



المركز الإقليمي للطاقة المتجددة وكفاءة الطاقة

**RCREEE**

Regional Center for Renewable Energy and Energy Efficiency



## CDM in RCREEE Member States

**Experience and Achievements**

February 2012



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## Abbreviation

<b>CDM:</b>	<b>Clean Development Mechanism</b>
<b>CER:</b>	<b>Certified Emission Reduction</b>
<b>CFL:</b>	<b>Compact Fluorescent Lamp</b>
<b>DNA:</b>	<b>Designated National Authority</b>
<b>EE:</b>	<b>Energy Efficiency</b>
<b>ERPA:</b>	<b>Emission Reduction Purchase Agreement</b>
<b>ESCO:</b>	<b>Energy Services Company</b>
<b>EU ETS:</b>	<b>European Union Emissions Trading Scheme</b>
<b>GHG:</b>	<b>Greenhouse Gas</b>
<b>MW:</b>	<b>Megawatt</b>
<b>NAMA:</b>	<b>Nationally Appropriate Mitigation Action</b>
<b>NEEAP:</b>	<b>National Energy Efficiency Action Plan</b>
<b>PIN:</b>	<b>Project Idea Note</b>
<b>PoA:</b>	<b>Programme of Activities</b>
<b>RDF:</b>	<b>Refuse Derived Fuel</b>
<b>RE:</b>	<b>Renewable Energy</b>
<b>STEG:</b>	<b>Tunisian Electricity and Gas Company</b>
<b>tCO<sub>2</sub>e:</b>	<b>Ton of Carbon Dioxide Equivalent</b>
<b>UNFCCC:</b>	<b>United Nations Framework Convention on Climate Change</b>

## 1. Preamble

The Regional Center for Renewable Energy and Energy Efficiency (RCREEE) was set up on basis of the Cairo declaration which was signed by the member states on June 25, 2008. RCREEE grew out of the conviction that the promotion of renewable energies and energy efficiency requires a coordinated effort in the region. The promotion of renewable energies and energy efficiency is high on the political agenda in all member states. However, the member states felt the need for a platform to exchange ideas and experiences, lessons learned and to coordinate policies on the regional level.

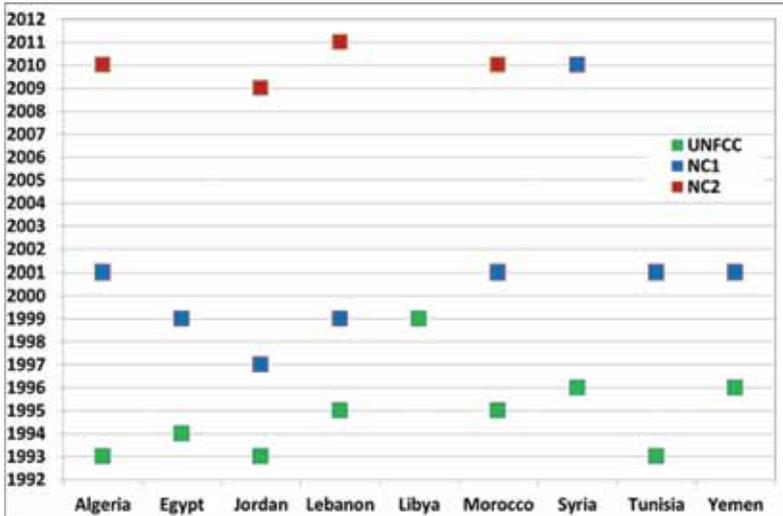
Aligned with its role in the region, RCREEE wants to harness the potential of the Clean Development Mechanism (CDM) to mobilize energy efficiency and renewable energy projects in its member states. CDM stimulates sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission reduction limitation targets. The CDM allows emission reduction projects in developing countries to earn Certified Emission Reduction (CER) credits which can be traded and used by industrialized countries to meet part of their emission reduction targets under the Kyoto Protocol.

Given that CDM has not really taken off in the region, which currently has a share of less than 1% of the total number of CDM projects as well as the volume of Credited Emission Reductions (CER) estimated, RCREEE wants to mobilize a maximum of CDM projects for registration before the end of 2012. There is a need for this mobilization and speeding up which is that after 2012 CERs generated from CDM can no longer be exported into the European Union Emissions Trading Scheme (EU ETS).

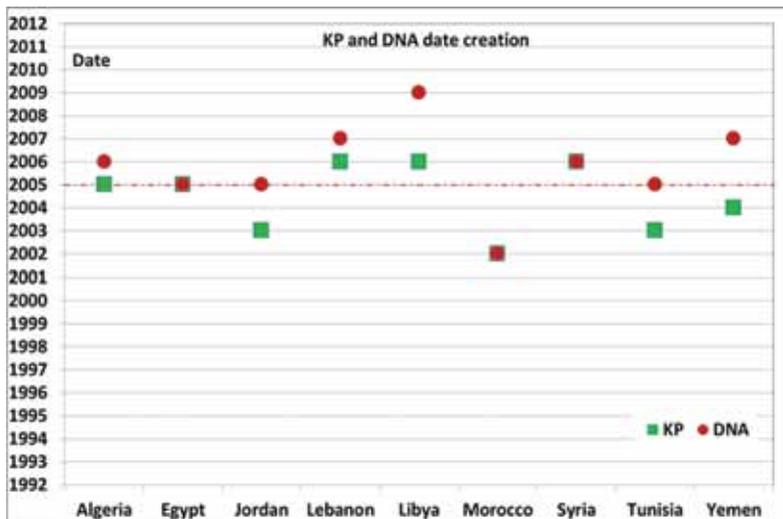
This booklet is organized in two main sections, the first one gives a brief view in chart format on RCREEE member states actions regarding ratification of United Nation Framework Convention on Climate Change and Kyoto Protocol and registered CDM projects. This is followed by a section with detailed presentation of the work done in each RCREEE member state in this field of work.

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- NB:**
1. The study doesn't cover Palestine as it's not a UN member state and thus is not eligible to participate in CDM program.
  2. Sudan, Bahrain, and Iraq are not included in the study as they joined RCREEE after the study was performed.

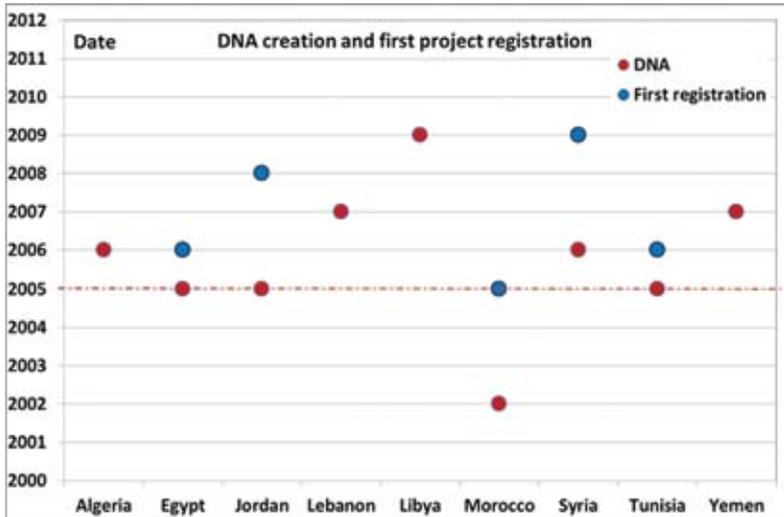
## 2. CDM in RCREEE Member States: in Brief



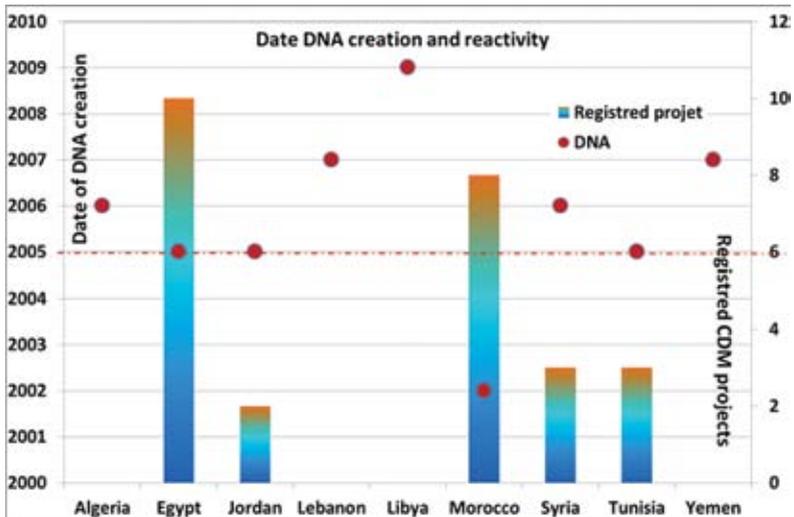
UNFCCC ratification and national communication submission years



Kyoto protocol ratification and DNA creation



First CDM project registration



Number of CDM registered projects

### 3. CDM in RCREEE Member States: in Details

#### 3.1. North Africa Region



#### Algeria

Algeria fulfills the CDM eligibility criteria for host countries as it has ratified Kyoto Protocol in April 2004 and established a National Designated Authority in February 2006.

Moreover, it has set up the eligibility requirements for national CDM projects and has defined the national procedures for assessment and approval of CDM projects in October 2006. However, the CDM in Algeria has been progressing at a very slow pace. Relatively little emphasis had been given to effectively access the

CDM and to realize the full potential development benefits for Algeria as a host country. A mix of factors, including lack of understanding of the requirements of the CDM, limited national capacity to direct the CDM process in Algeria, and an absence of technical assistance from the donor community prevented the development of a CDM market in Algeria. As a result, apart about twenty projects in the PIN stage, there is no CDM project at an advanced CDM stage.





## Egypt

Egypt has made the initial inroads towards climate change mitigation and benefiting from the CDM. International donor agencies and carbon advisors have been providing intensive assistance to Egypt in the field of the CDM over the past years.

The portfolio of CDM project activities of Egypt is far wide when compared to the other MENA countries. The areas recognized to have potential for CDM projects in Egypt include energy efficiency, fuel switching, renewable energy, utilizing biomass as an energy source and the various pollution abatement projects being proposed by the industries in Egypt. The inclusion of PoA has opened up an opportunity to explore GHG emission reductions or removals through implementation of policy measures. The first PoA, Egypt Vehicle Scrapping and Recycling Program has been registered in June 30, 2011 after more than two years since the beginning of validation. This PoA is the first ever transport Program of Activities to be registered under the UNFCCC's CDM.



On the basis of this successful initiative, Egypt is intensifying its efforts to promote other national PoAs. Indeed, among the Exhaustive Egyptian CDM portfolio 5 programs (3 projects and 2 PoAs) have been identified. as priority to be supported in order to help them registering before the end 2012. These projects/programmes are the following:

- Naga Hammadi Barrage Small Hydropower Project
- Abu Zabal Landfill Gas Recovery and Flaring/Destruction Project
- Waste Heat Recovery projects for gas turbine generators
- Shifting from Traditional Open-Pit Method to Mechanize. Charcoal production program (PoA)
- Scrapping and Replacement program of Two-stroke Motor cycle (PoA)

The two identified PoAs need particularly technical assistance from the CDM Awareness and Promotion Unit(CDM APU) in all phases of the CDM process while the standard projects need specific supportive actions focusing mainly on accelerating the validation stage and later the registration.



## Libya

Libya has ratified the United Nations Framework Convention on Climate Change, signed the Kyoto Protocol and lately created the DNA in 2009.

There is a crucial lack of data and information on climate change in general and on mitigation in particular. However, the mitigation potential in the energy sector is rather high and can be estimated to around 35 MtCO<sub>2</sub>e by 2020.

Despite Libya eligibility to CDM, the initiatives in this field are very rare because of crucial lack of capacities and awareness of both in public institutions and private sector. Only 2 projects were identified in the CDM portfolio of Libya: one project, at validation stage, related to cement blending; and the other (PIN approved by the DNA) related to 60 MW wind energy farm. Considering the current political situation in the country, the chance that these 2 projects will be registered before 2012 is very slight.

In order to effectively engage with the CDM, Libya need to improve its institutional capacity, including broad technical competences in CDM project requirements and related areas, as well as transparency and stability of governance.

With the post revolution era, Libya should become better integrated in the international process of fighting against climate change. It should also be better positioned on the new carbon market mechanisms adopted in Copenhagen Agreement. Today, Libya needs an intensive support from international cooperation to catch up the cumulated delay and prepare itself to profit from these new opportunities.





## Morocco

Morocco is one of the most active countries in the climate change issue in the region, including both fields of mitigation and adaptation. In fact, in addition to 1st and 2nd National Communications, Morocco developed in 2009 a National Climate Plan presenting the main national options for mitigation and adaptation in the country.

Regarding CDM, five projects are already registered, one of them being a PoA on household solid waste management. The overall national CDM portfolio accounts, up to now, 61 projects among them 5 projects are under validation process and 10 projects with PDD already approved by the DNA. The major part of these projects (5 projects and 60% of the mitigation potential) are wind farms connected to the grid, developed by strong international companies. Taking into account the financial and human capacities of these companies, the CDM status of these projects and the clear CDM methodology for wind farms, these projects will be most probably registered before 2012. This project category includes also biogas collection and electricity generation from municipal landfill project that will be included as CPA to National Household Waste Plan PoA, already registered. Hence, the support effort should be focused on the 4 remaining projects, which have a total potential mitigation of 580 ktCO<sub>2</sub>e per year.



It is recommended that RCREEE supports the projects holders for the validation and registration process of these projects. The estimated cost of the financial requirement for the supporting activities rises to around 140,000€.

Apart from the PNDM PoA which is already registered, there is no CDM Program of Activities in Morocco in advanced stage. However, one PoA is identified as the most likely able to be registered before 2012: the domestic SWH program, with a mitigation potential of around 270 ktCO<sub>2</sub>e per year. However, the process for CDM registration of a PoA is in general very long (more than 2 years), so the chance for this program to be registered before 2012 is objectively slight.



## Tunisia

The current CDM portfolio of Tunisia comprises eighty ten projects are in advanced CDM status in the CDM project pipeline in Tunisia (have at least initiated PDD development): 3 projects are registered (of which 1 PoA), 3 projects are under validation and 12 projects are in PDD development stage.

In July 2011, the first Tunisian PoA has been registered after more than two years since the beginning of validation. Besides, 5 programs were identified of which 2 PoAs have detailed PINs, already approved by the DNA.



From this portfolio, the following project/ programs were identified as prioritized:

- Partial substitution of fossil fuels with biomass at «Les Cements Artificial Tunisiens» cement plant, Tunis.
- Tunis light rail transit project
- Biomass Power Generation Project
- Distribution of 4 million CFLs to customers of the Tunisian Electricity and Gas Company (STEG) with 1 to 2 kVA capacity.
- Tunisian cogeneration development program (PoA)

### 3.2. Middle East Region



#### Jordan

Jordan is eligible to CDM since it has signed the United Nations Framework Convention on Climate Change (UNFCCC) in 1993, ratified the Kyoto Protocol in 2003 and created the DNA in 2005.

The second national communication has identified thirty eight Greenhouse Gas (GHG) mitigation projects covering 5 areas: Primary energy switch, renewable energy, energy efficiency, waste, and agriculture. The cumulated GHG mitigation of these projects over the period 2009 - 2033 is estimated to around 100 Million tCO<sub>2</sub>e. Energy efficiency (33%), renewable energy (27%) and fuel switch (21%) are the major part of this mitigation potential. Energy efficiency and primary energy switch projects can be implemented through a “non-regret” approach, since the abatement cost of CO<sub>2</sub> is negative, respectively -90 JD/ tCO<sub>2</sub>e and -14 JD/ tCO<sub>2</sub>e.



Despite this high mitigation potential, Jordan has not fully profited from CDM. Up today, only 2 projects, with a potential reduction of 434 tCO<sub>2</sub>e, were registered: The fuel Switching Project of the Aqaba Thermal Power Station and the Reduction of Methane Emissions from Ruseifeh Landfill.

The CDM development in Jordan require to strengthen the capacity of the DNA towards better responsiveness, sustainability, efficiency and transparency; to carry out the appropriate reform of the legal and institutional framework of CDM, particularly regarding the bidding procedures of Certified Emission Reduction (CER) selling; to remove the CDM revenues tax (15%) in order to make CDM more attractive for project holders; and to promote the development of energy efficiency and renewable strategies as to feed easily the CDM expansion.

The identified CDM projects portfolio includes 11 projects with a total mitigation potential of 2,380 tCO<sub>2</sub>e per year. In addition to the 2 registered projects, 2 projects are submitted to registration (Amman Ghabawi Landfill Gas to Energy Project and Samra 300 MW combined cycle project) and one project

under validation (Amman East 386.96 MW Combined Cycle Power Plant).

Two Programme of Activities (PoA) were identified among this portfolio. The first is related to the Demand-Side Energy Efficiency for Water Pumping Stations and the second is the CDM city-wide Program of Activities of the Greater Amman Municipality including energy, transportation, waste and urban forestry. Considering, their maturity status, it seems difficult that they could be registered before 2012.

Among the CDM portfolio, 3 projects were identified as priority to be supported in order to help them registering before 2012. The selection has been done based on specific criteria, such as project maturity, quality of the implementer, scale of the project, mitigation potential, additionality criteria, chance to be registered before 2012. These 3 projects are Amman East 386.96 MW Combined Cycle Power Plant, Wind farm of Fujeij and Wadi Araba (60 MW) and Al kaider landfill, gas collection for power generation. The estimated cost of the financial requirement for the supporting activities is around 210,000€. It is proposed that RCREEE and its cooperation partners cover about 140,000€.



## Syria

The carbon market is still at its teething phase in Syria.

The CDM Portfolio includes five projects at an advanced CDM stage. Three are already registered, while one project is under validation and the other has serious methodology problem. The other remaining projects are either at the PIN phase or at prospect stage.



From this portfolio, two CDM projects look worth to be supported in order to be registered before 2013:

- Qatineh 50 MW wind energy project.
- Portland Pozzolana “Blended Cement” at Lafarge Cement Syria.



## Lebanon

Lebanon became eligible to CDM relatively late, since it ratified the Kyoto Protocol (Nov. 2006) and established the DNA (May 2007).

The second national communication of Lebanon has estimated the overall emission reduction potential to 20 million tCO<sub>2</sub>e by year 2030, over the five major emitting sources (Energy, Industrial processes, Agriculture, Forestry and Waste). The energy sector is the most promising GHG mitigation source, as it contributes to 82% of this long term potential. Mitigation measures in the energy sector combine high potentials (led by the electrical sector with 68% of the overall mitigation potential and the transportation 11%) with much lower potential (buildings 2% and manufacturing industries 2%). The waste sector ranks second, contributing to 15% of the mitigation potential.



It should however be noted that the mitigation assessment is incomplete, as it did not estimate emission reduction potential resulting from industrial processes and forestry measures. Measures related to Agriculture were also only partially identified and estimated.

Furthermore, the energy sector measures were not fully identified and estimated. For instance, emission reduction potential from thermal insulation in existing buildings and fuel switching in manufacturing industries were not included in the estimate. In addition, a number of energy efficiency measures to be implemented in the short and medium terms were not included in the mitigation assessment. Among them, some significant projects identified by the National Energy Efficiency Action Plan (NEEAP) for Lebanon:

- Energy efficiency for lighting: Compact Fluorescent Lamp (CFL) dissemination program, banning the Import of Incandescent Lamps, Efficient and Economic Public Street Lighting.
- Solar Water Heaters for Buildings and Institutions.
- Promotion of Energy Efficiency in Industry (Energy Auditing, Energy Services Company (ESCO) Business, etc.).

- Promotion of Energy Efficient Equipment (e.g. Energy Labelling for electrical appliances, efficient motors for industries, etc.)

When synthesizing the available information in Lebanon, covering the NEEAP and the projects that are identified as CDM ones, the potential mitigation options that could be achieved through short term options would add-up to 2 to 2.4 million tCO<sub>2</sub>e annually by year 2015. The identified CDM projects portfolio includes 13 projects with a total mitigation potential of 975,000 tCO<sub>2</sub>e per year.

Despite this high mitigation potential, Lebanon has not benefited from CDM at all. Up to now, no project was registered, and of the 18 identified potential CDM projects, there is only one project under formal validation which entered in the stakeholder consultation process.

Without any significant additional support, Lebanon would likely be able to register 8 to 9 CDM projects before the end of the Kyoto Protocol period (31/12/2012), totalizing almost 300,000 tCO<sub>2</sub>e of emission reductions annually.

The CDM development in Lebanon requires, in principal, enhancing awareness and carry out appropriate reforms to attract CDM project proponents and CERs buyers, as well as strengthening the DNA capacities towards smoother procedures, better responsiveness, sustainability, efficiency and transparency. Technical capacities to translate the currently Energy Efficiency (EE) and Renewable Energy (RE) programs into CDM projects should also be enhanced, in order to feed easily the CDM expansion.

However, since the post-Kyoto CDM perspectives are still unknown, capacity development for CDM are not in the priority agenda for now. More pragmatically, there is a need to put a strong emphasis in supporting those mature CDM projects that have real chances to get registered on time.

Among the CDM portfolio, 4 projects were identified as priority to be supported in order to help them registering before 2012. These 4 projects are: (i) 60 MW Wind Power Park in Aley region; (ii) Rehabilitation of Hydro-Power facilities of Qadicha, Safa and other hydro sites; (iii) Fuel switching to Refuse Derived Fuel (RDF) in SEBLIN Cement Plant; and (iv) . Waste to Energy generation at SICOMO paper plant.

The estimated cost of the financial needs for the supporting activities is around 245,000€; excluding costs for validation and registration which are assumed to be covered under the Emission Reduction Purchase Agreement (ERPA).



Despite the early notification of the DNA to UNFCCC Secretariat, even before its ratification of Kyoto Protocol, the CDM in Yemen had been progressing at a very slow pace.

Thanks to the initiatives of some international cooperation agencies (especially United Nations Development Programme-UNDP), a significant mitigation potential has been identified in Yemen, particularly in the areas of industrial activity, manufacturing, methane recovery, rural energy, and electricity grid expansion and efficiency. Some CDM projects were already identified but most of them are in early CDM stage. Indeed, the Yemeni CDM project portfolio includes only 10 projects of which 2 are under validation and the remaining at the Project Idea Note (PIN) or the prior notification stage.



From this portfolio, three projects look worth to be supported in order to be registered before 2013:

- Mocha 60 MW Wind Park Project.
- Recovery & utilization of associated gas from basement wells in the Kharir Field (Block 10), Yemen.
- Yemen Electricity Distribution Loss Reduction Programme (PoA).

## 4. CDM Future Set by Durban Platform

Though, originally, Kyoto Protocol, which defined CDM in 1997, expires by the end of 2012, fortunately the 194 countries in the 2011 United Nations Climate Change Conference held in Durban, South Africa, agreed to extend working with the Kyoto Protocol in an interim period.

One of the major outcomes of the conference is the agreement, known as Durban Platform, to have a new legally binding agreement where its terms will be defined and signed in 2015 and to become effective in 2020.

Accordingly, Kyoto Protocol along with all carbon emission reduction, mitigation, and trading mechanisms that were developed within its framework, including CDM, will be substituted after the interim period with a new treaty to be yet defined.

## 5. Conclusion

In conclusion, no doubts that some efforts have been done by RCREEE member states to seize the opportunity to improve the use of existing RE potential and to enhance EE through the use of the financial mechanism offered by Kyoto Protocol, notably CDM.

The outcome of Conference of the Parties (CoP17) in Durban gave CDM mechanism a life line of few more years of operation during which RCREEE member states should build on their previous experiences and extend the benefits they can get from this carbon trading mechanism.

With the signature of Durban Platform planned in 2015, carbon emission reduction, mitigation, and trading mechanisms will start to go into a new era that to be designed. It becomes crucial for all RCREEE member states not to miss the opportunity but to actively exploit all possible means to utilize CDM during this remaining interim period.





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