A proposed approach for an investment and financing vision for transitioning towards a green economy in the Arab region

Background Note for the Arab Regional Implementation Meeting 23-30 May 2013, Dubai, UAE
1. Background

Despite efforts of many governments to implement sustainable development strategies, there are ongoing concerns over global economic and environmental developments in many countries. Such concerns have intensified by lengthy multiple global crises (UN, 2012). In response to such a situation, UNEP championed the idea of “green stimulus packages” in specific areas where large-scale investment could kick-start a “green economy” (AtKisson, 2012).

The term green economy, nevertheless, could be traced back to a pioneering 1989 report for the Government of the United Kingdom by a group of prominent environmental economists, entitled Blueprint for a Green Economy (Pearce, et al., 1989). In October 2008, UNEP launched its Green Economy Initiative to provide analysis and policy support for investment in green sectors and for greening resource- and/or pollution-intensive sectors. This led the General Assembly, in March 2010, to agree that green economy, in the context of sustainable development and poverty eradication, would be one of the two specific themes for Rio+20 (resolution 64/236).

Green economy (in its various forms) has been proposed as a means for catalyzing renewed national policy development and international cooperation and support for sustainable development. Recent publications as well as emerging practical experience can support in providing important insights and clarity regarding the types of green economy policy measures, their scope with regard to various sectors and national priorities. They would also assist in identifying and dealing with potential institutional barriers, risks and implementation costs as well as environmental, social and economic benefits of green economy.

Generally, a transition towards a green economy entails a move towards “low input, low-energy-consumption, low-pollution, high output” economic activities. In order for this move to materialize, economic structures need to be adjusted to increase resource efficiency along with ecological risks and scarcities. For example, through the adoption of cleaner production in manufacturing and heavy industry, developing new industries in energy conservation and environmental protection, and growth in service sectors such as information technology and financial services (CESC, 2011).

The transition to a green economy, from such a perspective, could generate benefits for Arab countries in a variety of ways including:

- The green economy demands greater social equity, which means that such transition could serve as a platform for poverty eradication in Arab countries.
- Arab countries on the one hand enjoy abundant energy resources (both non-renewable and renewable), have diverse environmental conditions that are facing serious problems, such as large coastal areas, while on the other they suffer from limitations in basic natural resources such as water resources and

\[1\] UNEP defines the green economy as “one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient and socially inclusive” (UNEP, 2011).
arable land (except for a few examples). Such abundance and scarcity can, if properly managed, generate dividends and create a competitive edge.

A central objective of the green economy is to stimulate investment in and across various economic sectors so that economies use natural capital and ecosystems more efficiently. This should particularly be the case when there is a risk of depletion or degradation of natural capital or ecosystems, for example through water scarcity in the Arab region. Another important component or criteria for success in the Arab region will be whether or not green investments can create jobs and employment and economic opportunity, which can accommodate current skills available or with modest investments in human capital.

Green investments include, for example, investments into innovation, research and development on improving resource efficiency and clean technologies, into deployment of existing resource efficient and clean technologies, into training and re-skilling for enhanced use of new technologies, as well as investments into greening infrastructure across sectors.

To stimulate green investment and subsequently foster the transition towards a green economy, countries can apply different policy mixes of economic, regulatory, voluntary and information-based instruments. These policy mixes should at the same time support generation of decent jobs and contribute to social equity. Appropriate economic instruments can alter relative prices to change production and consumption patterns. Legal and regulatory instruments include bans or limits, and norms or standards. Information-based instruments can raise awareness and change consumer and producer behaviour.

The choice of instruments (i.e. the appropriate policy mix) must be tailored to individual country needs, natural resource endowments, level of socioeconomic development, environmental conditions, dominant economic sectors, strengths of institutions, etc. Decision makers need to understand the tradeoffs and synergies across various policy options, and policy development needs to be based on robust knowledge and assessment of socioeconomic and environmental conditions and trends as well as a good understanding of the impacts of chosen instruments across the environmental, social and economic dimensions.

The green economy is a relatively new concept, and while some countries in the Arab region have begun significant green economy initiatives (including UAE, Jordan, Morocco, and Tunisia) there is no regional framework or overall vision for green economy at this stage. In a post-Rio+20 context, the region will need to consider how the green economy can best be used to assist governments in implementing sustainable development objectives and what regional mechanisms and initiatives can help build capacity of governments to develop national policies.

In this regard, at its meeting in December 2012, CAMRE agreed to a way forward for the transition towards a green economy in the Arab region and requested that ESCWA and UNEP prepare a report on green economy priorities for the Arab region which outlines an investment vision for the region. Preliminary work has now
commenced on this report which will be discussed during the session. A brief background note on the report has been prepared for the Arab RIM, which provides a brief overview of the background and proposed approach for the study. Ultimately, the development of a green economy roadmap for the region is a complex task that will require broad stakeholder involvement including governmental and non-governmental institutions and allocation of technical and financial resources to identify priority sectors and opportunities, identify barriers and constraints to investment, analyse policy options including their tradeoffs and potential synergies, and setting in place the enabling conditions and means of implementation.

2. Objectives

This paper provides a brief overview of the background and methodology for a report that will assist in the development of an investment and financing vision for transitioning towards a green economy in the Arab region. The subsequent study and final report will highlight potential priority policies for driving investment in a green economy and formulate proposals for activating mechanisms of green financing and technology transfer in the region.

3. Situation analysis

3.1 Socioeconomic situation

Arab countries have been experiencing rapid population growth over the past three decades from 166 million in 1980 to 350 million in 2011 (The World Bank, Undated). Furthermore, it is estimated that the population of Arab countries will reach 385.2 and 631.2 million by the years 2015 and 2050, respectively. This would increase pressure not only on the natural environment but also on the economy, especially in terms of infrastructure and services.

Meanwhile, the economic structure of many Arab countries shifted towards tertiary activities (de-industrialization) during the past three to four decades. For instance, during this period, many Mashreq and Maghreb countries with diversified economies (such as Syria, Egypt, Morocco, and Tunisia) have experienced a decline in manufacturing value-added and employment as a share in GDP. Meanwhile, a modest move towards a higher manufacturing share in GDP was noted in Gulf countries over the same period, which could be attributed to the expansion of petro-chemical industries. Correspondingly, services have grown steadily to dominate Arab economies since the mid-1970s (UNDP (RBAS), 2009) and (The World Bank, Undated).

As for the annual percentage growth rate of GDP, it was estimated at about 4.44% in 2010, which is slightly higher than the global level of 4.34%. However, the overall average annual growth rate in Arab countries has been declining and was lower than the global level over the period 1980-2010. Such a decreasing average annual percentage growth rate of GDP may be seen as both a constraint to, and a justification for, greening Arab economies.
In terms of natural resource depletion, Arab countries have experienced high rates of natural resource depletion reaching in 2009 about 19.38% of their Gross National Income (GNI). However, considerable variations exist among Arab countries. For example, the percentage of natural resource depletion as a percentage of GNI in 2010 was about 18.07%, 45.7%, 34.35%, 12.95% and 14.55% in Algeria, Iraq, Mauritania, Sudan and Yemen respectively. There has been a steady increase in this percentage over the period extending from the mid-1980s till 2009. For example, the average percentage of natural resource depletion in Arab countries increased from 15.36% to 19.38% of their GNI between 1985 and 2009.

Water as an essential resource for life and economic development is generally scarce in Arab countries, especially when considering increasing demand. The total renewable water resources in the region are estimated to be 262 900 million m$^3$/year; 226 million m$^3$ of which is surface water. Of this, over 66% comes from rivers originating beyond the political boundaries of the Arab region. As for groundwater, an estimated 36 300 million m$^3$ is renewable and 11 874 000 million m$^3$ is fossil groundwater. Average per capita share of internal renewable water resources is one of the lowest on the planet. Compared to other regions, most Arab countries suffered water scarcity already, and many Arab countries are among the most water-scarce nations in the world (UNEP, 2010).

Also, it was estimated that that 95% of the total electricity power in Arab countries on average is generated from fossil fuels. The generated electricity power is consumed mainly by three main sectors, namely: industrial activities, transport and residential sectors, for example:

- In GCC countries: the industrial sector consumes about 35.2% of the total generated power.
- In Mashreq and Maghreb countries: the transport sector consumes 28.5% and 29.2% of total generated power.
- In Arab LDCs: the residential sector has the highest consumption, where 27.7% of the total generated power is consumed by the residential sector (The World Bank, Undated).

Based on the food poverty line, the overall poverty rate in Arab countries was estimated to be as much as 18.1% during the period between 2000 and 2009. This figure was slightly lower compared to poverty levels prevailing in the 1990s, which was about 20.3% (Abu Ismail, et al., 2011) despite extensive efforts and investments in poverty alleviation. Still, this means that poverty levels in Arab countries in absolute terms were increasing over this period. Under such high levels of poverty prevailing in some Arab countries, a proper transition towards a green economy and associated investments in the natural capital on which the poor depend, can contribute considerably to reduce poverty (UNEP, 2011).

One of the aspects that reflect deprivation and low quality of life is low access rates to clean water and sanitation. Estimates reveal that about 83 million people in Arab countries currently do not have access to safe drinking water and around 96 million people lack basic sanitation. Meanwhile, the proportion of population with access to...
improved water sources changed slightly from 83% in 1980, 81% in 1990 to 82% in 2010 (The World Bank, Undated). This reveals limited progress in the universal provision of improved water and sanitation and consequently represents one of the main challenges that may slow down the speed of a transition towards a green economy in the Arab countries.

Generally, it was argued that most of these people live in low-income countries, or countries that are occupied or going through wars and civil conflicts (UNEP, 2010). In this context, investment in the provision of improved water and sanitation services to the poor is considered as one of the biggest opportunities to speed the transition towards a green economy in developing countries (UNEP, 2011).

Nearly 60 million people in Arab countries lack access to affordable energy services, limiting their opportunities for improved living standards. Energy security is becoming a serious concern for oil-importing countries because of high oil prices. A number of Arab economies are among the least energy efficient in the world, measured by their annual CO2 emissions per capita and per unit of GDP. With the demand for electricity escalating in these countries, the policy of building more power plants and providing energy subsidies will no longer be economically sustainable.

3.2 Environmental situation

One of the pillars of a successful transition towards a green economy is the protection and proper management of the environment and ensuring its sustainability. Environmental quality in Arab countries is generally adversely affected by economic activities and low levels of enforcement of regulations. As a result, there have been substantial economic costs, estimated to range between 2.5% to 4.8% of GDP, which in many cases exceeds the country’s annual economic growth rate (UNEP, 2010).

For instance, statistics indicate that land use in the Arab region is changing rapidly and continuously due to excessive and unsustainable human activities, leading to a decline in forests and grasslands and an increase in desertification. Population growth over the last twenty-five years has caused the ratio of arable land to inhabitant to be halved, from 8.2 ha per person in 1980 to 4.2 ha in 2007 (UNEP, 2010). It was argued that overgrazing and farming in grasslands has led to a dramatic fall in the number and density of plant species, increased soil erosion, and encroachment of sand dunes. Forest area per capita dropped by 35% during the same period, as a result of logging activities exceeding production capacities, a large number of devastating fires, overgrazing, poor resource management and urban encroachment (UNEP, 2010).

Concerning climate change, Arab countries are considered to be one of the most vulnerable areas in the world to climate change impacts. For example, temperature in Sudan is expected to increase by between 1.5 and 3.1 C by 2060, depending on the season, and rainfall is likely to decline by 6 mm/month in the rainy season. Such changes would have severe implications for agriculture, water resources and public health (UNEP, 2010).

In the case of the Kingdom of Bahrain, it was estimated that due to the low-lying nature of the coastal zones in the Bahrain Islands, a sea level rise of 0.5 m will lead to
a loss of more than 10 per cent (80 km$^2$) of the total area of Bahrain, threatening about two thirds of its total population (UNEP, 2010).

In the case of Egypt, climate change may result in a reduction in crop yield productivity, inundation of wide areas of the Nile Delta, seawater incursions into groundwater tables, and deterioration of some ecosystems (MSEA, 2010). As a result of these impacts, economic losses for Egypt have been estimated at US$ 35,000 million if no action is taken (UNEP, 2010).

2.3 Opportunities and challenges facing the transition towards a green economy

As outlined above, the transition towards a green economy in the Arab region may be constrained by a wide range of socioeconomic and environmental challenges. These challenges include, for example:

**Socioeconomic challenges**
1. Slow economic growth
2. Rapid population growth
3. High levels of poverty
4. Economic growth/development is intensively resource-based
5. Global economic slowdown (recession)
6. Susceptibility to external shocks
7. Social issues such as poverty and social inequality are leading to social marginalization
8. Unemployment especially taking into account the age structure of the Arab population (need for massive job opportunities creation)
9. Social and political instability
10. Water resources shortage and food insecurity

**Environmental challenges**
1. Climate change
2. Natural resources over-exploitation
3. Depletion of the natural-resource base
4. Environmental deterioration

In addition to the above-mentioned socioeconomic and environmental challenges, there are also institutional challenges, including the rigid and non-participatory institutional setup prevailing in most Arab countries.

It is worth mentioning that most of these challenges could turn into opportunities with a transition towards a green economy. For instance, improving natural resource use efficiency may contribute to the conservation of natural resources while ensuring sustainable development in these countries.

It is well recognized that the most urgent issues of concern for Arab countries are associated with energy, water and food security. Accordingly, it was decided to focus on these three areas not as individual areas, but using the nexus approach. This is
because the nexus approach recognizes interconnectedness of water, energy, and food across space and time. Its objectives are to:

- Improve energy, water, and food security
- Address externalities across sectors, and decision-making at the nexus
- Support the transition to sustainability (Hezi, 2013).

4. Methodology for assessing most viable policy options

Despite the existence of a diverse literature on different approaches for moving towards a green economy, identifying investments and priority actions have not received much attention except for quantitative analysis and projection\(^2\). Accordingly, due to the wide geographical coverage of this study and lack of essential data and information, the methodology will use multi-criteria analysis and available data and information to identify and prioritize potential green economy policies in various groups of Arab countries.

For the purpose of this study the classification adopted by the Arab MDG Report is used. It classifies Arab countries into one of four sub-regional classifications (UNDP (RBAS), 2009):

- GCC (Saudi Arabia, Bahrain, Kuwait, Qatar, Oman, and UAE);
- Mashreq (Egypt, Jordan, Iraq, Syria, Lebanon, and OPT [Palestinian State]);
- Maghreb (Morocco, Algeria, Tunisia, and Libya); and
- LDCs (Sudan, Yemen, Djibouti, Somalia, Comoros, and Mauritania).

The methodology for the study consists of the following steps:

1. Pre-screening policy options: This involved listing potential policy options in the three target sectors (energy, water, food security), then assessing the viability of each one of these policy options for each of the four groups of Arab countries, based on their current characteristics and socioeconomic situation. This would provide a preliminary inventory of potential green economy policy options.

2. Ranking potential policy options: These remaining potential options are then ranked according to their viability within the socioeconomic context of each group of Arab countries. The resulting ranking is then turned into relative weights ranging between 0 and 1, with 1 being the most viable.

3. Assessment of policy impact: Thereafter, an assessment of the impacts (effects) of each policy option on technological, environmental, economic and social and institutional aspects in each group of Arab countries is carried out. Each policy option is given a weight using a scoring scheme that reflects the full spectrum of impacts ranging between very positive and very negative. Moreover, each policy option is weighed at a sectorial level by the magnitude of each sector. For instance, the impacts of each policy option in the energy sector are weighed by the relative share of each economic sector

\(^2\) See for example, (Hezri & Ghazali, 2011) and (Pollin & Garrett-Peltier, Undated)
of total energy use. Thereafter, the scores of each policy option are summed up to provide an overall score; the higher the positive impacts of the policy option, the higher the score it has.

4. Visual output: Plotting weighted viability and impacts of policy options for each group of Arab countries provides a visual presentation of the policy options ranging between “not viable to very viable” and “very negative to very positive impacts” (Figure 1).

5. Case Study – Example of Study Outputs: Energy Sector

This section provides a brief case study on the energy sector as an example of the application of the study methodology and outputs. Note that this is provided as an
example case study only based on preliminary analysis to give an indication of the study outputs. It will be further developed as the methodology is refined.

3.1 Energy Example

Nearly 60 million people in Arab countries lack access to affordable energy services, limiting their opportunities for improved living standards. Energy security is becoming a serious concern for oil-importing countries because of high oil prices. A number of Arab economies are among the least energy efficient in the world, measured by their annual CO₂ emissions per capita and per unit of GDP. With the demand for electricity escalating in these countries, the policy of building more power plants and providing energy subsidies will no longer be economically sustainable.

In general, “greening” the energy sector requires a substitution of investments in carbon intensive energy sources to investments in clean energy, as well as improvements in energy efficiency. Many of these investments would be rewarded in the future, considering the growth in the market for renewable technologies and the growing concern over the social costs generated by technologies based on fossil fuels. Such a move would need governments to develop an incentives framework, including, for instance, fiscal incentives such as time-bound incentives, feed-in tariffs, direct subsidies and tax credits as well as technical support to producers, to support investments in renewable energy.

For the energy sector, the report proposes sustained investments in energy efficiency and in renewable energy sources through a mix of regulatory standards and economic incentives. A reduction in the average annual per capita consumption of electricity in Arab countries to the world average through energy efficiency measures would generate electricity consumption savings that are estimated in monetary terms to reach $73 billion annually. A 25% reduction in energy subsidies would free up over $100 billion over a three-year period, an amount that can be shifted to finance the conversion to green energy sources. Increasing energy efficiency is the quickest and least costly way of addressing energy security, environmental and economic challenges.

In order to initiate and support the transition in the energy sector towards a green economy, a number of policy options were proposed. In this respect, the International Energy Agency (IEA) in 2008 developed a set of 25 energy efficiency policy recommendations for seven priority areas: cross-sectorial, transport, buildings, industry, appliances and equipment, energy utilities and lighting (see Box 1 below) (IEA, 2011). Promoting renewable and clean energy sources was incorporated as an additional policy option to this list of energy efficiency policies for the analysis.

**Box 1: Energy Efficiency Policy Recommendations (IEA, 2011)**

1. **Cross-sectoral**: data collection and indicators; strategies and action plans; competitive energy markets with appropriate regulation; private investment in energy efficiency; monitoring, enforcement and evaluation.

2. **Buildings**: mandatory building codes and minimum energy performance standards (MEPS); net zero energy consumption in buildings; improved energy efficiency in existing buildings; building energy labels or certificates; energy performance of building components and systems.

3. **Appliances and Equipment**: mandatory MEPS and labels; test standards and measurement protocols; market transformation policies.
(4) **Lighting**: phase-out of inefficient lighting products; energy-efficient lighting systems.

(5) **Transport**: mandatory vehicle fuel-efficiency standards; measures to improve vehicle fuel efficiency; fuel-efficient non-engine components; eco-driving; transport system efficiency.

(6) **Industry**: energy management; high-efficiency industrial equipment and systems; energy efficiency services for SMEs; complementary policies to support industrial energy efficiency.

(7) **Energy utilities**: utility end-use energy efficiency schemes.

These policy options were assessed using the methodology outlined above, for each of the four Arab country groups. Preliminary example results and outputs from the analysis are provided in the following figures and summarized below. These are preliminary results only to give an indication of the study outputs.

- For GCC countries, five policy options were found to be most viable including (see Figure 2 below):
  - Promote renewable and clean energy sources;
  - Energy management;
  - Data collection and indicators;
  - Strategies and action plans; and
  - Complementary policies to support industrial energy efficiency.

- In the case of Mashreq countries, the most viable policy options are (see Figure 3 below):
  - Promote renewable and clean energy sources;
  - Energy management;
  - Data collection and indicators;
  - Mandatory vehicle fuel-efficiency standards;
  - Strategies and action plans;
  - Transport system efficiency; and
  - Energy efficiency services for SMEs.

- Similarly, in Maghreb countries, the most viable policy options are (see Figure 4 below):
  - Promote renewable and clean energy sources;
  - Data collection and indicators;
  - Mandatory vehicle fuel-efficiency standards;
  - Mandatory MEPS and labels;
  - Transport system efficiency;
  - Strategies and action plans; and
  - Market transformation policies.

- Meanwhile, in LDCs, the most viable policy option are (see Figure 5 below):
  - Promote renewable and clean energy sources;
  - Phase out of inefficient lighting products;
  - Strategies and action plans; and
  - Mandatory minimum energy performance standards and labels.
Based on this preliminary analysis, it can be seen that the study will be able to highlight examples where there are synergies in priority policy options across the various Arab sub-regions. In such cases (for example for the promotion of renewable and clean energy sources), there would be scope for economic integration and cooperation amongst the groups of Arab countries to build potential for the transition towards a green economy. Also, it is worth noting, that policy options for LDCs may be limited compared with other groups which would be attributed to their limited financial resources and constrained situation in terms of economic, technological and institutional settings.

Figure (2): Example output of policy options viability assessment for GCC countries

- Unviable policy options
- Most viable policy options

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1.1 Data collection and indicators
1.2 Strategies and action plans
1.3 Competitive energy markets, with appropriate regulation
2.1 Mandatory building codes and MEPS
2.2 Improved energy efficiency in existing buildings
2.3 Building energy labels or certificates
3.1 Mandatory MEPS and labels
3.2 Test standards and measurement protocols
3.3 Market transformation policies
4.1 Phase out of inefficient lighting products
4.2 Energy efficient lighting systems
5.1 Mandatory vehicle fuel-efficiency standards
5.2 Measures to improve vehicle fuel efficiency
6.1 Energy management
6.2 Energy efficiency services for SMEs
6.3 Complementary policies to support industrial energy efficiency
7.1 Promote renewable and clean energy sources
Unviable policy options
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5.3 Transport system efficiency
6.1 Energy management
6.2 Energy efficiency services for SMEs
6.3 Complementary policies to support industrial energy efficiency
7.1 Promote renewable and clean energy sources

Figure (3): Example output of policy options viability assessment for Mashreq countries
Unviable policy options
Most viable policy options

1.1 Data collection and indicators
1.2 Strategies and action plans
1.3 Competitive energy markets, with appropriate regulation
2.1 Mandatory building codes and MEPS
2.2 Improved energy efficiency in existing buildings
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5.1 Mandatory vehicle fuel-efficiency standards
5.2 Measures to improve vehicle fuel efficiency
5.3 Transport system efficiency
6.1 Energy management
6.2 Energy efficiency services for SMEs
6.3 Complementary policies to support industrial energy efficiency
7.1 Promote renewable and clean energy sources

Figure (4): Example output of policy options viability assessment for Maghreb countries
1.1 Data collection and indicators
1.2 Strategies and action plans
1.3 Competitive energy markets, with appropriate regulation
3.1 Mandatory MEPS and labels
3.3 Market transformation policies
4.1 Phase out of inefficient lighting products
4.2 Energy efficient lighting systems
5.2 Measures to improve vehicle fuel efficiency
6.1 Energy management
6.2 Energy efficiency services for SMEs
6.3 Complementary policies to support industrial energy efficiency
7.1 Promote renewable and clean energy sources

Figure (5): Example output of policy options viability assessment for LDCs countries
References


