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Understanding CDM potential in the Mediterranean basin: A country assessment of Egypt and Morocco

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HIGHLIGHTS

- We investigated CDM potential and barriers in Egypt and Morocco.
- CDM potential is almost equal and both countries demonstrate the same tendencies.
- Key problem is the political instability and regulatory barriers in the region.
- Activities to improve their in-house capabilities will further encourage the CDM.

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ABSTRACT

The Mediterranean basin countries on the one hand are considered a climate change vulnerability "hotspot", while on the other they obtain a substantial potential for the implementation of clean development mechanism (CDM) projects and especially for North Africa region. Abatement of greenhouse gas emissions can mainly be achieved through utilizing renewable energy sources in the region, implementing energy efficiency measures and substituting oil with natural gas in energy generation. However, with few exceptions, the majority of these countries have a limited track record in the CDM pipeline. The aim of this paper is to investigate possibilities for CDM projects and indentify the main challenges for the promotion of CDM activities in the Mediterranean region. In this respect, an assessment of the current state of related institutional and policy setting, CDM potential and barriers related to the implementation of a CDM project in two representative case study countries of the Mediterranean basin, namely Egypt and Morocco was elaborated. The analysis indicated that the overall CDM potential in Egypt and Morocco are almost equal and both countries demonstrate the same tendencies, the key problem, however, remains on how to deal with the political instability and regulatory barriers the region face.

1. Introduction

The clean development mechanism (CDM), defined in Article 12 of the Kyoto Protocol, allows a country with an emission-reduction or emission-limitation commitment under the Protocol to implement an emission-reduction project in developing countries (UNFCCC—United Nations Framework Convention on Climate Change, 1998). The greenhouse gas (GHG) emission reductions resulting from CDM projects can be sold as certified emission reduction (CER) credits to an industrialised country. Given the relatively low investment costs in developing countries, this option allows industrialised countries to achieve their commitments at lower costs, while enabling the technology transfer of sustainable energy technologies (Karakosta and Psarras, 2009a; Schneider et al., 2008; UNFCCC—United Nations Framework Convention on Climate Change, 1998).

Abbreviations: CER, Certified emission reduction; CDM, Clean development mechanism; CCTAF, Climate change technical assistance facility; CCU, Climate change unit; DNA, Designated national authorities; DSWH, Domestic solar water heating; EB-CDM, Egyptian Bureau for CDM; EC-CDM, Egyptian Council for CDM; EEAA, Egyptian Environment Affairs Agency; ENEF, Energy efficiency; EIB, European Investment Bank; FEMIP, Facility for Euro Mediterranean investment and partnership; GHG, Greenhouse gas; IFIs, International Financial Institutions; JI, Joint implementation; LFG, Landfill fuel gas; LoA, Letter of approval; NREA, New & Renewable Energy Authority; NGOs, Non-Governmental Organizations; OCP, Office Chérifien des Phosphates; PPA, Power purchase agreements; pCDM, programmatic CDM; PoAs, Programmes of activities; PDDs, Project design documents; PINs, Project idea notes; RES, Renewable energy sources; SMEs, Small and medium enterprises; SIPH, Solar industrial processes heat; SD, Sustainable development; TA, Technical assistance; UNDP, United Nations Development Programme; UNEP, United Nations Environment Programme; UNFCCC, United Nations Framework Convention on Climate Change; WHRS, Waste heat recovery systems.

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The CDM is considered one of the global policy tools that potentially could contribute to sustainable development (SD) and technology transfer in developing counties (Karakosta et al., 2010a; Karakosta et al., 2010c; Doukas et al., 2009). A CDM project should primarily contribute to SD in the host country, whereas it should also reduce GHG emissions that could be transferred to industrialised investor countries (Ellis et al., 2007; Olsen, 2007; Van der Gaast et al., 2009). An important implication of the design of the CDM is that the host countries could determine for themselves what sustainable development looks like, which could also imply that the interpretation of the concept could (strongly) differ from country to country (Karakosta et al., 2009). The Marrakech Accords affirms that "it is the host Party's prerogative to confirm whether a CDM project activity assists it in achieving sustainable development" (UNFCCC—United Nations Framework Convention on Climate Change, 2002). Rather than setting international standards for SD, designated national authorities (DNA) in developing countries are mandated to issue a Letter of Approval (LoA) or reject CDM projects according to each country's own national SD criteria.

Consequently, while the procedures for calculating the GHG emission reductions from a CDM project are determined and observed by a United Nations-based Executive Body, its SD contribution is determined by the host countries themselves. This situation has given rise to concerns. The term 'Sustainable Development' is sufficiently broad to consider in principle any CDM project sustainable and the first developments with the CDM pipeline between 2005 and 2008 seemed to indicate that projects were mainly selected for their GHG emission reduction potential. During this phase most of the emission reductions were generated through CDM projects in China, India and South Korea in the field of reducing emissions of industrial process-based gases, such as HFC, PFC and N_2O, which have a relatively strong global warming potential and can be realized at relatively low costs.

Regarding the future of CDM, during the 16th edition of conference of the parties of the United Nations Framework Convention on Climate Change (COP) and the 6th conference of the parties serving as the meeting of the parties to the Kyoto Protocol (CMP) in Cancun, Mexico, it was decided that one or more new market mechanism will be established in 2012 at COP 17 in Durban, South Africa while no exact decision was taken regarding the CDM itself (Natu, 2011). Any such mechanism will maintain and build upon the existing mechanisms, including those established under Kyoto Protocol (CDM, joint implementation (JI), etc.).

Currently CDM project activities in the Mediterranean region are currently taking place (or are in the formal CDM pipeline), among others, in Israel, Egypt, and Morocco, as depicted in Table 1.

Table 1
Number and kCERs (certified emission reductions) of the CDM projects across Mediterranean countries (as of May 2011).
Source: Fenhann (2011), The World Bank (2012).

Country	No. of CDM projects	2012 kCERs	No. of registered CDM projects	2012 kCERs	CO_2 emissions in 2009 (kt)
Albania	3	215	1	161	3,007
Cyprus	9	876	6	852	8,199
Egypt	15	16,119	8	14,580	216,137
Israel	32	10,402	21	8,800	67,216
Lebanon	1	125	0	0	20,968
Libya	1	573	0	0	62,874
Malta	1	100	0	0	2,497
Morocco	17	4,054	5	2,526	48,815
Syria	4	1,369	2	644	65,313
Tunisia	4	4,499	2	4,125	25,156
Total	87	38,333	45	3,1687	520,182

In the Mediterranean basin CDM potential is abundant and especially for North Africa region.

Moreover, of the thousands of CDM projects globally, Africa has only 161 projects in the CDM pipeline and the majority of these projects are located in South Africa, Kenya, Egypt and Morocco. Indeed, the Egyptian and Moroccan Governments declared very early their willingness to pursue sustainable development and their policies for the promotion of CDM related activities have been the most active among the facility for Euro Mediterranean investment and partnership (FEMIP) countries.

In general, a few countries are responsible for the bulk of CDM-activity in the Mediterranean region (Karakosta et al., 2010b). This indicates that once the appropriate institutions, such as DNAs are in place, CDM can develop rapidly. Nevertheless, it should be noted that a rapid take-off of CDM activity is usually also the result of genuine investors' interest, which may serve as another indicator for a potential for CDM project development. This is a natural consequence as genuine investors are investors willing to implement energy projects and able to operate long term under the established procedures and regulations of a developing country for the benefit of the country.

The transfer and implementation of renewable energy sources (RES) and energy efficiency (ENEF) technologies through CDM could assist a developing country to meet its main energy services needs and priorities as well as to achieve SD (Doukas et al., 2010; Karakosta and Askounis, 2010; Karakosta et al., 2008; 2009, 2010b; Nautiyal and Varun, 2012). In this context, the CDM has successfully demonstrated that market-based mechanisms can achieve some cost effective emissions reductions, but has not yet produced a substantial benefit of SD in the host countries (Boyd et al., 2009; Sutter and Parreno, 2007; Zegras, 2007). While the developing countries themselves have the opportunity to channel CDM investment into this direction, for example by introducing and applying stringent criteria for approval of CDM projects (Karakosta and Psarras, 2009b; Karakosta et al., 2010b), these opportunities have so far not been seized.

To the best of our knowledge, a paper showing the barriers to implementing CDM in Mediterranean basin and especially in Africa is not presented in the international literature and it would be important, especially in policy-making and in countries with high CDM potential. The aim of this paper is to investigate possibilities for CDM projects and indentify the main challenges for the promotion of CDM activities in the Mediterranean region, by assessing the current state of related institutional and policy setting, CDM potential and barriers related to the implementation of a CDM project in two representative case study countries of the Mediterranean basin, namely Egypt and Morocco.

Apart from the introduction, the paper is structured along five sections. The following section is analysing the CDM status in the Mediterranean region. The next two sections are analysing the CDM context in Egypt and Morocco, respectively, in terms of CDM institutional setting, potential by sector and barriers towards further CDM development. Section 4 provides a comparative analysis between the case study countries so as to discover possible directions for promoting CDM development in the Mediterranean basin. The last section summarizes the main points that have arisen from this study.

2. CDM activities in the Mediterranean region

As of May 2011, close to 6147 CDM project activities (2.756.999 kCERs 2012) worldwide have entered the process of validation (to be carried out by an officially designated entity), or are under consideration by the CDM Executive Board (EB) for registration or have already been registered (Fenhann, 2011). When the present