; data are partially automatically collected, controlled and stored in a database. Products, and especially weather forecast using reliable models, are of fair quality and disseminated to key national partners. Also, the office implements the national policy in the field of meteorology and collaborates with other institutions. Besides, it must contribute to the security and development of socio-economic sectors. Considering ONM skills and technical capabilities, it is likely that this institution can play an important role in the national dialogue on CC.

##### ***Climate change projections and data modelling***

Referring to the 2<sup>nd</sup>NC, observed CC on a global scale has resulted in Algeria in:

- An increase in the minimum and maximum average temperature
- An endemic drought since 1975, resulting in a desertification with a degradation of more than 8% of the forest and wind and water erosion
- A trend to drought over the past 30 years with negative impact on water resources.

The impact of CC on water resources was assessed with the UKHI model (United Kingdom Meteorological Office High Resolution). The results obtained with seasonal climate forecasting on Algeria for 2020 and 2050 show a decrease in the rainiest area and an increase of the driest ones. Currently, the ONM is collaborating with Météo-France to develop CC forecast for Algeria with relatively high resolution using the Arpege-Climat model. Targeted capacity building would allow this department to produce CC reference scenarios for Algeria and sharing it with national partners.

### **Data sharing**

According to the ONM website<sup>3</sup>, products and services intended for civil aviation but also for agriculture, construction, coastal business, industry and energy sectors. Unfortunately, this partnership with national partners is limited. However, some initiatives such as with agricultural insurance are particularly interesting and deserve to be shared with other partners in the region. Except standard services such as weather forecast (24, 48 and 72 h) which are available for free, the other services delivered by the ONM to the various partners require payment and a very limited amount of exchanges is noted. It is undeniable that weather and climate information sharing between all partners is likely to provide a significant added value to the management of all national activities. The cost of these data in Algeria does not facilitate their sharing, as quoted in some personal communications. Information on CC scenarios/data modelling is equally hardly shared among partners. These shortcomings are not specific to Algeria, but found in all countries of the region. The use of data to assess CC vulnerability as well as to implement adaptation measures to CC is considered low and limited to a few ad-hoc initiatives. Table 7 presents the main findings of the current assessment of climate data and climate modeling in Algeria.

Table (7): Assessment of climate data and climate data modelling

	Level	Status	Comments
<b>Climate observation Network</b>	4	Network density and climate observation capabilities acceptable	Network needs rehabilitation and support for equipment upgrades
<b>Data management</b>	3	Collection capabilities and data management are of a fair performance	
<b>CC projection and data modelling</b>	3	Average skills and computing capacities	Fruitful collaboration with Météo-France
<b>Sharing and data use to identify vulnerability</b>	2	Little shared and limited to a few sporadic initiatives	Very poor understanding of the added value of these data
<b>Sharing and data use for adaptation</b>	2	Little shared and limited to a few sporadic initiatives	Very poor understanding of the added value of these data

<sup>3</sup> <http://www.meteo.dz>

### 3.3 Socio-economic data related to climate change

An interesting amount of technical and socio-economic data is available in each sector. Regarding the water and agriculture sectors, the national institutions in charge of collecting and compiling data have enough capacity and adequate skills however it may be noted some shortcomings and deficiencies. A developed win-win partnership between these two sectors and the ONM with very positive impacts at the national level is a realistic win-win option. A relative internal access to data is noted inside each sector but it seems that the situation is more complicated when it comes to data exchange among national institutions and sectors. This could be improved depending on each institution capacities and collaboration opportunities. Based on the 2<sup>nd</sup>NC, some sectoral initiatives can be noted, particularly in the area of water resources, using data to assess vulnerability and to implement CC adaptation measures.

Table (8): Assessment of socio-economic data related to climate change

	Level	Status	Comments
<b>Availability data assessment</b>	<b>3,5</b>	interesting amount of technical and socio-economic data available	Some shortcomings and deficiencies exist
<b>Data use for the identification of the vulnerability</b>	<b>3</b>	relative accessibility of the sectorial user	the exchange of data is the main gap
<b>Data use for the vulnerability assessment</b>	<b>2</b>	some sectoral initiatives	no data sharing
<b>Data use for the implementation of adaptation measures</b>	<b>2</b>	some sectoral initiatives	no data sharing

### 3.4 Vulnerability assessment

At the national level, an initial vulnerability assessment has been carried out as part of the 2<sup>nd</sup>NC. The synthesis notes that Algeria's natural resources are exposed to increased climate variability and a growing human pressure. Future CC expected in Algeria would have significant impacts on sectors and activities traditionally sensitive to climatic conditions such as water resources, agriculture and forests. Similarly, not less significant impacts will be expected on the poorest people with weak resilience which will probably be the most vulnerable to CC. This initial vulnerability assessment requires to be updated and to go through a review at both data and tools used.

Algeria is facing water shortage with 600 m<sup>3</sup>/cap/year capacity according to WMO standards. Besides this resource shortage, the study of water resources vulnerability in Algeria (2<sup>nd</sup>NC) in the "Cheliff" watershed area (West of the country) highlights that this sector is already facing several challenges. In fact, CC is a new constraint for water resources in Algeria, which exacerbates even more existing water management challenges. Partners from the water sector

have expressed the need to draw a comprehensive Vulnerability Map for water resources in Algeria. Regarding agriculture, studies have identified some risks associated with CC (cf. 2<sup>nd</sup>NC). The expected CC impacts on activities are of two types:

- Direct impacts such as:
  - Increased erosion leading to soil degradation,
  - Significant deficits in rain-fed crop yields during the period 2000-2020,
  - Reduction of vegetative crop duration.
- Indirect impact such a :
  - Reduced coastal farming related to groundwater salinization,
  - Reduction in agricultural production due to a greater water demand in the sector associated with an expected water shortage in the region.

Conditions are often unfavorable for the sustainable management of forest ecosystems and for maintaining their environmental services. CC will further exacerbate the ecological and socioeconomic problems through periods of drought, increased risk of forest fires, floods, increased soil erosion and landslides. Rural people are likely to suffer a reduction in livelihoods, and quality of life will worsen for the urban population. It is estimated that agriculture, water and forest sectors need capacities building, methodological support and tools to update and deepen these assessments. Research on CC and CC impacts are still at a starting level (2<sup>nd</sup>NC). There is a need to strengthen the capacity of researchers in terms of approaches and tools for research and development, particularly in the field of environment, natural resources management as well as in the areas of vulnerability assessment and adaptation to CC. Research should also be involved in the National Action Plans by developing a scientific consensus and creating synergies between their results and action programs.

Table (9): Appraisal of the vulnerability assessment

	Level	Status	Comments
<b>Is there a brief identification of vulnerability at the national level?</b>	<b>3</b>	A brief identification of the vulnerability	
<b>Are there brief assessments of the vulnerability at the sectoral level?</b>	<b>3,5</b>	A brief identification of the sectoral vulnerability with differences between sectors	the exchange of data is the main gap
<b>Are there comprehensive assessments of vulnerability at the sectoral level?</b>	<b>2,5</b>	There is no comprehensive assessment	The brief identification of the sectoral vulnerability need to be updated and thorough at both data and tools used

### ***3.4 Vulnerability and adaptation options assessments***

Algeria has developed a National Climate Plan (“Plan National Climat”, 2012 draft, currently under internal validation to be published by Sept 2013) to cope with CC risks. This strategic document developed in partnership with the German Cooperation Agency (GIZ) reviews the major challenges facing Algeria in terms of CC, mitigation and adaptation measures needed, particularly in hotspot sectors, such as agriculture, water resources and health. The National Climate Plan also presents concrete operational actions, as well as actions relative to the institutional structure and implementation proposals.

With reference to the 2<sup>nd</sup> NC, the initial vulnerability assessment was followed by the proposal to set CC adaptation measures for some sectors (water resources, agriculture, forestry and public health) as well as cross cutting measures in relation to climate observation, monitoring and early warning system. These proposed measures need to be further developed and more argued. At the sectoral level, there is a strategy and action plan for the water resources sector. This strategy has highlighted the need for an Early Warning System to address flooding. Similarly, there is also a strategy including the CC for the Agriculture and Forestry Sector.

Regarding hydrological, forests and coastal areas management, the PNC does not really address CC risks, but this could be addressed in the new phase of the national action plan on environment and sustainable development (PNAEDD) to be launched by the end of April 2013 by the Algeria's Ministry of Town Planning, Environment and City in partnership with German Technical Cooperation Agency (GTZ). Nevertheless, there is a long term strategy in forest sector. The National Reforestation Plan (PNR) states the aim of planting 1 245 900 ha to increase the reforestation rate from 11% to 13% in 2020., The GIZ supports the fight against degradation of Algerian forest resources in cooperation with other organizations operating in the Mediterranean region. In this framework, forestry administrations are encouraged to reconsider their understanding of their own roles, and to develop themselves into proactive service points. Regarding the Forestry the priorities are:

- Contribution to ecosystem resilience
- Development of vulnerability of steppe ecosystems
- Early warning and advisory climate services to protect against forest fires
- Development of long term strategy for recovery of degraded lands

The National Water Resources Agency has initiated a study on the impact of CC on water resources in Algeria. This study plans to implement early warning flood systems on an experimental basis in Oued El Harrach and Oued Mekerra before generalizing it to other exposed basins. The insurance programme in the agricultural sector started since 3 years and gave very good results presenting this modality as a robust solidarity system for partnership between farmers, government and insurance on win-win bases. It was recommended to extend this partnership to some international insurance firms and development banks with good experience in countries presenting identical climate circumstances. Obviously, as mentioned above, there are some interesting initiatives to mainstreaming CC in the strategic planning process development; this effort should be supported in order to achieve a more structured and systematic mainstreaming methodological approach. Finally, there is no initial assessment on costing CC adaptation. This issue is new and there is no experience in that effect.

Table (10): Assessment of the adaptation to climate change

	Level	Status	Comments
<b>National vision for adaptation to CC</b>	<b>3,5</b>	No national vision of adaptation to CC	Low level of awareness about CC
<b>National strategy/program /plan for adaptation to CC through addressing adverse effects and increase climate resilience</b>	<b>3,5</b>	National strategy for CC is in approval process. Some classical adaptation to CC measures need to be further developed and more argued	
<b>Sectoral strategies for adaptation to CC or increase resilience</b>	<b>4</b>	Sectoral adaptation strategies added to CC added to some interesting initiatives	Sectors express their need to implement this strategy
<b>Mainstreaming of CC/ adaptation to CC in the strategic development planning process</b>	<b>3</b>	Some interesting initiatives of mainstreaming CC, not structured and systematic methodological approach on this issue	Limited level of awareness about adverse effects of CC as well a lack of mainstreaming tool
<b>Costing of adaptation to climate change</b>	<b>1,5</b>	No initial assessment costing adaptation to CC	An issue still unknown

### ***3.5 Access to adaptation to climate change financing***

Little information is available, but it is assumed that:

- The main partners involved in the CC governance have a minimum of information about opportunities of financing allocated to adaptation to CC through the various funds created to that effect.
- The other partners, including those from vulnerable sector to CC (agriculture, agriculture) are not aware of the funding allocated to adaptation to CC.

In fact, national capacities do not allow a formulation of project documents according to the required format to access funding.

Table (11): Assessment of Access to adaptation to climate change financing

	Level	Status	Comments
<b>Does stakeholders informed about funding for adaptation</b>	<b>3</b>	Except partners involved in the CC governance no other partner is informed	
<b>Is there any CC adaptation projects clearly identified?</b>		Some adaptation projects have been identified and implemented and others are	

	Level	Status	Comments
	3	under development	
<b>Are these CC adaptation projects defined according to the formats required?</b>	3	Adaptation projects executed were defined with partners (GIZ, and UNDP).	
<b>Do national capacities allow formulation of a project document, according to the formats required by donors?</b>	1	Absence of national capacities on this issue	

### 3.6 Level of stakeholders awareness to adaptation to CC

In a context of sustainable development, many specialized technical institutions have been created to conceive and to implement national environmental policy with:

- The Waste Management Authority (AND, 2002)
- The National Environmental and Sustainable Development Observatory (ONEDD, 2003)
- The Planning and Territorial Sustainable Development National Council (CNADD, 2001)
- The National Center for Clean Production Technologies (CNTPP, 2002)
- The National Development Center of Biological Resources (CNDRB, 2003)
- The National CC Agency (NACC, 2005), in charge of the strengthening national capacities in different sectors related to CC and maintaining a database on CC.
- The Inter-sectoral Council for Energy Management (CIME, 2005)
- The National Agency for Earth Sciences (ANST, 2006)
- The National Coastal Office (CNL, 2004)
- The National Conservatory of Environmental Training (CNFE, 2002)

However, little information is available on the civil society: it is assumed nonetheless that some NGOs are increasingly involved in dealing with environmental concerns. Few associations such as the ARCE are more specifically dedicating efforts to CC issues. However, their actions are relatively limited. The need to strengthen stakeholder's capacity (including public institutions, technical services and civil society) to be more involved in the process of adaptation to CC is mentioned in the 2<sup>nd</sup> NC. It seems necessary to organize information/consultation workshops to allow better consideration of CC into national projects and programmes.

Table (12): Assessment of level of awareness of stakeholders to adaptation to CC

	Level	Status	Comments
<b>Level of awareness of stakeholders to environmental challenges as well as CC/adaptation to CC?</b>	3	A different degree of involvement of partners in the national dialogue	It should improve coordination and overcome administrative barriers to reach all partners



	Level	Status	Comments
<b>Level of awareness of Civil Society/NGO to environmental challenges as well as CC/adaptation to CC?</b>	3	Limited action but some NGOs are dedicated more specifically to CC issues	
<b>Do the Stakeholders have a good understanding of adaptation to CC?</b>	3	Limited to partners involved in the CC governance and some national resource persons	these resource persons are not really integrated into the national dialogue
<b>Does Civil society have a good understanding of adaptation to CC?</b>	3	A fair level of understanding	Is not considered as a full partner in dialogue

### 3.7 Mapping and synthesis of the results obtained

The analysis of the current situation was conducted according to the following criteria:

- Climate and modelling data
- Socio-economic data related to climate change
- Vulnerability Assessment
- Adaptation to climate change
- Access to adaptation to climate change financing
- Level of awareness of stakeholders of adaptation to CC

The main elements of our analysis are reflected in Figure (7) below.

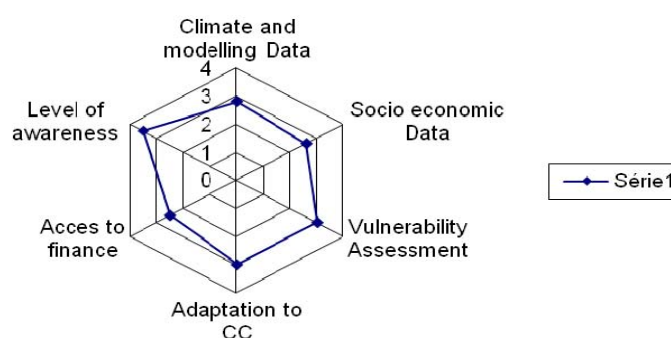


Fig (7) Analysis of the current situation

**Regarding the climate and modelling data:** The ONM has interesting capacities and skills in terms of climate observation as well as data collection and management. However, weather/climate data and information are not freely available. Similarly, socioeconomic data are characterized by a significant lack of sharing and use between partners. In fact, the main

challenge is the lack of a culture/tradition for information data exchange/sharing in Algeria. These shortcomings are found in almost all countries in the region

At the national level, the existing initial sectoral vulnerability identification could be a good basis to work. This initial vulnerability assessment requires to be updated and to go through a thorough review both, data and tools levels.

Algeria has a relatively clear vision of their national adaptation to CC. It should also be noted that proposals of adaptation to CC measures as well as cross-cutting measures in relation to climate observation, monitoring and early warning system exist for sectoral strategies (water, agriculture forest). Further thinking should be given to improve, develop and implement those adaptation measures. Except partners involved in CC governance, others are little aware about adaptation to CC.

### ***3.8 Targets for improvements of the current situation on adaptation***

Referring to the analysis, the strengths and weak points detected, gaps and opportunities for improvement were identified. Taking into consideration the nature of the project (regional character, capacities building,) as well as the means available, the following realistic targets are proposed:

- ***Climate and modelling data and Socio-economic data in relation to climate change:*** the project should support the ONM to play a more active role at the national level and improve national concern about the benefit of the use of climate data.
- ***Vulnerability Assessment:*** The project can provide support and tools to update and deepen the current assessments of vulnerability. The expressed demands to update the national study on the vulnerability and the development of a vulnerability map should be reconsidered in the regional perspective of the project.
- ***Adaptation to CC:*** An Integrated Early Warning and Advisory Climate Services for Forestry (IEWACSF) seems to be the Adaptation to CC measure which has the largest number of requests.

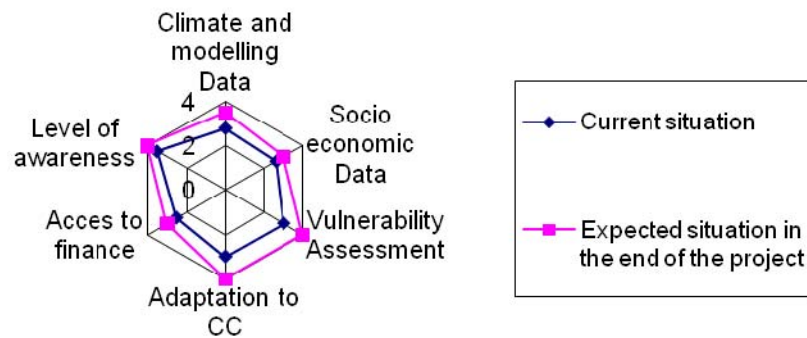


Figure 8: Proposed situation at the end of the project for Palestine

## 4. Conclusions

Mitigation as a political priority comes after adaptation for Algeria which has no registered CDM projects due to its lengthy and complex process, also lack of expertise. However, Algeria is implementing an ambitious mitigation project for CO<sub>2</sub> capture and storage (CCS) and many other activities resulting in GHG emissions reduction. Algeria has also adopted an ambitious policy and measures for renewable energy and energy efficiency development which will have the co-benefits of GHG reduction.

The Algerian government seems more interested in adaptation as priority to satisfy the needs of the people, especially in the field of water resources preservation, natural catastrophes management and forest management. In term of realization, one can mention the activities developed with national support and/or international Partners on specific & local adaptation to climate change.

Eight possible activities are briefly described in Annex 4; a specific preference for the following project **“Setting up a dynamic fire risk map and an early warning system for forest fire”** was expressed by the authorities.

## Annex 1: List of Interviewed stakeholders

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## Annex2: List of documents consulted

Plan National Climat de l'Algérie (version de travail préliminaire, Octobre 2012)

EU report on the Climate Change Risk Assessment in the Arab countries, 2011 (Algeria Country profile)

EU recommendations report for ENPI countries (2011)

Second National Communication of Algeria to UNFCCC on Climate Change (Oct 2010)

Vulnerability of North African Countries to Climate changes (iisd)

Human Development report 2011, UNDP

Approche locale et territoriale du changement climatique dans les Pays Arabes, UNDP

Etude de l'état du MDP et analyse de l'état d'avancement du MDP en Algérie, septembre 2009

Programme Indicatif National Algérie 2011 – 2013, instrument européen de voisinage et de partenariat

Key elements of LCA negotiation text, final version - 8 April 2009, [www.zeroco2.no](http://www.zeroco2.no)

[http://www.ambassade-algerie.ch/realisations\\_1999\\_2009/environnement.html](http://www.ambassade-algerie.ch/realisations_1999_2009/environnement.html)

<http://www.nationsencyclopedia.com/Africa/Algeria-CLIMATE.html#ixzz1JRFyRGr3>

FAO- Plan Bleu, February 2013: L'Etat des forêts méditerranéennes

EU\_JRC/EFFIS: The European Forest Fire Information System (European Forest Fire Early Warning System), <http://effis.jrc.ec.europa.eu>.

PNAEDD (coming by 2013): Update of the 2002-2011

### Annex 3: List of o-going CC relevant Projects

<b>Bilateral Projects</b>	<b>Status</b>	<b>Agency</b>
Integrated environmental management including CC	Ongoing	GIZ
CDM JI Initiative including Morocco, Tunisia, Algeria and Egypt (Capacity building in Mitigation)	Ongoing	GIZ/BMU
African Adaptation Program (AAP) in 20 African countries including Algeria	Pipeline	Japan/UNDP
Arab Climate Resilience Initiative – ACRI	Ongoing	UNDP
Adaptation of forest policy to CC in 6 MENA countries including Algeria	Ongoing	GIZ
Solar Water Heater Development Program	Pipeline	UNEP
Support Program to transport sector	Ongoing	EU
Capacity building in energy efficiency indicators	Ongoing	France / ADEME
Development of a CSP of 50 MW in Hassy Rmel	Ongoing	Spain
<b>Regional Projects</b>	<b>Status</b>	<b>Agency</b>
MED-EMIP - Euro-Mediterranean Energy Market Integration Project	Ongoing	EU
Promoting the RE in the Mediterranean Cities of (CES-MED) Project	Ongoing	EU
Electricity market integration (Tunisia – Morocco – Algeria)	Ongoing	EU
Euromed Transport Project	Ongoing	EU
MED-ENEC II - Energy efficiency in construction	Ongoing	EU
MED-REG II– Energy regulators	Ongoing	EU
MEDSTAT III - Statistical cooperation (with on component on energy statistics)	Ongoing	EU
Sustainable Water Management and De-pollution of the Mediterranean	Ongoing	EU
Paving the Way for MSP	Ongoing	EU
CIRCE: Climate Change and Impact Research: the Mediterranean Environment	Ongoing	EU
Regional Centre for Renewable Energy and Energy Efficiency (RCREEE)	ongoing	EU/Denmark/Germany
Development of an Information System on Energy Efficiency Indicators in MENA region	ongoing	Plan Bleu/RCREEE



## Annex 4: List of possible cooperation activities identified

1. **Capacity building in GHG inventories development.** It is an absolute need to set up reliable MRV system at national level but also to fulfil the new requirements towards the UNFCCC of developing the Biennial Updated Report BUR. This activity should have 3 main objectives; developing a sustainable GHG reporting system in all concerned sectors, Enhancing the local expertise (public and private) to be able to conduct easily the GHG inventories according to IPCC tools, and moving up to deeper inventories methodologies.
2. **Mitigation action planning and prioritization within low carbon development strategies (LEDS).** This will include the development of planning tools helping the country to build and analyse GHG emission scenarios, define mitigation objective, identify and prioritize mitigation options, and develop GHG reduction scenarios. This will imply capacity building in this field and develop methodological guide to implement these new approaches.
3. **Capacity building in NAMAs and new carbon market mechanism.** In fact, Algeria has not benefitted from CDM, mainly because of the political commitment to consider adaptation as the priority meanwhile not reporting on in mitigation efforts done in Algeria even if there could be many mitigation measures implemented in addition to the lack of capacities in public and private sector. Algeria is trying to go through NAMA, preparing itself early for the new mechanisms currently under discussions, although they are still at concept stage. This will include NAMAs identification, formulation including cost assessment and funding source definition (unilateral, supported) and implementation.
4. **Capacity building in MRV both on macro level and on sector & activity levels** since MRV issue is closely linked to NAMAs, enabling to follow up and report the impact of NAMAs on GHG emission reduction. The first level of MRV will be simply covered by the GHG inventories while it will be necessary to develop MRV at sector and activity levels (such as Oil & Gas). One of the major sectors to be subject of MRV will be the energy sector, waste and agriculture & forestry since those sectors cover the most important potential of mitigation.
5. **Drought & Water (Floods) early warning system development.** The activity consists at developing an early warning system to drought with a dynamic mapping for major climatic zones of risk. This will help decision makers in agriculture and water sector to adapt their regional policy, so it takes in account CC effects.
6. **Setting up a dynamic fire risk map and an early warning system for forest fire** in Algeria. In fact, Algeria is losing in average around 35.000 ha of forest per year due to fires. It is very important to set up a dynamic fire risk map associated to a surveillance

and early warning system for fire. This activity should be implemented in close coordination of three Maghreb countries.

7. **Risk Management and Risk Transfer within a Changing Climate:** The Clima South Project could contribute and support the Insurance Sector (CNMA) which has entered since February 2013 with the “Office national de la meteorology” (ONM) into a partnership agreement in order to study, research and implement the “Climate Index Insurance within the Agriculture Sector”. As part of efforts to modernize agricultural insurance, the agreement between the CNMA and ONM plans to initiate "a policy of climate risk management in the agriculture".
8. **Seasonal Climate Forecasts:** Climate forecast started with PRESANORD 2 in Algiers in January 2012, Building on PRESANORD1 (Algiers May 2002) is now partnering further within to the Mediterranean Climate Outlook Forum (MedCOF) which was recently established (Madrid, June 2013): The new MedCOF has been established to generate seasonal consensus forecasts for the Mediterranean and the northern African region as part of WMO’s drive to increase the availability of user-friendly climate services. MedCOF will cover all countries in the Mediterranean region, including countries covered by two existing sub-regional climate outlook forums in South East Europe and North Africa, which will co-ordinate their activities with those of the MedCOF. MedCOF will have three main components: operational generation of seasonal forecasts for the Mediterranean region (a first stage for winter and summer); capacity development among participating NMHSs; and strengthening of communications with users and media.