



## Climate Finance Policy Brief

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## Climate Finance for the Middle East and North Africa: Confronting the challenges of climate change

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**R**esponding to climate change presents challenges for the oil producing and water stressed countries of the Middle East and North Africa (MENA), but also opportunities to forge new paths to more inclusive and effective development. 57% of proven oil reserves and 41% of proven natural gas resources are found in MENA countries, and development of these abundant fossil fuel reserves has been a successful route to substantial wealth accumulation for many countries in the region: these reserves generated an estimated USD 785 billion in revenues in 2011. Nevertheless, there are large disparities in per capita income within countries and across the region, and not all countries are so well endowed with fossil fuel reserves. All the countries in the region are severely water stressed, and climate change is likely to further exacerbate this condition. Resultant land degradation and further desertification are likely to have severe implications for agricultural yields in a region that is already heavily dependent on imports for food needs, and whose poorest people and countries are still agrarian.

This brief considers the scope and objectives of dedicated international public finance directed to the region, drawing on Climate Funds Update data. It finds that most international public climate finance has been directed to a small number of large projects in Egypt and Morocco using concessional loans. These two countries receive 80% of total approved climate finance in the region, largely from the World Bank administered Clean Technology Fund. No climate finance has been directed to the richest fossil fuel exporters in the region such as Qatar, Saudi Arabia, Oman, and the United Arab Emirates (UAE). Although good examples of adaptation projects are emerging (largely focused on water management, agriculture and rural development), adaptation remains gravely underfunded. Furthermore, although access to education and healthcare is increasing, in many countries gender disparities are a difficult social and political issue.

Nevertheless, there is an increasing level of activity on climate change –notably investment in renewable energy—largely supported with domestic and private sector finance. Many countries are investing in wind and solar energy at a large scale, for both domestic use and export. As the host of the 18th Conference of the Parties to the UNFCCC, Qatar has a unique opportunity to play a leadership role in global efforts to respond to climate change. It is uniquely placed to set a good example by advancing its own efforts to adapt to climate change, embracing low carbon solutions to meeting future energy needs, and supporting the efforts of poorer countries (particularly within its own region) to respond to climate change.

## Introduction

As Qatar prepares to host the 18th Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC), global attention is turning to the issue of climate change in the Middle East and North African (MENA) region. MENA includes Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, West Bank and Gaza, and Yemen.<sup>1</sup> Climate change presents a variety of challenges for the countries in the MENA region, which confront diverse circumstances. The region is home to the majority of the world's proven oil reserves with many of its oil-exporting countries amongst the highest per-capita emitters of greenhouse gas (GHG) emissions. Economies that have grown rich from developing abundant oil resources, however, are neighbours to poorer nations, many of which have been struck by political unrest and conflict. There are large disparities in per capita income within countries, and across the region. For all countries, however, the sustainable use of environmental resources is a major long-term development challenge. MENA countries are likely to be severely affected by climate change, which will cause temperature and sea level rise that may affect coastal areas, and current severe water stress is likely to be exacerbated. Nevertheless, there are many opportunities to increase the efficiency of existing energy systems and to develop alternative energy sources – particularly given the region's abundant solar energy reserves.

This brief considers the role of climate finance in the MENA region. It is based on the Climate Funds Update (CFU) database monitoring the activities of 23 dedicated international climate finance initiatives (<http://www.climatefundsupdate.org>), and complemented by desk research.<sup>2</sup> Section 1 presents an overview of the current distribution of public climate finance from these international climate finance initiatives to the countries in the region. Section 2 outlines the dynamics of oil production in the region, and the complex political economy of decarbonisation that this relationship creates for the region. In Section 3, we discuss a promising emerging trend towards renewable energy resources development and innovation in many countries of the region. Section 4 then details the urgent adaptation needs faced by countries in the region. In section 5, we put these issues in the context of the political transitions and challenges that confront many countries in the region.

## Climate finance in the region

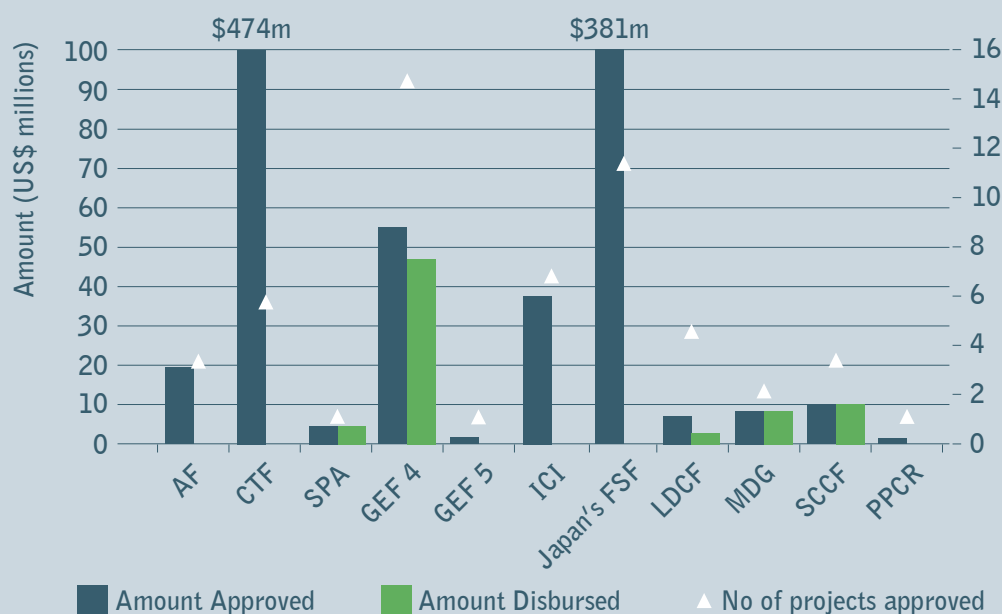
Since 2004 USD 1 billion in finance from dedicated international climate funds monitored on CFU has been directed to 52 projects in the MENA region (see Table 1). Of this, only USD 194.5 million was approved as grants, which support a large number of relatively small-scale projects. Finance has been concentrated in a small number of large projects. 12 of 21 countries are recipients of climate finance. The largest source of finance is the Clean Technology Fund (CTF), which has provided concessional loans for 4 approved projects in the region so far (see Figure 1).

To date USD 72 million has been disbursed to 23 active projects. Most disbursed finance - approximately USD 47 million in grants for 15 projects - has come from the funding provided during the fourth replenishment period of the Global Environment Facility (GEF4), which is the longest standing climate fund. The total amount of approved funding has increased by 5% over the past year, but the amount disbursed has decreased slightly as three GEF4 projects (in Iran, Tunisia and Yemen) were cancelled. Egypt and Morocco receive 80% of total approved climate finance in the region with a total amount approved of USD 523.15 million and USD 360 million respectively (see Figure 3 and Table 3).

More than 90% (approximately USD 921 million) of the climate finance approved in the region is allocated to mitigation activities (see Figure 2 and Table 2). A substantial share of this funding has been concentrated in countries such as Egypt and Morocco, who have a track record of working with key actors in international climate finance such as the African Development Bank and the World Bank (Figure 3 and Table 3).

1. Using the World Bank's Regional Classifications: <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/MENAEXT/0,,menuPK:247619~pagePK:146748~piPK:146812~theSitePK:256299,00.html>
2. CFU is comprehensive in its coverage of dedicated multilateral climate finance, but its coverage of climate change related activities supported through bilateral channels is not complete. It also does not include private investment in climate change. This brief is based on August 2012 CFU data.

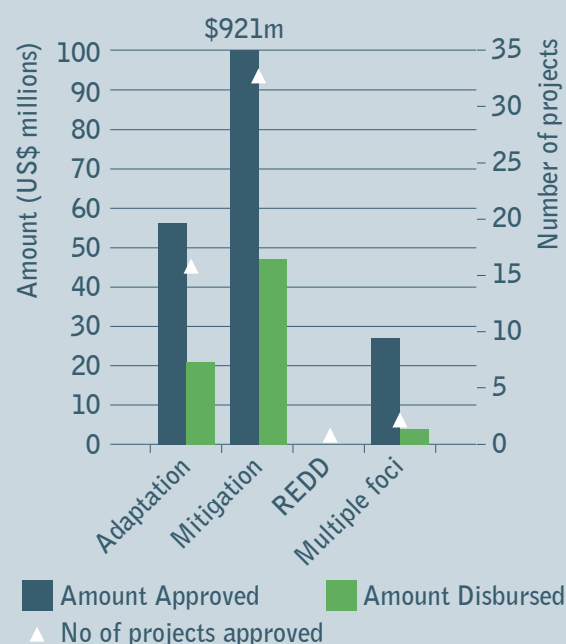
**Figure 1: Who provides the finance?**



**Table 1: Who provides the finance?**

Fund	Amount Approved (USD M)	Amount Disbursed (USD M)	No. of projects approved
AF	19.42	0	3
CTF	474	Unknown	5
SPA	4.62	4.62	1
GEF4	55.04	46.86	15
GEF5	1.45	0	1
Germany's ICI	37.65	0	7
Japan's FSF	381.33	0	10
LDCF	6.9	2.4	4
MDG	8	8	2
SCCF	10.35	10.35	3
PPCR	1.5	0.05	1

**Figure 2: What is funded?**



**Table 2: What is funded?**

Theme	Amount Approved (USD M)	Amount Disbursed (USD M)	No. of projects approved
Adaptation	56.2	21.42	16
Mitigation	920.88	46.86	33
REDD	0.31	0	1
Multiple foci	27.04	4	2

16 adaptation projects have been approved to receive USD 56.2 million which accounts for about 5% of the total multilateral climate finance to the region. Four of these projects are underway in the least developed countries of Yemen and Djibouti, and there are also adaptation projects underway in Egypt, Jordan and Morocco, as well as Lebanon and Iraq. These projects have tended to focus on water management and resilience, food and agriculture resilience, or both sets of issues, which mirror the priority sectors for action that many MENA countries have identified in their national communications and National Adaptation Programs of Action.

The Adaptation Fund has supported the largest adaptation project in the region to date with a USD 7.86 million grant on Climate Smart Agriculture to Lebanon, which has the stated objective of enhancing the adaptive capacity of rural communities. Yemen is poised to become one of the largest recipients of adaptation related finance in the region, however, as it is one of the pilot countries for the Climate Investment Fund's Pilot Program for Climate Resilience (PPCR). Through this programme, Yemen could work with the African Development Bank and the World Bank to receive up to USD 50 million in grants for adaption.

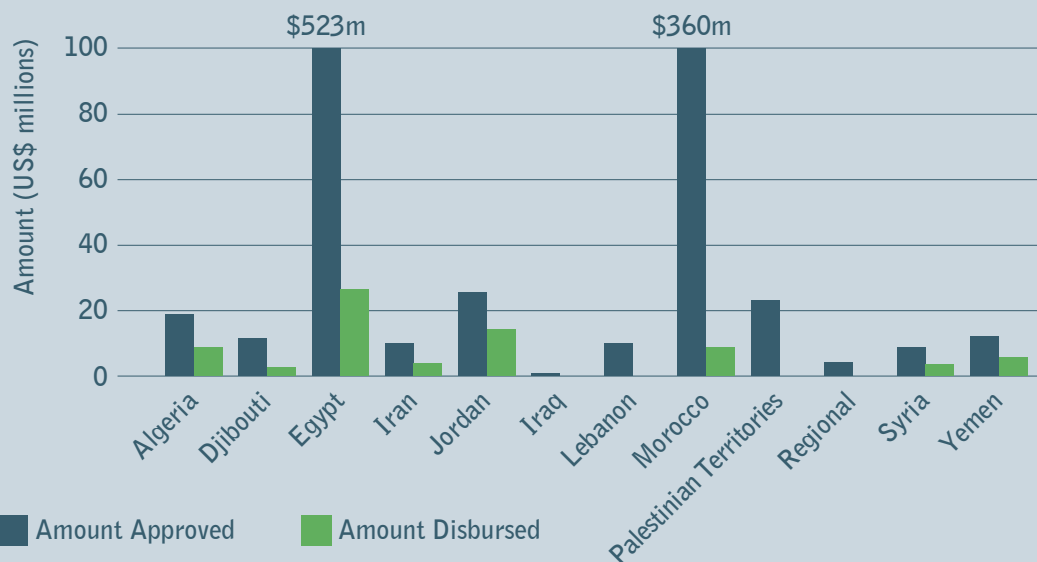
In 2009 the governing committee of the Clean Technology Fund endorsed a proposed USD 750 million programme on Concentrated Solar Power (CSP) scale-up in the Middle East and North Africa, which will support CSP in Algeria, Egypt, Jordan, Morocco and Tunisia. The programme was intended to mobilise an additional USD 4.85 billion in finance, and help accelerate global deployment of CSP. The programme was intended to take a regional approach, but in practice the implementation of the programme has involved discrete investment in CSP projects.

The most advanced of these is the Morocco Ouarzazate which has received USD 197 million from the Clean Technology Fund, and is set to receive over USD 1 billion in public and private finance. Implementation of the programme in other MENA countries has been substantially delayed in large part as a result of the political unrest that has recently affected countries including Tunisia and Egypt; progress on programmes in Jordan and Algeria, however, has been slow for reasons related to national priorities and capacity to take projects forward.

**Table 3: Who receives the money?**

Recipient Country	Amount Approved (USD M)	Amount Disbursed (USD M)
Algeria	18.76	8.24
Djibouti	11.11	2.2
Egypt	523.15	26.3
Iran	9.76	4
Jordan	25.39	13.97
Iraq	0.06	0
Lebanon	9.31	0
Morocco	359.8	8.24
Palestinian territory	23.04	0
Regional	3.94	0
Syria	8.33	3.46
Yemen	11.82	5.87

**Figure 3: Who receives the money?**



## Box 1: International Climate Finance for Renewable Energy Development in Morocco

The Government of Morocco has expressed an ambitious intent to promote renewable energy technology and diversify its energy mix. In this context, it has established a number of programmes to develop wind and solar energy technology, both of which are receiving substantial finance from the World Bank administered Clean Technology Fund, with additional co-finance from the World Bank and the African Development Bank.

The largest programme underway is the Ouarzazate I Concentrated Solar Power (CSP) plant. This 500 MW facility is the first phase of a planned 2000 MW CSP facility, which is intended to catalyse the emergence of a CSP industry in Morocco. Ouarzazate I is to be implemented through a public private partnership (PPP) overseen by the Moroccan Solar Energy Agency (MASEN). MASEN will intermediate between a private consortium that takes the project forward and the national state owned utility the Office for National Energy (ONE). In addition to USD 197 million in concessional finance from the Clean Technology Fund, an additional USD 1.18 billion in international public finance has been directed to MASEN. While access to this finance and associated international technical support and expertise have increased the viability of the project, the cost of the electricity produced will still be substantially higher than conventional energy, and the difference will have to be covered by Moroccan public finances. Notably, the Morocco Ouarzazate programme has been designed to require that a minimum of 30% of the plant components and services are procured from local industry and sources in order to facilitate benefit sharing. Implementers report that these provisions have been exceeded, and a substantial share of procurement will include local businesses. The facility is also expected to create a large number of jobs in the construction and maintenance phases. In addition, a community development fund has been established to share some of the benefits from the programme with the local community in Ouarzazate. The long term impacts of the project of course remain to be seen, as implementation is in its very early stages.

USD 125 million has also been directed in support of Office National d'Electricite (ONE) wind plan, with additional finance from the AfDB and the IBRD. This programme is intended to support large scale wind energy development through PPPs, and the concessional capital is intended to meet the additional costs of connecting remote wind farms to the national grid. It will also include local content procurement support, and it intends to create domestic jobs. The idea is to pilot models of PPPs that can be scaled up to deploy Morocco's abundant wind potential. Questions have been raised about the concessionalism necessary to realise the project given that wind energy is already close to commercial feasibility in Morocco. Nevertheless, the project is likely to leverage a substantial amount of private co-finance.

It will be important to monitor and understand how the social, economic and environmental benefits envisioned from the programme are delivered in practice.

### SOURCES:

FALCONER, A. AND FRISARI, G. (2012). *SAN GIORGIO GROUP CASE STUDY: OUARZAZATE I CSP*. CLIMATE POLICY INITIATIVE  
CLIMATE INVESTMENT FUNDS (2012). *CLEAN TECHNOLOGY FUND: MOROCCO PROGRAMME DOCUMENTATION*. [HTTPS://WWW.  
CLIMATEINVESTMENTFUNDS.ORG/CIFNET/?Q=COUNTRY-PROGRAM-INFO/MOROCCOS-CTF-PROGRAMMING](https://www.climateinvestmentfunds.org/cifnet/?q=COUNTRY-PROGRAM-INFO/MOROCCOS-CTF-PROGRAMMING)

## Bilateral climate initiatives

Germany (through its International Climate Initiative, ICI), and Japan (through its Fast Start Finance Initiative) have both invested in the region. Japan has a significant portfolio of activities in the region (USD 381.33 million for ten projects in ten countries), including in Palestinian Territories. The largest project approved in the region so far is a USD 338 million loan for the Gulf of El Zayt Wind Power Plant Project in Egypt funded by Japan's FSF through the Japanese International Cooperation Agency (JICA).

The *Mediterranean Solar Plan and Union for the Mediterranean Initiatives* supported by Germany's ICI provides support for renewable energy development at a regional level. Germany also supports a number of additional climate change activities. The German Federal Ministry for Economic Cooperation and Development (BMZ) is supporting a programme of work between 2011 and 2017 on 'adapting to climate change in the water sector in the MENA region', in partnership with the Arab Ministerial Water Council (AMWC) of the League of Arab States (LAS), with technical support from its technical cooperation agency GIZ. Through this effort, research and dialogue are underway in Egypt, Jordan and Lebanon, with plans to expand the scope of the work to other countries in the region in 2014. In addition, BMU and GIZ have supported Middle East and North Africa

Renewable Energy Conferences (MENARECs) since 2004, to create a knowledge sharing platform for national and international renewable energy companies and institutions. KfW and the German government have also directly contributed co-finance for the construction of the Ouarzazate I concentrating solar power plant (Box 1).

The European Union has used its European Neighbourhood and Partnership Instrument (ENPI) as a vehicle for cooperation with MENA countries, which helps incorporate climate change considerations into EU support programs. Focus sectors and countries targeted through these efforts include water (Algeria, Egypt, Jordan), industrial pollution (Tunisia, Morocco), transport (Morocco), agriculture and energy efficiency (Morocco). It has also used its Neighbourhood Investment Facility to provide EUR 30 million (USD 38 million) for a wind farm in Morocco and EUR 1 million (USD 1.27 million) for a CSP project in Tunisia (co-financed by other international financial institutions at a total cost of EUR 120 million) (Palmero, 2009).

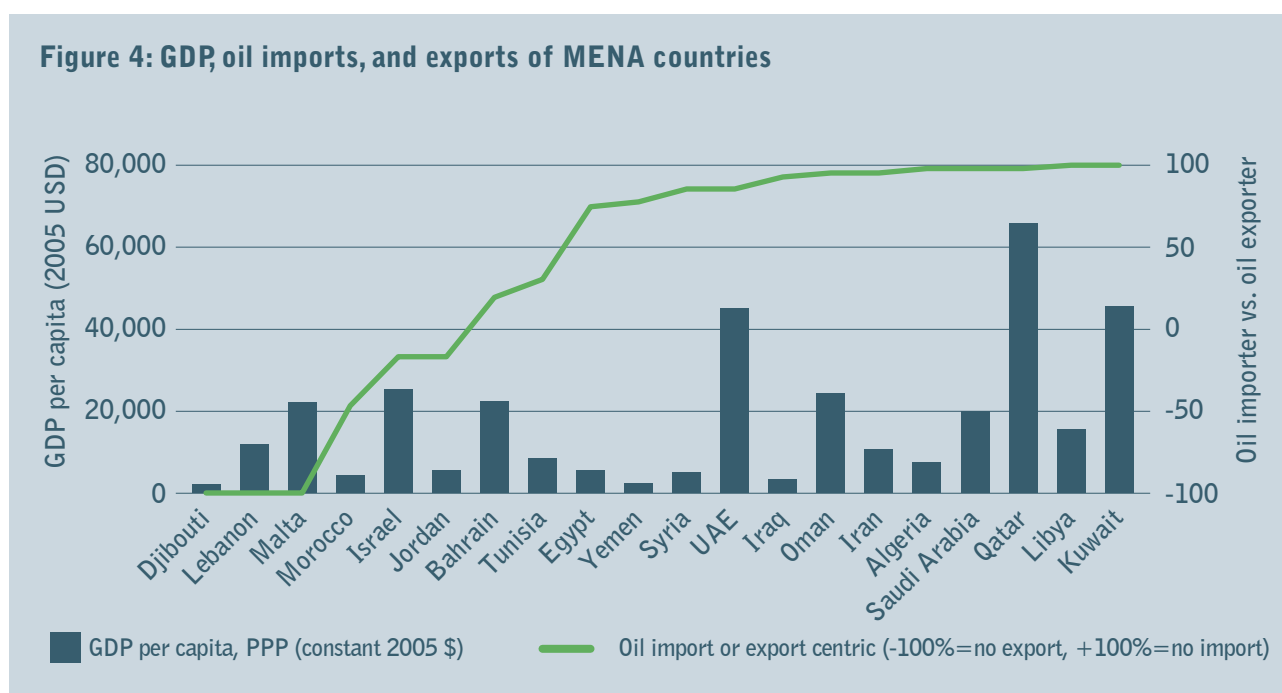
### The Clean Development Mechanism

65 CDM projects (UNFCCC 2012) are currently registered in seven MENA countries: Israel, Egypt, Iran, Jordan, Qatar, Morocco, Saudi Arabia, Syria, Tunisia and the UAE. These include energy efficiency and renewable energy projects (particularly solar and wind power). These projects are expected to generate a total of 56.5 million CERs. Several of the more advanced economies in the region have been effective in accessing the CDM, although some of the projects supported have been controversial (Levi, 2011). On balance, however, the region's share of the CDM is small, at less than 2% of the global CER market.

## The political economy of mitigation in MENA

Although climate change initiatives have increased, mitigation in MENA is a substantial political challenge. 95% of energy needs are met from oil and gas reserves; the remaining 5% is met using coal and hydropower. Two-thirds of the Organization of Petroleum Exporting Countries (OPEC) are located in the MENA region, which has 57% of the world's proven oil reserves and 41% of proven natural gas resources. These reserves generated an estimated USD 785 billion in revenues in 2011 (Fattouh and El-Katiri, 2012).

Not all the countries in MENA have significant oil and gas resources, however, as reflected in severe disparities in per capita incomes (see Figure 4). GDP per capita amongst oil-rich Gulf states (about 10% of the region's population) is roughly double than in oil-deprived countries such as Djibouti and Yemen. In 2008 roughly 44 million people in the region (or 14% of the region's population) lived on less than USD 2 per day. Whereas Kuwait has a 100% electrification rate, only 7.7% of the population of Djibouti has access to electricity.



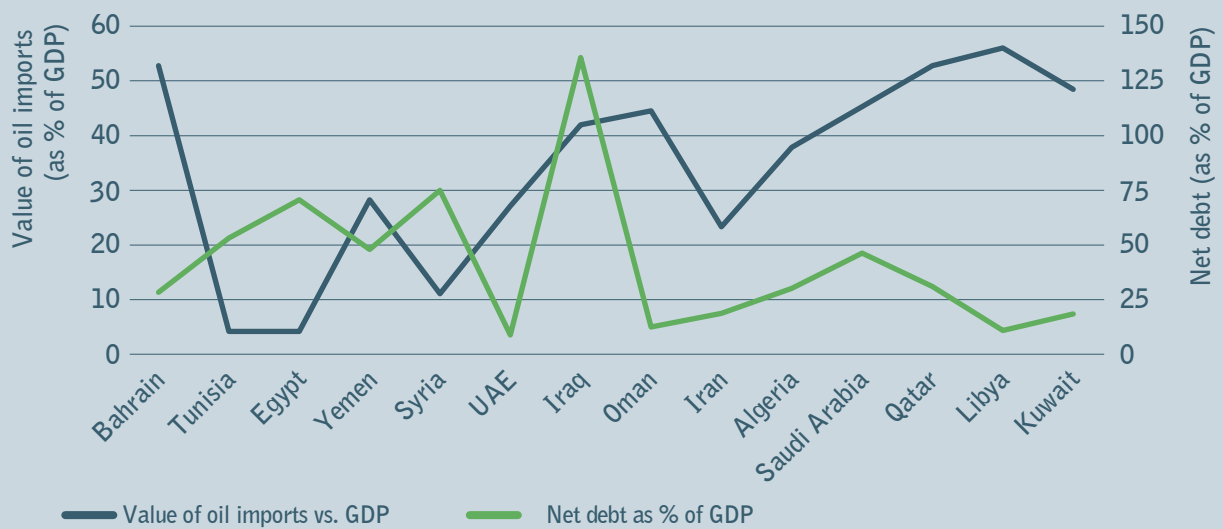
SOURCE: WORLD BANK DATA, OWN ANALYSIS

**Figure 5: Value of oil imports and net debt as percentage of GDP**



SOURCE: WORLD BANK DATA AND IMF, OWN ANALYSIS

**Figure 6: The value of oil imports and net debt as percentage of GDP**



SOURCE: WORLD BANK DATA AND IMF, OWN ANALYSIS

In Djibouti as well as Yemen, Algeria, Egypt, Morocco, and Syria, many people continue to rely on fuel wood and kerosene for basic energy services including cooking (Fattouh and El Katiri, 2012).

Countries such as Morocco, Jordan Lebanon, Israel, and Djibouti typically spend between 6 and 10% of their GDP on oil imports (see Figure5).

For countries that are primarily oil exporters, revenues can be as high as 55% of GDP, and tend to be correlated with much higher per capita incomes (see Figure 6).

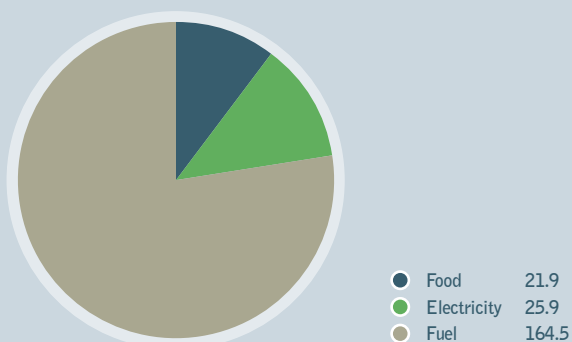
Kuwait, Libya, Qatar, Saudi Arabia, and the UAE, some of the largest oil exporters in the region, have not received international climate finance from the dedicated funds monitored on CFU. Adaptation and mitigation finance has been primarily directed to oil importing countries that tend to be poorer and particularly vulnerable to climate change (see Table 4). These countries also have a clearer case for increasing their energy independence by investing in low carbon energy solutions.

**Table 4: Distribution of climate finance across MENA**

	Oil importer	Oil exporter
Approved Mitigation and Adaptation Finance (USD M)	<ul style="list-style-type: none"> <li>Lebanon (9.31)</li> <li>Morocco (359.8)</li> <li>Jordan (25.39)</li> <li>Palestine (23.04)</li> </ul>	<ul style="list-style-type: none"> <li>Egypt (519)</li> <li>Yemen (11.82)</li> </ul>
Approved Mitigation Finance only (USD M)		<ul style="list-style-type: none"> <li>Syria (8.33)</li> <li>Iran (9.45)</li> <li>Algeria (18.72)</li> </ul>
Approved Adaptation Finance only (USD M)	<ul style="list-style-type: none"> <li>Djibouti (11.11)</li> <li>Iraq (0.06)</li> </ul>	
No Approved Mitigation or Adaptation Finance	<ul style="list-style-type: none"> <li>Malta</li> <li>Israel</li> </ul>	<ul style="list-style-type: none"> <li>Bahrain</li> <li>Tunisia</li> <li>UAE</li> <li>Oman</li> <li>Saudi Arabia</li> <li>Qatar</li> <li>Libya</li> <li>Kuwait</li> </ul>

SOURCE: AUTHORS

**Figure 7: 2011 MENA Subsidies USD 212 billion (Equivalent to 7.2% of GDP)**

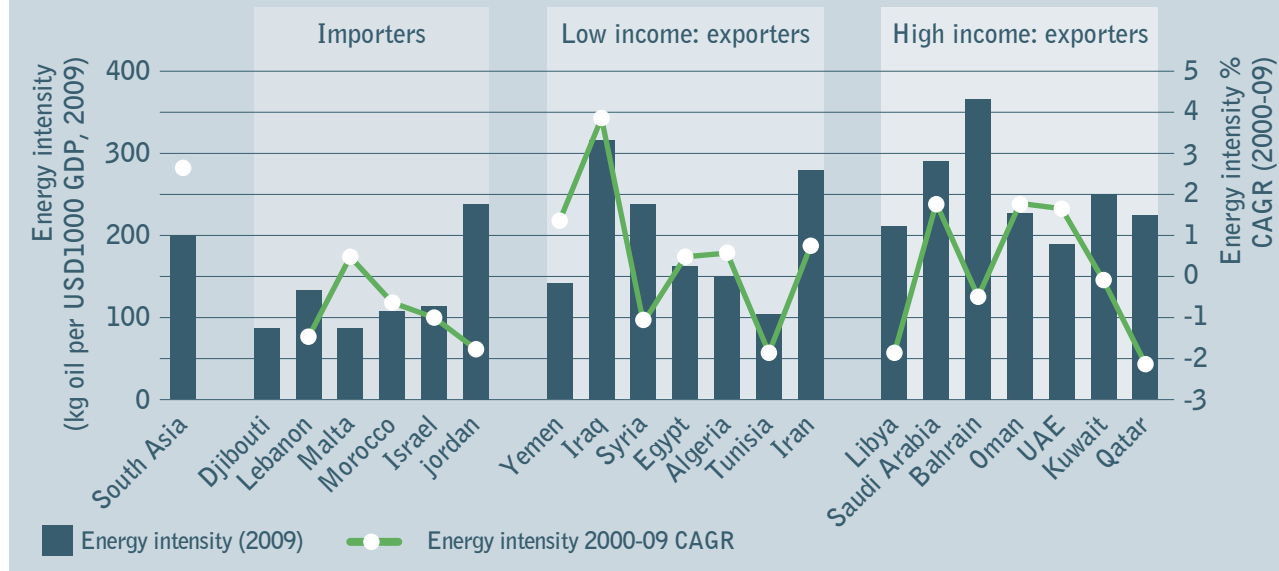


SOURCE: [HTTP://WWW.IMF.ORG/EXTERNAL/PUBS/FT/SURVEY/S0/2012/CAR051412B.HTM](http://www.imf.org/external/pubs/ft/survey/s0/2012/CAR051412B.HTM)

There is also heavy dependence on fuel subsidies across the region, which amounted to USD 164.5 billion in 2011 (see Figure 7). This figure is equivalent to approximately 5.5% of the region's GDP. Iran and Saudi Arabia have some of the highest levels of fossil fuel subsidies in the world. The opportunity costs associated with such high levels of subsidy for domestic consumption have risen alongside global oil and gas prices, and there is a growing recognition of the costs that fossil fuel subsidies impose in the region.

These subsidies, both explicit and implicit, have had serious implications for resource allocation, and are widely understood to be economically inefficient. Subsidies also promote over-consumption and wasteful use of energy by industries and households. Eight of the world's ten most energy intensive economies are in the MENA region, including Bahrain, Iraq, Saudi Arabia and Oman. In 2009, the average energy intensity of economies in the MENA region was about 60% higher than that of Organisation for Economic Co-operation and Development (OECD) countries, and 40% above the world average. There are some signs that energy intensity is also increasing in the region (see Figure 8).

**Figure 8: Energy intensity 2009 and Compound Annual Growth Rates**



SOURCE: WORLD BANK DATA, OWN ANALYSIS



## Box 2: MENA representation in UNFCCC finance relevant institutions

1. **Green Climate Fund:** Egypt is a board member, and Saudi Arabia holds a developing country alternate position
2. **Adaptation Fund:** Egypt and Qatar are full board members
3. **The Technology Mechanism:** The UAE (who would share its seat with Iran) and Algeria have expressed interest in participating
4. **Adaptation Committee:** Algeria and Iran are represented

A number of countries in the region are now seeking to rationalise subsidies, although the social implications of making reforms to energy prices can be significant, and has tended to be highly politicised. Iran has been a leader on this count, having introduced sweeping reforms to reduce fossil fuel subsidies but also providing compensatory payments for those affected by changes to prices, ensuring compensation would be in place before the energy price increases, to minimise disruption (HBF et al 2012). Both Jordan and Syria have recently tried to reduce energy subsidies, in combination with reforms to social security systems to protect those negatively affected by higher energy prices. Tunisia invested heavily in a consumer awareness raising programme to support a well received process of energy subsidy reform.

## International Climate Policy

Economic and geo-political considerations related to oil production lead to polarised positions for many oil rich countries in terms of international climate change policy. The Organization of Arab Petroleum Exporting Countries (OAPEC) has advocated that oil producing countries receive compensation for economic losses to the oil trade triggered by adaptation and mitigation actions. Saudi Arabia, an oil-reliant OAPE country, views climate change initiatives as a direct threat to its oil trade and strategic political power. At the Cancun Conference of the Parties to the UNFCCC in 2010 countries agreed that compensation for foregone oil revenues would not be dealt with as adaptation, and would only be considered in the context of efforts to incentivise mitigation.

Nevertheless, we observe significant representation of MENA states in some of the major UNFCCC climate finance institutions (see Box 2). By contrast, oil importing countries in MENA, which are also highly vulnerable to the impacts of climate change, have not yet built up strong or coordinated positions on climate change in international policy fora. Climate change has not been very high on their political agendas, which have largely focused on issues of security and poverty.

## Supporting innovation and embracing transformation

Despite challenges and the difficult political economy of decarbonisation, many MENA countries are beginning to make major investments in renewable energy and energy efficiency. Over the past year, the governments of the Saudi Arabia, Oman, and Kuwait have set ambitious targets to meet 10% of their energy production from renewable energy by 2020. The Emirates of Dubai and Abu Dhabi of the UAE have also been investing in clean energy for several years, seeking to position themselves as leaders in the development of new clean technology industries. Abu Dhabi has a target of 7% renewable generating capacity by 2020, and Dubai has a target of 5% by 2030. The Kingdom of Morocco aims to increase the share of renewable energy in the national mix from 2% to 40% by 2020. Algeria is investing in low carbon cities and developing its solar energy potential with GEF support.

These policy changes indicate a recognition of the potential for investment in clean energy to diversify economies, and over time, release pressures on national budgets that are stressed by the growing costs (and opportunity costs) of fossil fuel subsidies. Whether increased investment in clean technology will result in reduced reliance on fossil fuels within these countries remains to be seen: but the trend towards diversification is notable and to be encouraged.

MENA countries have abundant renewable energy potential, although efforts to harness this potential are relatively recent. The solar energy potential for the region is particularly promising: more than 85% of the land surface of the region receives abundant sunshine. Efforts to map the renewable energy potential in MENA (with a focus on wind and solar energy) are underway with support from the Masdar Institute and IRENA.

It is noteworthy that for the most part, large scale investment in clean energy in MENA countries is supported with domestic finances and resources. Morocco is an exception to some extent, as the CTF support for concentrating solar and wind power in the region are intended to support progress towards realising its longer term objectives. Nevertheless, as box 1 highlights, a large share of the costs of promoting renewable energy will be borne by Morocco's public finances. Many interventions, including those that benefit from international climate finance support, have been structured to attract private sector investment and implementation capacity. For example, CTF support has been sought through the AfDB and World Bank for Morocco's national utility the Office National d'Electricite (ONE). ONE in turn has recently issued a power purchase agreement for the 300 MW Tarfaya wind power plant to a consortium of private companies valued at USD 350 million over 20 years. It is expected to be the largest wind farm on the African continent, and its implementers include a Moroccan company, Nareva, and the UAE-based Karabel Fez/International Power (a subsidiary of GDF Suez Energy International).

Countries such as the UAE have positioned themselves as renewable energy and innovation hubs: the UAE hosts the International Renewable Energy Agency (IRENA). IRENA will be situated in Masdar City in the South East of Abu Dhabi, a new green development that is wholly powered by renewable energy. The finance for developing Masdar City was provided by the government of Abu Dhabi, and the city is designed to be a hub for clean technologies. The UAE's efforts as a country to implement their renewable energy commitments are the most advanced in the region, but Dubai has decided to delay their target dates from 2020 to 2030. The realities of implementation seem to require longer timelines than it originally envisaged, and it is clear that even with high level vision and commitment to addressing climate change, realising new opportunities may be difficult in practice.

Many countries in MENA are also providing finance for climate related purposes outside the UAE including for other countries. The UAE committed USD350 million over 7 years as part of its successful bid to host IRENA. This funding is disbursed in the form of soft-loans through the Abu Dhabi Fund for Development jointly with IRENA, and its first funding cycle recently opened. Some of the wealthier countries in the region already provide substantial development assistance (for example, the UAE provided more than USD 2 billion in foreign assistance last year). Some countries have begun to direct this finance to climate change and sustainability related projects.

## Adaptation in MENA

MENA is already one of the most water stressed regions in the world, with 1,100 cubic metres of water per person each year, which is substantially lower than the widely accepted water security threshold of 1,700 cubic metres. The quantity of water available varies considerably among countries. By 2050 all MENA countries are expected to be in a state of water scarcity, with the exceptions of Iraq, Iran, Lebanon, and Syria where there is some possibility that precipitation may increase. Crop failure and rangeland contraction as a result of further reduced precipitation and more frequent droughts are likely to affect rural population's welfare and livestock food security. Agricultural productivity may decrease a further 80% by 2080. Given that many MENA countries already import more than 50% of their food, further contraction of domestic food production may have severe consequences in a region with large numbers of young people and a rapidly growing population that is expected to double to more than 650 million by 2050.

Climate change impacts affect women differently and often with disproportional severity (see box 4). In many countries in the region, rural women tend to have the primary responsibility for household-based animal husbandry, tending herds, providing water and feeds. Women also produce household food via subsistence farming in rural areas, or are in charge of family provision with food and water in urban areas. Increasing water scarcity, droughts, possible food shortages and desiccation or desertification of pastures will make these tasks harder (Schalatek, 2012).

Responding to these predicted trends will require drastic adjustments to the natural and human systems in the region with immediate action necessary to strengthen coping capacity and to reduce the vulnerability of sensitive sectors and systems. Box 3 describes an Adaptation Fund supported initiative that seeks to grapple with many of these issues.

### Box 3: Climate Smart Agriculture in Lebanon

In June 2012 the Adaptation Fund approved USD 7.86 million for The Climate Smart Agriculture project in Lebanon, which will be implemented by the International Fund for Agricultural Development (IFAD) in collaboration with the Lebanese Ministry of Agriculture. The goal of the programme is to build community resilience and adaptive capacity by:

- Investing in increased water availability and improving efficient use through water harvesting and irrigation technologies (USD 1.63 million)
- Supporting adaptation in crop production (USD 1.80 million)
- Strengthening resilience of shepherds and small ruminants to climate change through sustainable rangeland management (USD 2.55 million)
- Initiating a climate index insurance programme, and supporting knowledge management and learning (USD 0.58 million)<sup>1</sup>

The project is intended to focus on rain-fed, hilly, poor areas, and takes a demand-driven and participatory approach. The Project Proposal Document anticipates that *particular attention will be given to the application of a gender balanced approach in project activities*. This should be ensured at the final selection stage of beneficiaries, and will continue during project implementation to ensure active participation of local women.

SOURCE: ADAPTATION FUND, 2012.

### Box 4: The complex links between gender and climate change in MENA

The links between gender issues and efforts to respond to climate change in MENA are complex. The status of women and their rights differ greatly across the region. In many countries, women's rights are not well recognised. From a social and rights perspective, women have been at the forefront of some of the popular movements of the Arab Spring calling for significant reforms leading to greater political and social inclusion. There is nevertheless concern that some of the new governments coming to power might halt, if not reverse efforts to advance women's rights (Vishwanath 2012), despite significant gains, particularly in education and health, women have made in the region in the last decade. For example: the UAE ranks 4th in the world in women's literacy and is among the world's top performers in women's participation in education at every level (WEF, 2012).

There is a strong case to be made for gender sensitive approaches to climate change action in the region. Some countries are already making strides towards this goal, and actively engaging women in efforts to address climate change and promote sustainable development. The UAE's Masdar Institute, a postgraduate university established with MIT and focusing solely on clean energy technology, has an unusually high proportion of women students. Indeed, among Emirati students roughly 70% are women. These women are participating in research teams that are developing new intellectual property in clean technology every year.

On the other hand, analysts have noted that the people of MENA have a long history of living with scarcity, and a great deal of indigenous knowledge that may be helpful in finding appropriate and effective approaches to adapting to the impacts of climate change. In practice, many mitigation interventions may have adaptation benefits as well, reducing demands for water to meet the cooling needs of conventional fossil fuel based processes, and creating new jobs and livelihoods.

## The future of climate change action in MENA

The implications of the recent Arab Spring on climate change policy in the region remain to be seen. Some commentators have suggested that the impacts of climate change have fostered some of the drivers of unrest in the region, as changing climates exacerbate food insecurity and drive up food prices, further highlighting social problems (Bloomberg 2012).

Until recently the dominance of regimes that had a strong interest in maintaining high oil prices and fossil fuel revenues may have dis-incentivised climate compatible development. The new regimes that have taken power in Egypt, Tunisia and Libya will need to find new paths to development that are more inclusive and offer greater social benefits. There is some cause to believe that investments in low carbon, climate resilient development solutions such as renewable energy and energy efficiency, as well as more efficient, inclusive and productive forms of agriculture and irrigation, may be able to meet such needs. On the other hand, political instability may be a substantial deterrent to attracting new investment, particularly from the private sector.

Renewable energy can offer many social and economic benefits that may help countries address longer term fiscal and monetary challenges, as well as short term energy and employment challenges. By some estimates each megawatt of solar power installed can generate up to 50 jobs (for example in research, manufacturing, and installation) and can generate USD 6 million in GDP (Nash and Kersey 2012). Several of the mitigation projects that benefit from international climate finance in the region include some mechanisms to share benefits with local communities, and develop local economic opportunities (for example through provisions for local content procurement). The effectiveness of these mechanisms remains to be seen, but demonstrate the potential for some proactive measures to realise local economic development and social benefits in the context of climate compatible development.

This of course creates a shared responsibility: on the one hand governments and their constituents need to recognize the opportunity space that climate compatible development solutions may offer. On the other hand, the international community (including, potentially, more affluent states in the MENA region) will need to support national constituents to identify such opportunities, and seize them, including by offering financial support.

### Box 5: Climate change in Qatar

With the highest GDP per capita in MENA, Qatar is the world biggest producer of liquefied natural gas. In 2011 oil and gas made up 58% of its economic output. Domestic consumption of fossil fuels is heavily subsidised at a rate of about 75%. Qatar also has the highest CO<sub>2</sub> emissions per capita in the world. At the same time, the country is quite vulnerable to the likely impacts of climate change: its agriculture sector is already affected by lack of water and fertile soil, which is likely to be exacerbated without further action.

There are encouraging signs, however, of efforts to diversify the economy and develop low carbon industries and opportunities. Private banks in Qatar are financing the construction of the first solar-grade polysilicon production plant in Ras Laffan Industrial City, at estimated costs of USD 1.1 billion. The plant will provide materials to manufacture solar panels, and foster an emerging solar industry in Qatar. The facility is a joint venture of the Qatar Foundation, with Qatar Electricity and Water (QEW) and Qatar Solar Technologies (QSTec). The first phase of construction should be complete by mid-2013.

Qatar's National Vision 2030 policy states that 'Wherever there is an environmental cost to be paid for economic progress, it must be compensated with investments in technologies that help improve the environment'. Sustainable development and balancing economic growth, social development and environmental protection is one of the four pillars of Qatar's National Vision.

As the host of the 18th Conference of the Parties to the UNFCCC, Qatar has an opportunity to take a leadership role in advancing commitment to environmental protection and climate change policies. On climate finance in particular, this leadership might be demonstrated by supporting the efforts of poorer countries, especially in its own region, to address climate change.

SOURCE: QATAR NATIONAL VISION (2012) [HTTP://WWW2.GSDPR.GOV.QA/WWW1\\_DOCS/QNV2030\\_ENGLISH\\_V2.PDF](http://www2.gsdpr.gov.qa/www1_docs/qnv2030_english_v2.pdf)

## Conclusions

The implications of climate change poses for the countries of MENA are complex; but there are encouraging signs that efforts to invest in solutions are increasing. The challenge is to accelerate and scale up these efforts, both by pursuing new low carbon routes to development, and by supporting the diverse countries of the region to adapt to the impacts of climate change in a socially inclusive and gender-equitable way (see box 4).

While there is substantial need for climate finance across the region, many of its richer economies are well placed to invest in solutions to climate change that build their resilience as well as position them as new leaders in a carbon constrained future. There is also scope for the most affluent countries of the region to support global efforts to invest in solutions to climate change, and in particular to enable their poorer and more vulnerable neighbours to respond to the challenges at hand.

Initiatives to diversify the energy mixes of previously oil dependent economies are a positive development, and warrant sustained investment and commitment from national governments. These efforts are unlikely to be sustainable if pricing and subsidy regimes for conventional energy are not reformed. Such reforms are of course sensitive and difficult, and may raise political risks as a result of social resistance to energy price increases, but there are some signs of progress. Reforms have been advanced through proactive stakeholder engagement and education, as well as through strategic redistribution of benefits and policy tools to protect poor and vulnerable stakeholders.

Social inclusion and sensitivity, including efforts to promote gender equality, are likely to be central to both the short term effectiveness and the long term sustainability of efforts to respond to climate change, particularly given the salience of these considerations to political agendas across the region. Though their effectiveness remains to be seen, some of the larger programmes receiving climate finance in the region include provisions to this end, such as community development funds, local content procurement provisions, and a focus on job creation. There are reasons to be hopeful that investment in low carbon development and adaptation options can support more inclusive economic development that yields real social benefits in the form of new jobs and better services. But this potential will need to be demonstrated in practical terms.

As the host of the 18th Conference of the Parties to the UNFCCC, Qatar has a unique opportunity to play a leadership role in global efforts to respond to climate change (see Box 5). It is uniquely placed set a good example by advancing its own efforts to adapt to climate change and embrace low carbon solutions to meeting future energy needs. It can also support the efforts of poorer countries particularly within its own region to respond to climate change.

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